2016 Undergraduate Programs

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【Liberal Education】

Korean Language and Composition

The course has three main objectives in view. First, help one to acquaint with a proper reading method with an aim to have clear understanding while studying materials of different interests. Second, to help cultivate an ability of writing compositions in a logical manner that is enormously important in college studies. And the last but not the least is to help develop the skill to express one's views effectively in time of a mass presentation.

Elementary Chinese Ⅰ

This course is for beginners in the Chinese language. The goal of the course is two-fold, to give the students a solid foundation of Chinese linguistics, as well as enable them to utilize it as a functional language. Listening, reading, writing, and speaking will all be emphasized.

Elementary Chinese Ⅱ

A continuation of the course "Modern Chinese I"

German Ⅰ

Learning pronunciation rules, basic grammar, and simple expressions as a basic course in German.

German Ⅱ

Improving the skills for translation of basic German sentences by learning core vocabulary and expressions in German, and by acquiring basic grammar as an extended course of German I.

French Ⅰ

This course provides basic grammar and practical expression of French for beginners.

French Ⅱ

This is an advanced level course in French I, with a focus on the intermediate grammar and everyday French usage.

Russian Language Ⅰ

This General Education course focuses on understanding and appreciation of linguistic and cultural diversities manifested in the Russian language and discourse, on the basis of acquisition of elementary Russian vocabulary and grammar.

Russian Language Ⅱ

This course continues Russian I.

Action English

This course aims at enhancing students′ communicative competence in English,

especially focusing on speaking and listening. Throughout topics, situations, and functional aspect of English, students are assigned to participate in a variety of communicative activities (ie., (single, pair, group, class mingled) discussions, (single, pair, group) presentations, singing, skits, small speech, etc. From the classroom activities/tasks, students will gain basic/intermediate level of knowledge in English expressions with accurate pronunciation and intonation along with cultural gestures.

English Reading & Discussion

This course centers on reading and discussions in English. Students will be assigned to read topics and content-based articles (contents based upon liberal arts for students in the field, engineering for the students, social science, natural science, and education). Then, they will participate in various communicative activities (ie., (single, pair, group) discussions and presentations, short speech, etc.) to critically/holistically discuss what they have read. This, at the end, will enhance students' communicative competence in English, especially reading and discussing.

Korean as a foreign language Ⅰ

This course is a must-basic Korean vocabulary, expression, grammar courses to learn but you need to know there is a problem of communication in everyday life as for international students who have difficulty in understanding the college lecture. Already organized systematically learned the Korean grammar, speaking, listening, reading and writing courses to help foreign stude6nts trying to dodge a default on.

Korean as a foreign language Ⅱ

This course is a Korean listening, reading, speaking and writing courses to strengthen the capacity to understand the lectures are given in Korean as for foreign students to express their thoughts. Humanities, Social course is to avoid difficulty taking classes in Korean made through practice, such as to understand and present a variety of information, creating reports, etc. to summarize for economic and political.

Science Writing

To learn the basics of writing in a variety of formats that are required by the scientific and technological fields. Students should experiment report and thesis writing skills in science and technology, as well as learning the communication skills necessary for writing scientific articles and the creation of as cientific explanation. In addition to learning the basic knowledge of the cooperation activities carried out by the group of cooperative projects. For this, to learn communication skills through the presentation and discussion of individual and

group assignments.

Presentation and Discussion

This course is aimed at university students cultivate the ability to express an educated folks to be equipped by practicing various techniques of presentation and discussion. Also raise the ability to communicate with others through the study team. Primary physician can perform an active and leading role after entering the community through such learning and a way to have communication skills.

Storytelling and Communication: Understanding and Interpretation of Text

Understand and interpret the story around the concept of communication, and even announce create their own stories.

Reading and Discussion

This course is primarily a thinking through reading books, aimed at speaking with subsequent writing. This interaction of book reading and writing and speaking is so in depth thinking and writing systematically speak logically. In particular, a series of processes of thinking and logic are connected through a reading culture and cultivate the spirit form and humanities. This course students will themselves help to speak at eye level by selecting the appropriate books to read effectively, will allow specifically for reading and thinking naturally be discussed. Students can discuss in detail about ways and methods of reading and writing and reading discussion. Ultimately, after reading through a critical review and analysis of reading the book, students can equip critical thinking skills and comprehensive judgment. In addition, by implementing the communication skills as well as team activities, the attitude of mutual respect and consideration, also can foster a sense of community.

Media and Expression

The curriculum is a lecture course to figure out a property carried by visual media other than literally printed letters centered traditional media. Moreover, Its inclusion in this course makes students develop their critical viewpoint of messages to communicate by visual media, thereby intending to associate this with the creative expression.

The students attending this course enable themselves to cultivate their critical thinking and problem solving ability through active participation in academy and extracurriculum such as correct reading between visual media and its creative writing.

Computer Practical Advantage

Knowledge-based word processor that is commonly used in the practice of the various sectors of society, spreadsheets, word processing tools such as

PowerPoint and Presidential, numerical data processing tools, reports in college By learning the basic how they can be presentation creation tool writing, etc., as well as after graduation announcement should take advantage of it to have the competitive edge of the business side.

College Mathematics

Topics includes differential and integral calculus, matrix and its applications, vector space and linear maps, planes and geometry in 3-dimensional Euclidean space.

Calculus I

As a basic course in mathematics to study natural sciences and engineering sciences, topics includes advanced differential and integral calculus in one-variable and multi-variable functions, and its applications to major subjects and daily life.

Calculus II

As a basic course in mathematics to study natural sciences and engineering sciences, matrix and its applications, vector space and linear map, planes and geometry in 3-dimensional Euclidean space.

Precalculus

This is a prerequisite course for College Mathematics, Calculus I and Calculus II. This course provides the mathematical background needed for calculus. It covers topics include polynomial and rational functions, complex numbers, analytic geometry, systems of equations, statistics and probability, limits and continuity, extensive coverage of trigonometry, polynomial differentiation and polynomial integration.

Elementary Statistics and Practice

This course will help students enhance their understanding of statistical concepts and improve their ability of actual problem solving in statistics by using the statistical data analysis package. Students will practice sampling, generating random numbers and translating the central limit theorem into graphics. By doing regression analysis, categorical data analysis and analysis of variance, students will develop their problem solving skills in statistics.

General Physics and Lab. I

Students who are to major in natural sciences and applied sciences are introduced to the basic constituents and governing principles of various natural phenomena, thus are prepared for future studies. In the 1st semester, students will learn international unit systems, significant figures for measurement, vectors associated with various physical quantities, forces on objects, linear and circular motions, heat, energy, thermodynamics, periodic motions, and waves.

General Physics and Lab. II

Students who are to major in natural sciences and applied sciences are introduced to the basic constituents and governing principles of various natural phenomena, thus are prepared for future studies. In the 2nd semester, students will learn principles of electric and magnetic phenomena, electrical circuit, properties of light, quantum mechanics, nuclear physics, and high energy physics.

Chemistry and Lab.

Introductory course of chemistry. Lectures dealing with various topics of energy, chemical reactions, acid-base equilibria, kinetic theory of gases, nuclear chemistry, food chemistry, and biochemistry that help students to understand the basic principles of chemistry. These lectures proceed along with experiments to develop the basic laboratory skills on chemical analysis and synthesis.

General Chemistry and Lab

Several phenomena in chemistry-the river entering the example by(energy, reaction, acid-base, gas, water, nuclear, solar, food, life, etc.)helps the understanding of 'What chemical is the academic world dealing with any discipline' and also a simple experiment to wake upto hit at the same time learning the basic chemical principles through hands-on experiential Instruction, aims to foster a knowledge base for identifying the chemical in a more intimate areas.

General Chemistry and Lab. I

One year course of the introduction to modern chemistry. This course consists of the lectures dealing with the principles and basic concepts of chemistry and the experiments for developing the laboratory skills and precision that are fundamental to experimental chemistry. The topics of the first term include chemical reactions, thermochemistry, quantum theory of the atom, periodicity of the elements, ionic and covalent bonding, and the states of matter.

General Chemistry and Lab. II

One year course of the introduction to modern chemistry. This course consists of the lectures dealing with the principles and basic concepts of chemistry and the experiments for developing the laboratory skills and precision that are fundamental to experimental chemistry. In the second term, the topics include rates of chemical reaction, chemical equilibrium, acid-base equilibria, electrochemistry, nuclear chemistry, transition elements and coordination compounds, and organic chemistry.

Biology and Lab.

This course helps students to understand the general knowledge of modern biology through lecture and experiments.

General Biology and Lab. Ⅰ

This course helps students to understand the general knowledge of modern biology through lecture and experiments.

General Biology and Lab. Ⅱ

This course helps students to understand the general knowledge of modern biology through lecture and experiments.

General Earth Science and Lab Ⅰ

The course provides undergraduate students with a contemporary view of the Earth system and their interconnectedness, the role of unifying processes that link often quite different phenomena, and incorporating the most up-to-date concept and findings.

General Earth Science and Lab Ⅱ

The course provides undergraduate students with a contemporary view of the Earth system and their interconnectedness, the role of unifying processes that link often quite different phenomena, and incorporating the most up-to-date concept and findings.

Fundamental Computer Programming

To provide the opportunity to understand graphical user interface programs, the course covers Visual Basic-based window programming techniques including Windows Programming paradigm, event-driven programming, the usage of various graphical user interface controls. The course is run with lectures and computer labs in parallel.

Applied Computer Programming

In order to help students understand how the programs work and are developed, the course teaches the basic components and mechanism of computer programs with C programming language. It also deals with the fundamental problem analysis and program design techniques along with basic data processing algorithms. It is run with lectures and computer labs in parallel.

Inquiry into Physics & Lab.

The general background of physics and its history are reviewed, and application of physics in the modern society are introduced so that the students become able to apply the theory to their own fields of major and grow wisdom for modern life.

Bio-Resources and Human Life

Human life depends on sustainable production and utilization of bio-resource. The development of agriculture based on bio-resource in the last 10,000 years contributed greatly to today's abundant human life. However, current global ecosystem is threatened by excessive consumption of resource and over

production of pollutants as well as ever increasing population. Prospect and retrospect in relation to bio-resources are, therefore, important to understand our responsibility and to fin out possible ways to solve current problems for the next generations.

Bio-industry and Natural Environment

Introducing the relationships between the biological industry and natural environment for the students who want to major to major in natural science and applied science.

Bio Industry in Wellbeing Age

This lecture describes the methods to have a healthy body and spirit to accomplish the real meaning of living eco-friendly in well-being era. General introduction to bio-industry using various animals, micro-organisms, and especially plants for human being is described.

Understanding the General Physics I

Students who are to major in natural sciences and applied sciences are introduced to the basic constituents and governing principles of various natural phenomena, thus are prepared for future studies. In the 1st semester, students will learn international unit systems, significant figures for measurement, vectors associated with various physical quantities, forces on objects, linear and circular motions, heat, energy, thermodynamics, and periodic motions.

Understanding the General Physics II

Students who are to major in natural sciences and applied sciences are introduced to the basic constituents and governing principles of various natural phenomena, thus are prepared for future studies. In the 2nd semester, students will learn mechanical description of waves, principles of electric and magnetic phenomena, electrical circuit, properties and propagation of light, relativistic mechanics, and basic modern physics.

Understanding of General Chemistry I

One year course of the introduction to general chemistry. This course comprises the lectures on the basic principles and concepts of chemistry that are required to study specialized courses in chemistry and the experiments for developing the basic laboratory skills on chemical analysis and synthesis. The topics of the first term include fundamentals of chemistry, chemical reactions, thermochemistry, electronic structure of atoms, periodicity of the elements, ionic and covalent bonding, and the states of matter.

Understanding of General Chemistry II

One year course of the introduction to general chemistry. This course comprises the lectures on the basic principles and concepts of chemistry that are required to

study specialized courses in chemistry and the experiments for developing the basic laboratory skills on chemical analysis and synthesis. In the second term, the topics include chemical kinetics, chemical equilibrium, thermodynamics, acid-base equilibria, electrochemistry, nuclear chemistry, transition elements and coordination compounds, organic chemistry, and biochemistry.

Applied Statistics and Practice

Study the statistical estimation and test theory based on the basic concepts of probability and statistics taught in the first semester, and learn about a wide range of applications. The main contents are to be dealt with analysis of variance, regression, categorical data analysis, including sample irradiation. In addition, to enhance the data processing and analysis capabilities using a computer by using the Minitab statistical package.

Understanding of General Biology and Lab. Ⅰ

This course helps students to understand the general knowledge of modern biology through lecture and experiments.

Understanding of General Biology and Lab. Ⅱ

This course helps students to understand the general knowledge of modern biology through lecture and experiments.

Appreciation of Literature

Examine the theories of literary understanding of the phenomenon and the essence of literature and literary theory by applying them to our modern literature and deepen understanding of the literature by expanding the analysis.

Introduction to Chinese Cultures

A total comprehension of Chinese culture through studies of Chinese history, literature, music, art, and religion.

Germany and the Germans

Understanding Germany, the most important of the countries in European Union, and its people, including its geographical aspects, language, social systems, ethnic characteristics, and culture.

Chinese Character and Sino-Korean

We teaches through this subject the elementary chinese character - the principle of character's production · meaning of character · sequence of writing. Also we teaches the classical piece of writings through the Korean and Chinese

Korean Orthography

This course is targeted to help foster language literary norms ability to apply correctly the principles and learn the principles, the principles and the principles of(Hangul spelling, standard language rules,f oreign words notation, Hangul Romanization, etc.) to the actual language lives. Especially for specific misuse of

language to culture literary norms and the actual ability to solve their problems themselves. This will be equipped with the basick nowledge to properly understand and use our language and writing.

Introduction to Chinese Classics

Which is closely related to us through classical Chinese ① an opportunity to regain realized that oriental culture an d② should have the knowledge as a college student

Introduction to Russian Literature and Art

This course aims to help you learn a variety of mental and physical work across multiple fields of the Russian history, literature, music, art and religion to acquire a holistic understanding of Russia.

Journey into French Culture and Art

By looking at the French culture, art and history, the lessons that can systematically underst and contemporary French society.

Appreciation of Korean Modern Novel

This course elevates the modern novel, listening skills through reading novels Korea, puts further aim to cultivate humanistic knowledge. In particular, their ability to grasp the aesthetic characteristics of the novel, and by promoting the philosophy of history,··and cultural understanding of the implications contained in the novel at the same time it promotes a literary sensibility to be an opportunity to reflect on the current state of our lives.

Walking in German Art & Culture

“Walking in German Art & Culture” deals with poems, paintings, musics, films, philosophical texts, architectures and sculptures that show great accomplishments in german art and culture since 1500. For example, Duerer‘s “Portraits” in 16C, Barock Architecture and Bach’s “Goldberg Variationen“ in 17C and Kant‘s text "Was ist Aufklaerung?” in 18C are the main topics that we appreciate and discuss. Through this lessons we will be able to speculate how the aesthetic experience is formed, and how this experience influences to mental transformation of our lives and ourselves.

Invitation to language

This general education course investigates various aspects of language, which is a primary instrument for the communication. Its main purpose is to understand and appreciate the inner structure and system of the language and the principle governing the formation of oral speech and written text.

Hanzi and Oriental culture

Oriental culture is Chinese culture. Do not know the Chinesec an not underst and the oriental culture properly. This lecture will introduce the occurrence and

development of Chinese and Asian culture and relationships with the level of education. It denominated easy to understand Chinese characters, and aims to help deepen understanding of the oriental culture.

Love and Culture

This course is to understand the various works of art and historical discourse about the East and the West, from the love of Greek mythology and classical literature ranging from Rococoart, romantic novels, movies of today's Eastern and Western learning goals. Based on that understanding, the history, literature, arts, and humanities such as sociology methodology, as well as natural scientific methodology, such as analysis also try psychology, physiology. Students creatively while uptake(established self-initiative), a variety of cultural content on love through presentations and discussions, and cultivate the right values and the ethics of love.

Understanding of Korean Pop-Culture

<Korea pop culture>is a class that you want to understand the pop culture of Korea in accordance with Korean Wave Korea through movies and dramas, K-Pop, etc. Through this course the learner will be, albe it some what aware of the political, economic, social, cultural and family background that South Korea South Korea movies and dramas, compared with the home country of the learners and the subject to be more understanding of Korea.

Korean Modern Poetry and Consciousness Growth

This course is by allowing students have been active subjects freely enjoy the Korea works great in the modern current affairs, including enough work now notable in the field poets who work in our poetry learned the state of jinseonmi that poetry as art and 'mind Humanities Building is called' leave it to achieve its objectives life challenge. The road to explore and cultivate the mind of the aesthetic cultivated over the city beyond the reality tools will be a great resource to live a true life.

Invitation to Korean History

This subject consolidates the foundation of study about Korean History by various resources as readings, pictures, videos, etc. Thereby it makes to understand Korean history and culture.

Invitation to Modern and Contemporary History of Korea

This subject consolidates the foundation of study about Korean modern History by lecture and other resources. So, students can understand history of today's Korean Society.

Cultural History of East Asia

This subject helps to understand the historical and cultural developments of

Eastern World, especially China and Japan. It makes students to grasp the points of Eastern culture.

Cultural History of Europe

This subject cultivates the students' abilities to understand the process of the Western culture by historical process. Besides, it makes students to understand today's World cultural features.

Korean Prehistoric Cultures

We samneunda primarily to correctly understand the prehistoric cultures achieved the roots of the culture. Report by dividing the prehistoric Paleolithic, Mesolithic, Neolithic, Bronze Age Phase 4 a tthe characteristics of the culture, find out the time of your life based on them.

Philosophy in Everyday Life

If you ask,'What is philosophy? ", But each one will be able to talk blah blah own way, everyone becomes afraid to talk film. Thus philosophy seems shameful ambiguous. But such is not the original philosophy. Rather, philosophy is not only very closely with our daily lives, and questions in evitably going to be a philosophical life is unavoidable human life is released them. The goal is to understand that in the course of human life announcing why not but be philosophical life, unlike animals, is also one of the life and philosophy.

An Invitation to the Cultural Heritage of the world

It looks at a wide range of world cultural heritage of the countries in Eastern and Western Civilization and world history perspective.

Chinese History Watching through the Media

This course is through the media, and strengthening the foundation by learning the historical and cultural forms in China, the party with him to give to the students a basic understanding of Chinese society.

The Conversions of History and Digital Culture Contents

History is basis of culture contents invention. Culture contents invention is helpful to range expansion of history and high culture contents in quality through history. For that, combining humanistic knowledge and technological skill, and exercising it, and have comprehension about complementary relationship

Cultural Properties and Cultural Remains

What is the type and intangible cultural assets left behind by the results of human behavior, cultural heritage refers to that from a glimpse into the life of humanity. In this lesson, you divide the material culture of our ancestors have left the realm of architecture, sculpture, crafts, painting, etc. will look at the cultural background and forming technologies, techniques ,forms, and more. Through the lessons, students will have the opportunity to understand the flow

of the Cultural Heritage of Korea and inspire a sense of pride.

Korea History Watching through Images

This course is intended to strengthen the foundations of learning about the history and culture of Korea through the images and cause interest. Also, through which it seeks a better understanding of the entire Korean history.

Exploration of World Art Heritage

Represent any age or country, region, ranging from ancient to contemporary art and understand the important cultural property of East and West had much flavor systems, and these cultural properties are born from any background and examines whether development. Through the course of this course is to equip the humanities knowledge base to meet the globalization era based on culture.

Understanding on Mass Culture and Art

Today we analyze and understand the meaning of various terms contained than it consumes in daily contact with popular culture and the arts just as uncritically. So, not only to follow the flow of the mass culture, Art On the one hand, and on the other hand by this criticism is to be established to fully enjoy this subject.

Logic and Critical Thoughts

Introduce key concepts and principles of traditional logic, by applying to evaluate the demonstration of these principles, and perform sound reasoning and allow you to determine the error, the academic text through the analytical understanding of the kinds of concepts and propositions overall at the same time to cultivate the knowledge and ability to assess in-depth analysis.

History and Storytelling

Digitally focused industrial era of the Internet is essential for the fun storytelling based on a long history and culture in order to create a creative cultural content in a high quality cultural content, cultural industries, the core(Killer Contents) is. This leverages historical and cultural heritage historical and cultural content storytelling creates the look and planning scenarios that can efficiently deliver to the public the historical message.

Movie and History

This course is designed to help students figure out the similarities and differences between historical movies and actual history, researching the relevances of movie and history.

Animal in Human Culture

This course will be a process of "entering into the relationship between humans and animals(Human-Animal Interaction) 'it aims to try to consider the historical and philosophical. It said first man bear a relationship with the animals for them, or taking advantage of the animals look at the process of the evolution of

civilization in history, second to the modern aspects of "entering into the relationship between humans and animals", for example, mass breeding of animals examine whether the system of consumption, such as pet culture when and how to start.

Philosophy of Happiness

Human beings all pursue happiness. However, most humans are not to pursue happiness on the basis of reflection on what is customary intuitively happy. The goal of this course is to provide a philosophical reflection on what to do and wha thappiness To become happy. Among reviewing their views on happiness of Eastern and Western philosophers for this purpose, with the idea of a happy reason, desire, pleasure, power, nature, passion, freedom, virtue, faith, will, at least, such fundamental categories of philosophy systematic clarification in relation to, and getting to explore the practices accordingly.

Science and Philosophy

It allows explores the scientific knowledge that is accepted as an accredited nature of the modern civilized world opened for him to understand the logic of science through the compartments based on scientific methodology and scientific explanation. Through this and to clarify the advantages and limitations of science to acquire the ability to scientifically criticize and evaluate activities.

History of Science and Medicine

Lecture the overview of development of science from ancient to modern age and also progresses of medicine. Therefore, they can understand how the development of scientific skills and medical development have associated with each other's development.

The Classic Readings of Philosophy

Classic is like a mirror that will reflect on our present critically, at the same time it is also a source of inspiration for a new cause. It is just that people today as well as emphasizing the importance of reading classics in a very long time for this reason. By using the students read and discuss the classic representative of the East and the West to equip the knowledge of the classical humanities students will have the chance to get an evenly classics of Western and Eastern.

Philosophy of Love and Sex

In modern society, the roles and functions of sense is emphasized more than ever. Soon he came by for independence from the physical senses and the reason is suppressed in becoming the exclusive area to explore. Philosophy, there is a need to reflect on the feelings and physical features of a frank and open attitude also fit the flow of modern society than it hooked up to a central reason for the

opposite sexin the past.

If you pay attention to the physical sensations and the biggest topic can also be called love. Discussion centered on the love of the opposite sex in society, which were of ten revolves around the love of the truth, rather than as Agape Eros centered on physical needs. In this class, and want to explore the value and meaning of body and mind as Eros love brother can did expression of agape love rather than focusing the mind.

Archaeological Search for the Ancient Cultural Relics

This course is understanding of the civilization exchange and interrelationships between Northeast China, which established a close relationship with us since prehistoric times, the basic understanding of the various ancient cultures of the Japanese archipelago, Russia, Primorsky and around the Korean Peninsula, including Siberia, Mongolia and the Korean Peninsula and East Asia that is for the purpose of. We therefore by helping not just a description of the ancient history and culture, to the correct understanding of the cultural exchange and mutual relations of the ancient East Asia, including the Korean Peninsula on the basis of archaeological data, about our identity, history and culture and an opportunity to try worries.

Psychology of Everyday life

We review psychological researches on human behavior and mind, and we discuss how to use these principles on our everyday life.

Introduction to Public Administration

This study makes students introduced to Public Administration which takes the general theory of Public Administration, public policy, organization theory, personal administration, local government, welfare administration and financial administration. The students understand in this decipher for study of specifics in advance.

Mass Communication and Modern Society

In a contemporary society, mass media affects one's individuality formation, molds the viewpoint of world and has a great influence on the qualitative decision of democratic society through fostering the public opinion. The influence of media not only simply delivers the truth, but also gives the public a picture of the world and explains about it. Furthermore, it often leads to a concrete action. In the above circumstances, if we don't understand mass media properly, we might be naturally dismissed from the democratic government and be controlled by mass media which offers prejudiced information indiscriminately. Particularly, the 21st century faces the new phase of communication. Therefore, this class aims to offer a systematic frame to understand how a modern society correlates

with mass media in the various fields.

Social Life and Law

In this lecture, we aim to train the students' ability to understand legal appearances through a critical viewpoint on the social function of laws and the legal system.

World Geography

Geography is are search field that the 'natural environment and the life of local residents. This course explores the effects in East and Southeast Asia, the Middle East, the residents living in the natural environment in Europe. The raised an eye to me and hope to be the cornerstone of thinking, looking at the world. Realistic view oft he slide all over the world and plans to operate so that the sympathetic young class.

Child Development and Parent Education

The purpose of this course is to explore various theoretical approaches to understand cognitive, emotional, and social development of children. Also, this course provides students with chance to learn about parental role and parenting styles.

Modern Society and Fashion

This course designed to introduce basic knowledge of relationship between fashion and social environments, in order to guide effective way of fashion coordination and clothing behavior for a social success in modern society.

Industrial Management & Economics

This course deals with the meanings and the background of the basic theories for corporation management as well as helps understand corporation-related issues generally and broadly.

Through studying how to choose, train, and motivate suitable human resource to foreign environment, this course has a goal to improve human resource management capability in global business.

It primarily deals with concepts and models on the design and control of optimal manufacturing system that offers strategic products and services with using manufacturing resources efficiently.

Engineering Laws and Business Establishment

The aim is to provide the knowledges in relation to engineering law for the business establishment of engineers. This leads the good promotion and technical management.

Housing and Society

To learn the socio-cultural aspect of housing, with understanding on the strength of traditional housing and on the variety of housing and residential environment.

With the critical viewpoint of present dwellings, students will be able to find the coming trend of housing culture.

Introduction to Psychology

This lecture purpose on fostering a scientific understanding about human mind and behavior by reviewing current psychological researches.

Local Autonomy and Welfare Society

It is increasing to the importance of local autonomy and welfare society. So, This course study on the foundation theory of local autonomy, work of local government, local self-government and citizen participation. And we study on the child, woman, old people, disabled's welfare theory.

Contemporary Political Science and International Relation

General introduction to assesses the rapid changes in international politics during the era of the post-cold war. And critical appraisal of various theories and approaches for the study of international relations.

Introduction to Law

This course is for non law students. It dealing with the basic principles of law and legal science. And it provides an elementary overview of the modern legal principles and historical backgrounds.

Introduction to Management

Business administration is the scientific study of firms which play a important role in modern society. It studies the theories and practical program in order that firms achieve their goals effectively and grow up continually. The purpose of this lecture is to understand the management process which convert management resources to management performance through management function under management environment and to develop the participants' capabilities of applying the knowledge to firms' practices.

Human Labor and Law

This course will focus on laws regarding labor as well as management relationships between labor unions and management groups.

Psychology of Adolescence

This course investigates physical, cognitive, and personality development during adolescence, with the emphasis on theories, empirical data, research methods, and current issues.

Marriage and Family

This course provide students with a basic understanding of marriage and family life, but also give students how they can apply the knowledge they gain to enrich and improve the quality of individual, marriage, and family life.

Consumer Credit & Personal Finance

In the context of credit society, this subject deals with personal credit management and credit cards. Also, students will learn how they prepare shelter, education cost of childrens' education, retirement plan, and how they manage their risks according to family life cycle through money management such as rational spending, savings, and investment.

Social Welfare through Films

This course focuses on 'discrimination' based on differences expressed in films which brings up human right and welfare issues. Discrimination based on gender, age, disability, illness, sexual orientation such as LGBT, and race/ethnicity, are examples of themes to be dealt. Selected commercial and independent films are the medium to elicit the discussion among students. Social welfare policy and service issues to promote tolerance toward differences and to prevent unjust discrimination will be discussed.

Women and Law

Review the basic ideas for addressing women's issues and also discuss the current legislation to help improve the future direction for women's issues

Understandings of Smart Accounting

Connect, learn the basics of accounting browse the contents that may arise in their daily lives so that students can feel the interest and understanding of the economic and social culture and the basic skills for the effective use of resources. In addition, the ability to do accounting is how to utilize the enterprise to be sure to understand the necessary financial information from the company, and how to analyze and understand the basic accounting methodology and accounting information according to the latest accounting standards in order to understand it.

Understanding Human Right and Welfare Issues Through Films

This course focuses on 'discrimination' based on differences expressed in films which brings up human right and welfare issues. Discrimination based on gender, age, disability, illness, sexual orientation such as LGBT, and race/ethnicity, are examples of themes to be dealt. Selected commercial and independent films are the medium to elicit the discussion among students. Social welfare policy and service issues to promote tolerance toward differences and to prevent unjust discrimination will be discussed.

Economics in Everyday life

This course aims to cultivate the students' ability to understand the process of Economic behavior. This course provides a systematic frame to understand how Economic correlate with everyday life. We review economical researches on human behavior, by taking examples from economic news, affair and issue in mass media. And we discuss how to use these principles on our everyday life.

Korean's Life and Happiness

Everybody want to live happily. But happiness doesn't come to a person who is considered to have a typical condition of happiness or who understands the theories on happiness of well-known scholars. When we want to have a happy life as a Korean, we need to know about Koreans and Korean society as a whole. To live a happy life, we are supposed to harmonize both individual disciplines in personal dimension and various endeavors in social dimension. In this course students will have an opportunity to reflect their everyday life and set up a conception of their own happiness as a Korean.

Introduction to Sexuality

Depending on the change of social gender stereotypes, sex culture, sex and institutions are changing rapidly and there are a number of issues in relation to soybeans. By looking at the cultural, social, biological perspective, the Province issues in order to respond to these independent social flow to the gender role of the sex life of the individual and society, so as to have a correct perception.

The Speech Etiquette in Modern Life

This course is targeted to foster the ability to properly utilize the right to learn the language, manners, language, living it. To learn the correct usage of Honorifics, title and referred to the law, greetings ,etc. euphemism properly practice it will be the polite language to life. In addition to learning the techniques and tricks needed to interview or speaking a variety of tasks to perform and grow a real adaptability and communication skills of speaking.

Reading the『Lunyu(論語)』 in a breeze

"論語" is the most import ant classics of the East, the guidelines of life to bring the impressive induce deep thought. As intellectuals and the books must be read as a college student. This lecture touching the "Lunyu(論語"such an important and beneficial in most rudimentary level and aims to guide the feast of classical step by step.

Economics and Life

This course is for practicing as a liberal economic education for students who wish to fully understand the day-to-day economic activities. Economic issues that are experienced on a daily basis, as well as introduce the newspapers, TV, analysis of the economics for economic news and stories that appeared examples in magazines ways, the economic behavior of households and firms, operating principles of the market, such as the national economy and the international economy and by fostering basic knowledge about economics.

Women in Society

The biggest social changes that took place in the mid-to-late 20th century

industrialized society is expansion of women. These changes are bringing to changes in the labor market, industry structure and class relations of the private sector, including the public sector, as well as fluctuations family, sex, intimacy, etc. Our society has experienced inconsistencies and conflicts among the huge old patriarchal order and the new requirements of gender equality, which erupted in transition. This conflict is also creating new opportunities in the sense that a variety of social problems, but how to solve this problem, depending on the process than our society and gender equality, and peaceful society can be transformed into a high quality of life. In that sense, the 21st century is the century of women. This course is aimed at students that our society is passing through a deep understanding of the fundamental structure of gender variation in the wavelength of the 21st century and find solutions at various levels and further serve as an opportunity to change their lives.

Understanding of Human Being

This course is for students that aims to identify and to provide a variety of perspectives and knowledge, looking at the human and human life. In this lecture to learn through various philosophies and science, several major nuclear theories and knowledge in the field to understand the history of human beings and human life and debate. This is based on the students acquire broad knowledge and perspective of the imagination, and critical understanding of human life and the fusion complex perspective.

Understanding of the World

This course is for students that aims to provide a variety of perspectives and knowledge to understand the human world to see, even at the natural world and human society. In this lecture to learn through various philosophies and science, several major nuclear theories and knowledge int he field to understand the history of the world and discuss. This is based on the students acquire broad knowledge and perspective of the imagination, and critical understanding of the human world and the fusion complex perspective.

Ethical Consumption and Media

Modern society is called a consumption or media society, which indicates that media play such important roles for consumers. With the enhanced rights, interests, and status of consumers, in particular, the consumer issues have been making a shift from the protective perspective to the perspective of mutual survival and accountability. This course will help the students understand the characteristics of media and their roles and functions in relation to the consumption life and practice make ethical consumptions.

Property and Family in Civil Society

In modern civil society, which is becoming complicated day by day, a variety of conflicts has been occuring with regard to property and family relationship. This course teaches overall things about property and family relationship we encounters in our daily life, according to age order. Especially, by studying difficult and abstract legal theory through fun and various cases, this course gives students ability to think and find a solution on various legal dispute.

Modern Society and Crime

As a diversity of danger grows, the modern society has been changing rapidly. Under these circumstances, this course will not only provide a chance to analyze a human and society deeply, but also achieve a knowledge of law neither to be victim or criminal, by learning basic knowledge related to crime and punishment which university students need to know.

Science of Beauty

Beauty has been mainly focused on the field of art, and relatively little attempts has been made to understand it scientifically. In this course, diverse perspectives to aesthetic experience from psychology, natural science, and engineering are introduced in the context of convergence science. Students will learn aesthetic definition, physical characteristics, perceptual feature and psychological(subjective and objective) factors of aesthetic experience. In addition, scientific approaches to aesthetic experience in vision science, neuro-physiology, cognitive science will be introduced. In this course students will read the master-piece of Korean literature regarding beauty. Through these, students will be encouraged to extend both artistic(creative) sence and scientific(logical) thinking power.

Introduction to International Development Cooperation

Provide educational opportunities of development that is the basis of understanding and foster global citizenship for students of international development cooperation, providing opportunities for career exploration and expand interest and participation in awareness of the agricultural sector.

Energy and Environment

Number of the contemporary problems are due to the abuse of science and technology. Reviewing the broad spectrum from energy to environment, this course tries to find the what causes the problem, what is the effect of those problems on our lives, what problem will yet arise, and what action we should take.

Earth and Environment

The course provides nonscience student with understanding Earth system and Earth environments by explaining various microscopic and global geological processes.

Information and Statistics

This course will give an introduction to basic statistical concepts. Students will practice applying statistics to other sciences such as natural sciences, social sciences and engineering, and examine computerized statistical techniques. The course provides an overview of basic probability distributions, such as binomial distribution, normal distribution and sample distributions. It will acquaint students with interval estimation and hypothesis testing which are the basic concepts of statistical inferences, and help students enhance their ability to solve actual statistical problems based on their study of regression analysis, categorical data analysis and analysis of variance.

Exploring the world of matter

The elementary course of chemistry for students who do not major in chemistry. Lectures dealing with interesting topics related to the properties and reactions of matter usually observed in daily life.

City and Architecture

Through the course, we will study city in the concept of a giant bowl of human lives. We will also go through social, economical, technical, environmental and cultural problems that modern cities have and think of the potentials and problems of future city.

Food and Nutrition

Food and Nutrition presents a brief overview of the nutrients, food science, nutrition, and important relationships between diet and health. Students learn how to assess their dietary habits and how to improve their nutritional status.

Voyages Through the Universe

The light From the celestial bodies is a unique information source, which allows us to understand the universe. the methods and new findings about the cosmos will be introduced in line with voyages through the universe.

Forest therapy for quality of life

The main purpose of this course is to teach the sources of stress in school life and mechanism. Using forest therapy method, the course teaches students how to cope with the stress.

Understanding Climate Change

And changing the Earth's problems, namely an overall basic understanding of the climate change targets. Changes in climate have influenced our lives is directly related to the basic scientific understanding of this is to provide different story away. Learning to use the videos and materials from the past to the present in the footsteps of the Atmospheric Sciences, Ocean Sciences to understand climate change.

Contemporary History of Biology

Since the origin of biological anatomy, cytology, the discovery of microbes, look at the evolution of physiology, evolution, the start of genetics, biological areas, ranging from the birth, the development of genetic engineering, molecular biology, through a variety of materials right in modern biology It seeks to understand.

Function of our Body

This curriculum is a developed lecture to make out function of our body easily than difficult medical course. The students attending this lecture enable themselves to learn how to keep their body healthy. Let's think about together how to fuse your speciality with functional informations of human body such as functions of each organs, biological signal and so on to improve our future life.

Introduction to Disease and Medical Science

Lecture the essential knowledge about disease and medical science and teach how to prepare and maintain their lives to keep healthy and prevent disease.

Human and life

Lecture aim of the Human and Life is to understand relationship between human and life based on obtaining various opinions of the students about living organisms and/or evolution rather than biological knowledge. The students will find the way to obtain various and convergent human lifehood through life-scientific and computational thinking that is essential at 21 century.

Architectural engineering Technology with Western culture

This class is a culture subject made by fusion with western cultural history and architectural engineering technology. The aim of this class is to understand the formation and process of architectural engineering technology in the view of trend of western cultural history. For that, students of this class would understand the humanistic factors influencing to engineering technology and its processing, and have comprehension about complementary relationship with technology and humanities.

Human Community and Environment

A rapid evolution of modern industrial society and economic growth has resulted in modification of human life style such as clothing, dietary life, and housing as well as the natural environments. Human communities living in such advanced and developing industrial societies are facing serious environmental problems including ecosystem destruction, water and air pollution, soil and radioactive contamination, global climate and environment changes. To cope with these environmental problems, the aim of this class is to deliver the fundamental knowledge about the emergent environmental issues. The lecture contents are designed to teach the potential damages of these environmental problems, various

countermeasures that can be applied to mitigate the environmental impact through lecturing and discussion of extensive case studies.

Woods, Culture and Environment

The world has become an urban society with a vast number of people becoming alienated from the traditional people-nature relationship. Therefore, people in modern society have many problems with mental and physical health. This course teaches about the importance of benefits from forest and forest uses. In addition, this course teaches appropriate uses of forest and natural environment.

Focus on Green Energy

Focus on Green Energy is the title of this class. For the purpose of making understand students about green energy and present emergency situation because of high price oil and Convention on Climate Change, I'll teach all of the students easily and extensively, regardless of belonging to any other departments.

Human and Machine Civilization

Today, machine civilization has incessantly developed since humans and a machine repeatedly co-evolved. People who can't imagine the world without machinery even try to overcome their limitations by creating a mixture of humans and the machine. This course outlines how this trend has shaped and where it will go in the future. We will ask a fundamental question such as what humans are supposed to be and what they can be as well.

Tasting Food and Culture

Food is developed on part of a living culture with the history of mankind, are essential elements and fundamental element of life, happy life directly affect the maintenance of life and health. But a diet that has been understood as a natural scientific approach since the 20th century approach to fusion with other disciplines such as the humanities and the arts, particularly educated folks have the knowledge of where you can enjoy food from various cultures.

Big Data Understanding and Applications

A highly advanced information society around the world entered the Big Data era since 2010. Big data is called a "21st century industrial revolution", it has been rapidly spreading beyond the IT technology as politics, economy, society, culture and industry. Through the SNS analysis companies are able to identify the needs of our customers at any time, even reading via SNS voters minds. As well as in tran sport, disaster, environment, health, etc., and big data use cases and the up surge in society, McKinsey, and other major news organizations predict it will surge indemand for big data experts. In this course, as well as engineering and to prepare for the upcoming big data era with the introduction of the use cases on the basis of knowledge and various sectors of the Big Data for students

Humanities and Sociology.

World Educational Culture & School Architecture

This course is a liberal curriculum configured to fuse the world of culture, education and school construction. In the cultural context and the perspective of understanding the world educationand transition process in the formation of architectural education and aims to foster knowledge about the mutual relationship between the two disciplines.

Understanding the Convergence Software

As Well-Known, Software have been utilized in our society within various parts of industries recently. This class will be able to give you information which would be helpful to study Integrated-software technology and acquire knowledge of overall computer system. What you learn from this class.

1. The information of IoT that all things (both car, home appliances and smartphone, pc) are connected to Internet.
2. The use of Big Data – large pools of data that can be brought together and analyzed to discern patterns and make better decisions – will become the basis of competition and growth for individual firms, enhancing productivity and creating significant value for the world economy by reducing waste and increasing the quality of products and services.
3. AI(Artificial Intelligence) which studies how to create computers and computer software that are capable of intelligent behavior.

Digital Humanities Convergence

Through independent research project, this class attempts to provide students with interdisciplinary background, such that, they may be able to apply mathematical and computational methods to humanities/arts or vice versa

Reading Science and Culture with Modern Movies

This lecture is a interdisciplinary subject for students to understand science-technological knowledges, and to promote liberal arts. In the lecture, professor show the some modern SF files, make student to understand the scientific knowledges used in movies, and compare 'the imagined future society using science-technology' with 'the realized future using science-tehchonlogy'. With this course, this lecture purpose to help students promoting their abilities to criticize the cultural, social context of the movies.

Industrial Safety and Environment

This course will discuss the causes of industrial accident which is being enlarged because of rapid industrial development. Based on many research papers published in the field of industrial safety and environment, several well-known safety and environmental learning approaches are discussed with their theories

and application areas.

Engineering Ethics and History

This course is an introduction to the engineering ethics and history, in which the concept of engineering ethics is discussed according to social and economic character background. Also, history of science and engineering technology is briefly reviewed.

Photo and Image Art

Assist in the understanding and appreciation of visual culture has apurpose. It covers most of the basics of modern man that owns the video to have audio-visual equipment, ranging from the US to experience the diversity of artistic creation in the image in your daily life activities.

Theory and Appreciation of Art

The purpose of this lecture is to widen the emotional area to our lives through notion understanding of art and appreciation of works and improve creativity based on aesthetic imagination.

Theory and Appreciation of Music

We target to understand the korean music's trait and to develop for the enjoyment of various musics in open world and also for our music

Theory and Appreciation of Theatre and Cinema

This course is aimed at fostering the appreciative ability for play and cinema, which are a major genre of modern art, with pleasure and in depth, by learning the basic theory of play and cinema and by applying it to reality. In the first half of the course, the understanding of the play will be improved by learning the history of the occidental plays.

In the latter half, lectures will be given about cinemas, analyzing intensively some cinematized works form plays. During the lecture, the opportunities will be given to appreciate the plays. In addition, various cinema materials will be utilized for the class.

Scientific Understanding of Sport

This course focuses on the understand physical fitness, the importance of wellness, concept of fitness and evaluation, principle of physiology, exercise and nutrition, exercise and stress, exercise testing and prescription, and healthy life style for qualitative life of human beings.

Physical Fitness and Stress

This course will deliver an introductory knowledge on motor function learning and motor performance on the basis of understanding psychological factors to emphasize on performance and obtaining principles and practice for healthy life. The main focuses of the lecture will be psychological change, promotion of stress

resistance, motor control, and so forth.

Sport and Health

This course will provide to understand physical fitness, the importance of wellness, concept of fitness and evaluation, principle of physiology, exercise and nutrition, exercise and stress, exercise testing and prescription, and healthy life style for qualitative life of human beings.

Music and Character

Music education helps to better develop the mental and moral faculties more than education alone. Such education produces a person of mental balance and moral stature. Therefore, this course focuses of personality formation through music education for young people. It seeks to foster an appreciation for healthy self forming communities and help advance society through its individual members. The goal is to achieve a social harmony by means of music education.

Educated Person's Panorama

This course offers students with the opportunity to communicate with famous professors of the Home University and distinguished guests from local areas about their experiences, opinions, knowledge and views.

21C Life and Future

This lecture intends to meet the students' various intellectual desires and broaden their optional range of careers. It consists of a fifteen-week lecture, and will invite distinguished guests in the fields of politics, economy, society, culture, art, sports and science. They will share their experiences and knowledge to help guide students with their university life.

Way to Social Integrity

This course is focused on the formation of each student's view of value, throughout the consideration on various images of 'corruption' which is one of the modern society's problems, by developing ethics and proper personality. Through the course, students will develope virtues of integrity and purity, which is necessary for university and social life afterward, and have chance to reflect theirselves by self-examination.

Understanding of Chungbuk Culture Through Volunteering Abroad

This course aims to cultivate qualities as understanding of Chinese culture through Chungbuk jeongam Village and the global leader in overseas volunteer work. Jeongam Village in Yanbian Korean Autonomous Prefecture in Tumen, Chinais aplace to Chungbuk residents settled in 1938 by the forced migration policy of the Japanese culture and well-preserved village of Chungbuk as a group. Students will be provided an opportunity for education and efforts to serve the adjacent borders North Korea and Russia, of the Goguryeo sites and

exploring cultivate qualities as a global leader by establishing the correct pavilions, national and regional identity confirmed in the summer vacation period jeongam Village. Learning the ory has a time of 15 hours in advance in order to maximize the exploration of the meaning of service and 15 days.

The story about oriental classics

This course has two objectives. First ,it will give an approximate setting for the classic of China and South Korea. Second, the understanding of the history and the lion acronyms related to the classics.

Namely through a variety of classical and gain an overall understanding of the extent and depth of knowledge that will be able to get a considerable knowledge through history and lion acronyms related to the classics.

Lectures and brief description of historical context and contemporary significance of each classic and excerpt scan be viewed by some important information.

Life History Looking through Culture

Cultur a llife is a container for a variety of people made a spring, which is the source of wisdom for a relaxing life. Interesting stories contained in our living culture a live while peeping around the various cultural codes, and so as to have a wealth of knowledge and insight within sight and sensitivity, as well as a balance. This together explore the development and utilization of cultural content in various ways storytelling culture as a parameter.

Modern and contemporary Korean history and Figures

In modern Korean history, contemporary history is understood as a time of upheaval. It is controversial because it would take from the starting point from which the modern times, modernization and independence, anti-feudal and anti-foreign forces and we have many challenges, ranging from bulk to the process of democratization after the liberation from Japanese colonial rule. This course is a characteristic of South Korea to overcome confrontation and division through the deployment and issues of the near-contemporary history and to understand the historical process that is reaching cooperation and matches, through the thoughts and deeds of a person standing in the center of the historic events At the same time it seeks to establish a correct understanding of historical values.

World Cultural Heritage in Korea

World Heritage is a valuable asset and the universal values of mankind has long figured as a brew of social and cultural activities. Look for interesting stories hidden in our proud heritage, as compared with the various cultures of the world tore discover the meaning and value beyond time and space by experience. Along with cultivating basic literacy to enjoy a magnificent culture and leisure, find a

story for living a life of wellness and healing.

The Public Art Project for Improving City Environment

Public Art(Public Arts - "urban environment improved for Public Art Project" / "The Public Art Project for Improving City Environment" -)is art limited space (art museum or gallery)in some layers or artists only enjoy the fine art is the subject is beyond the prejudice to install the most popular works in the public place where the public can easily access opening in spirit to share with people enjoying the arts. Looking through the course analyzes comparing the various cases to understand our society, culture, customs, find out the functional performance of public art that is made to fit him. By applying the idea to the local public places in Cheongju based on the actual learning outcomes, so full of personality been implemented in public places in the community enjoy high-quality works of ar tit can bewith people.

The culture of region in Chungbuk and the current of culture in East Asia

Sinbongdong Baekje tombs, 'Jikji'of the parents—Baekje, Silla mountain ruins and museums cheongju go print each time represents the ancient, medieval. Sinbongdong Baekje tombs, looks at the history of the mountain to the parents of Baekje, Silla—monuments and museums of printing cheongju go 'Jikji' and modern architecture and modern industry, modern in the ancient rice wine around, such as migration from the perspective of East Asian cultural exchanges.

Understanding of Volunteer Social Service and Disability

This course is designed to introduce the concept of voluntarism, the techniques for volunteer management such as recruitment, job design, training, education and evaluation. Another compartment of the course is provide understanding toward people with disability along with knowledge and skills to help the disabled.

World Tour of Culture & Architecture

This module aims to build up knowledge about exellent local architectural culture based on understanding and comparison between architectural culture in the world and in Chungbuk area. This module is to understand architectural history and culture of Chungbuk with understanding of local architecture and culture of the world and to target the comprehension of characteristics and identity of local architecture and cultivation of knowledge.

Participation in Social Activities

The advances of evolutionary society have changed the requirements of the beginners' preparation after graduation from college. This course guides students to be ready for the participation by introducing several subjects that might help them to enter the fields. This course is built for the third and the forth year students in collage.

To develop each student's unique vision for him/her, each students are led to find what they like to do and what is their strong interest. With the identities students set up in their own visions, the skill how to build a long term plan for enhancing their qualities in their working places and in the job market. In this course, the methodology of how to represent what they are is and what they have is also presented by teaching how to write the resume and how to do interview, and etc. Overall, this course is set to help student to be ready for entering society with well prepared participation skills in the job markets.

Women's Job and Career

As the societies evolute in human history, the women's role has been tremendously changed in various ways. In modern society, women's role in participating lots of fields affects the speed of evolution in job markets. This generation demands not only the conventional role as a mother and wife but also the roles as a member in the working places which were occupied by men for a long time. This course is developed for the women in school to be prepared for the competition in the job markets by developing skills how to build a best career.

Patent and Trademark

Learning basic and technical knowledges for the importance of industrial rights, acquisition procedures, contents of rights and protections in foreign nations.

Practical Computer

In order to provide big pictures of computer systems and teach the basic usage skills for fundamental package softwares, it deals with the basic concepts and architectures of computer hardware and software, and teaches how to use Windows, Hanguel wordprocessor, Excel spreadsheet, PowerPoint presentation tool. It consists of lectures and computer labs, and it is designed to prepare the computer-related certificates.

Coaching Power Leadership

This course is designed to provide students the opportunity to enhance students' qualities and standards as a leader through a sequential team teaching method. The course work is to be carried out by a group of distinguished people in various areas, such that they can accomplish their dreams and goals in their lives more actively.

Job Search and Career Planning

Invited experts and consultants continue to work15 weeks lecture

- Good to be accurate self-diagnosis of the underlying design career
- Should help establish along-term career goals and action plans
- Competencies required for employment, should allow you to set personal

Special lecture on Korean history

Topics in Korean history is a practical course for students who want to prepare for careers and employment, various civil service examination and systematic understanding of Korean history Korean history Proficiency Test, improve adaptability to various physical tests related to Korean history.

Idea in the Daily Living

This course is and how to derive ideas for business start-up and this and aims to study the process of refining a start-up item, the theory that observation· investigate the change and diversity in the market of quick environment that can be found in daily life how ist he idea(intellectual property)organized lectures in conjunction with administration, legal procedures related to the oretical training and hands-on training in entrepreneurship.

Introduction to Entrepreneurship

This course provides a variety of problems in the start-up activities based on an understanding of entrepreneurship and entrepreneurs and the overall understanding of the spirit of the goal, cultivate a business mind set about the organization and business operations, and industrial systems and a variety of production systems and solving methodology parallel theoretical training and hands-on training for the understanding of the lecture is to systematically.

Successful Technology Venture

This course is a venture excavated items aimed at raising students' entrepreneurship motivation through virtual simulation for the start-up strategy and simulation, creation and utilization of intellectual property, ideas, through learning, such as new business excavations strategy through technology convergence planning, product development, to experience an overview of the funding, technology management, company operations, including knowledge and understanding of the practice and business environment.

Special Lecture on Practical Korean Language I

This course aims to prepare for various tests such as Korean language proficiency test to cultivate language skills. Language skills helps to foster cultural and major study of college students, as well as jobs. Cultivate a correct understanding and ability to use language through this course, and will promote literacy and thinking skills through a variety of prints.

Information Technology Programming

With no prior knowledge of programming beginners to easily learn the concepts related to programming in Python(Python) through the language and understand step-by-step through the concepts and key principles of programming of programming, as well as the structure and principles of programming languages,

various engineering solve problems and help you learn the natural and systematic way of thinking for them.

Fashion and Venture

Understanding a dynamic relationship between market analysis, consumer, item development, retailing for ventures with conversions into fashion feelings and design technique, and improving professional competencies to develop business models for fashion ventures in a practice.

Start-Up Omnibus

Through an overview of the entrepreneurship education in entrepreneurship and expand awareness of, and educate the general information you need to know that pre-founders who want to entrepreneurship, start-ups should deliver a variety of stories and theories of entrepreneurship experts invited to lecture format

Korean Hanja in Business

We teaches through this subject the elementary chinese character - the principle of character's production · meaning of character · sequence of writing. Also we teaches the classical piece of writings through the Korean and Chinese.

Basic Japanese

After learning Japanese in Ghana aims to learn basic greetings and, nouns and verbs defined medium. Elementary Japanese because that aims to help every one to have an interest easily understood by all to be the first in line at eye level of the learner to learn.

Listening Comprehension of English

The aim of this class is, mainly everyday English, students will be improved their listening skill through listening variety scenes and conversation, or watching video. Moreover, students will understand western culture and practice vocabularies that need for each topic and expressions by using in conversation. Evaluation will be performed with relative evaluation by taking mid-term and final exam that are mainly listening and checking participation during class and assignments.

English Conversation

This class is focused on developing the students' speaking skills. It consists of main lecture, guided communication activity and loosely-structured 'free talking'.

Practical English Grammar

This course have students acquire exact knowledge of English grammar with a view to enhancing their English ability in everyday life. This course will also help the students well-prepared for the section of grammar in English proficiency tests such as TOEIC and TEPS.

TOEIC Listening and Reading

This course aims at improving students' English communication skills that are needed for daily life and global business. Listening and reading skills will be emphasized.

Intensive English-Basic

This course aims at increasing students' general English language ability with focus on providing lessons and activities that will help them express their ideas clearly, using correct sentence structure for articulate communication. Listening, speaking, reading and writing will be practiced comprehensively.

Intensive English-Intermediate

This course aims at increasing students' general English language ability needed for daily life by discussing a variety of topics with relation to writing. Listening, speaking, reading and writing will be practiced comprehensively at the intermediate level.

Intensive TOEIC

This course aims to equip the students with English communication skills needed for both daily life and typical business communication in order for them to communicate effectively. Listening, speaking, reading and writing will all be emphasized.

English Presentation for Jobs

This course is part of the culture English communication skills. In particular, with a speaking /presentation doctors focus on strengthening communication skills. Group classes offer students the theory and practice of English and intensive English language presentation enhances the presentation recipe and presentation techniques necessary to work in the enterprise.

Chorus

The object of this class is not only improving emotional and healthy mind, but also learning cooperation and harmony to help the student who is the member of the chorus to get sensitive leadership during their project. This class will encourage the students to have manner and cooperation, and learn volunteering by visiting performance.

During the class, we will learn the basic background knowledge to study chorus, such as, History of music, Fundamental of music theory, How to read music. With those backgrounds knowledge will help the student to understand the music more easily. We will learn vocalization and musical expression by CP (Chorus Practice). By experiencing harmony and perfectness of the chorus during the student take their each part of the role in it, the class will understand how the music is beautiful and sensitive.

○ Through the Chorus activity, not only developing the emotion of the student,

but also learning manner and cooperation to get improvement on 21 century leadership.

○ Improving student's spiritual, physical health and knowledge of art.

○ By volunteering(visiting Chorus performance and use their talents and knowledge to the guests), learn sociality

Physical Education

This course assists to understand the values of physical, cultural and social aspects of physical activities. It offers various physical experiences in the relevant areas. Students will also be trained individually and basics needs for individual and team sports will be taught. The use of physical education for recreational purposes and health and the theories will be practiced and studied to promote active motivation in preparation for the qualitative life.

Theory and Practice of Soccer

This course will be delivered to train with basic skills of soccer. It will lead to let students get accustomed to various strategies of soccer, play a real game efficiently on the basis of the basic skills. This course also intends to provide soccer-related events, scientific principles. Eventually it makes them enjoy playing soccer and helps to obtain healthy life styles.

Theory and Practice of Basketball

This course provides to train appropriate instructive ability of basketball, it intends to teach basketball's fundamental techniques, theories and practical skills by phases.

Theory and Practice of Tennis

This will be an introductory course to Tennis. It will help to learn ability that understand principle of basic function of the tennis and apply in actual state as well as promote a positive thought on tennis as a lifelong sport.

Theory and Practice of Table Tennis

This course will deliver basic principle and techniques of table tennis as a method of healthy body and maintenance in even small places. It is also an course intention to promote a positive thought on table tennis as a lifelong sport.

Theory and Practice of Badminton

This course will help students to put Badminton into practice as a sport for living though training basic theories, understanding characteristics and effects of the event and learning fundamental skills.

Theory and Practice of Swimming

The course will guide how to practice basic moves step by step such as breast stroke arm move, leg move, breathing methods. Main contents include swimming's introduction various styles to assist securities of students and to

advance efficient health management and abilities of leisure activities.

Theory and Practice of Bowling

It will help to understand basic principles and skills of Bowling. This course also will promote students to utilize leisure as psychologically and physically relaxed spaces for understanding positive leisure culture.

Theory and Practice of Golf

This course will make students to be able to possess capability for instruction after understanding and obtaining principle and skill of golf swing as well as appropriate shots and training methods in accordance to different courses and circumstance.

Theory and Practice of Racquetball

It is the course's intention to teach basic skills in phases with efficient theoretical instruction and fundamental moves. It also train appropriate shots in various circumstances and to help students to develop strategies through actual games.

Theory and Practice of Skiing

This course will provide the history and the basic techniques of the outdoor winter sport, skiing. It will be conducted for a intensified period of time during the winter vacation. And it will be considered as more life long sport than a tournament sport. Students will learn the basic skills; unting skis, ski turns, stopping the skis, falling down, low slope stemming, and basic rotations. Skiing involves endurance, audacity, and quickness as well as improvement of basic fitness.

Self Defence Art in Life

This course provides how to protect oneself and how to advance physical strength in phases. In modern society one can't predict the dangers in our life. It also provides other kinds of protecting techniques to make students to protect themselves in any situation. Various relevant martial art skills are used to build up physical strength and learn more risky fighting skills are studied so that one can react in an emergency situation.

▣ Department of Korean Language and Literature

Introduction

The department aims to foster talented individuals with expert knowledge on Korean literature through a systematic curriculum. It also aims to preserve the national's cultural heritage in literature and promote further growth in the future.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(39Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Introduction to korean Literature(3)	1-2-E Introduction to korean Linguistics(3)
2-1-E History of Korean Literature(3)	2-2-R History of Modern Korean Literature(3)
2-1-E Readings in Classical Korean Literature(3)	2-2-E Korean Grammar (3)
2-1-E Modern Korean Fiction (3)	2-1-E Korean Writing System (3)
2-1-E Readings in Korean Linguistics(3)	2-2-E Sijo-Gasa (3)
2-1-E Korean Phonology (3)	2-2-E Readings in Sino-Korean Literature(4)
2-1-E Methods of Literary Research (3)	2-2-E Readings in Modern Korean Fiction(3)
3-1-R History of Korean Language(3)	3-2-E Korean Syntax (3)
3-1-E Korean Dialectology (3)	3-2-E Classical Korean Fiction (3)
3-1-E Modern Korean Poetry (3)	3-2-E Hyangga-Yeoyo (3)
3-1-E Korean Oral Literature (3)	3-2-E Korean Semantics (3)
3-1-E Seminar on Modern Literature(3)	3-2-E Literary Criticism (3)
3-1-E Classical Korean Essays(3)	3-2-E Readings in Korean Poetry (3)
3-1-E Theory of Literary Education	3-2-E Theory of Drama(3)
	3-2-E Education of Communicative Competence (3)
4-1-E Medieval Korean Grammar(3)	4-2-E Topic in Classical Korean Literature (3)
4-1-E Korean Literature of Enlightenment (3)	4-2-E Comparative Literature (3)
4-1-E History of Korean Linguistics (3)	4-2-E Korean Etymology (3)
4-1-E History of Sino-Korean Literature (3)	4-2-E Theories of Korean Education (3)
4-1-E Topics in Modern Korean Literature (3)	4-2-E Logic and Statement in Korean
4-1-E Studies in Korean Teaching Material and Teaching Methods (3)	Education (3)

● Courses Abstract

Introduction to Korean Literature

This course helps students to understand the characteristics of Korean literature. So those who study in this course grasp the artistic characteristics and the national emotion of Korean literature.

Introduction to Korean Linguistics

This class focuses on the basic conceptions of Korean Linguistics . We study the basic conceptions of Phonology, Morphology, and the syntax of Writing, and apply them in Korean language use.

History of Korean Literature

This course will investigate the development and classification of distinct periods in the history of classical Korean literature. The two primary components of this course will include critical analysis of the texts and an investigation of the historical context in which it was written.

Readings in classical Korean Literature

Students will be trained in the various approaches that have been used throughout Korean classical prose, enabling them to conduct their own research and establish their own arguments. We may study a variety of subjects, such as the concepts, origin, genre theory, or author theory of classical prose. Accordingly, subtitles to the course title for each semester will clearly explain the character of the course for that semester.

Modern Korean Fiction

This course develops the ability to do a structural analysis of a novel. This ability will enable students to better understand and critique novels. In class we will read various novels to explore the structure and theory behind the modern Korean novel as a genre. While we will focus on the unique characteristics of the modern Korean novel, its descriptive techniques and construction, we will also review the history of the Korean novel's development as a whole and evaluate problems discovered in the process.

Readings in Korean Linguistics

This course is an up to date overview of Korean linguistic studies by reading the old text related in Korean language with special attention to medieval text.

Korean Phonology

The course will broaden students' understanding of Korean by reading and analyzing materials with respect to spelling, letters, phonology, grammar, and vocabulary. With philological and bibliographical approaches, students will learn the methods and procedures for dealing with historical texts in Korean.

Methods of Literary Research

This course deals with the development of modern Korean literary history, focusing on the criticisms, novels, poems, and dramas of each period from the Enlightenment Period until the 1960s. Students will come to comprehend the particular significance of works in relation to modern Korean literary history, which covers the new novels and poetry of the Enlightenment Period, the new

literature founded by Yi Gwang-su, Choi Nam-sun, Kim Dong-in, Yeom Sang-seop, and others, the proletarian literature of the 1920s, the realist and modernist literature of the 1930s, the literature of liberation, and post-war literature.

Korean Grammar

In this course, students will study orthography, the prescription of standard Korean, writing methods for loan words, Romanization of the Korean language, and, to enhance Korean language, and the principles of Korean language on which each linguistic regulation is based.

Korean writing System

This course will acquire a general theory about the character and understand the history and characteristics of Hangul.

Sijo-Gasa

The goal of this course is to foster a general understanding of classical poetic works from ancient gayo to sijo, and gasa. Students will master the methods of understanding and interpreting literary works. They will survey phraseology, meter, and methods of expression, while learning how to properly read, analyze and interpret works of classical poetry.

Readings in Sino-Korean Literature

The goal of this course is to foster the students' ability to critically read works of Sino-Korean literature. Students will read works selected from the traditional genres of poetry and prose and attempt its actual analysis and interpretation. This course may substitute for the linguistics examination.

Readings in Modern Korean Fiction

In this course students will learn to properly read, analyze,and evaluate problematic novels published from the Enlightenment Period up until the 1970's.

History of Korean Language

The course provides a survey of the ways in which the Korean language has changed from ancient times to the presents. First, we will inquire into the genealogy and formation of the Korean language and discuss methods of classifying the language by period. Later, we will examine the characteristics of the systems for spelling, phonology, grammar, and vocabulary from each period. By comparing these characteristics, student will be able to grasp how the Korean language has changed.

Korean Dialectology

The goal of this course is to expose students to the methods necessary to carry out research on Korean dialectology. Students will be introduced to various theories on dialectology. In particular, the course will concentrate on geographical

dialectology and evaluate the characteristics of each dialect's phonemes, grammar, and vocabulary. Students will learn to distinguish between different dialects and create dialectological diagrams to illustrate such differences.

Modern Korean Poetry

This course will study several poets who represent the period stretching from the beginning of human civilization to the 1950's. In addition, we will examine the history of researches that have been performed on them and select a methodology through which the students themselves can research and compare their works with.

Korean Oral Literature

This course capacitates students to use research techniques on order to understand the characteristics of Korean oral literature. Additionally, students will learn to analyze and interpret the philosophies of Koreans depicted in various genres such as folklore, folk music and traditional plays while examining the existing researches and aesthetics of selected works.

Seminar on Modern Literature and Authors

The course will be an examination of the history of authorial research and the analysis of literary works while focusing on modern Korean authors. It will be a seminar-style course seeking to improve students' knowledge and understanding of the history of Korean novels.

Classical Korean Essays

Students will be trained in the various approaches that have been used throughout Korean classical prose, enabling them to conduct their own research and establish their own arguments. We may study a variety of subjects, such as the concepts, origin, genre theory, or author theory of classical prose. Accordingly, subtitles to the course title for each semester will clearly explain the character of the course for that semester.

Theory of Literary Education

This course is the concept of literary education, nature, scope and significance and practical teaching and basic understanding of the purpose of learning, evaluation and appreciation literary education. It also aims to think about the people who will be in charge of the practice and study of literary education What is a literature and literary education, how, why teach, and teach you how, and to foster the basic knowledge and research and teaching skills.

Korean Syntax

Study methods and principles of word formation and research elements of sentence composition and structure.

Classical Korean Fiction

Based on an overall understanding of Korean classical full-length novels, we will analyze individual full length novels and examine existing research on these novels, gaining an understanding of their aesthetic characteristics and applying these to their study of the works. In this way, students will develop their own methodologies and learn how to study classical full-length novels. An examination of the process of development on Korean classical novels will also foster the development of a comprehensive perspective on Korean classical novels.

Hyangga-Yeoyo

This course presupposes a foundation in classical poetry. Its goal is to help students understand the aesthetic characteristics of classical poetry and the emotions and thoughts of Koreans that are expressed in it. Various classical forms including gayo, hyangga, Goryeo gayo will be studied. Also examined are the research as well as practice methods of analysis and interpretation. The class will also emphasize the studying of the aesthetic characteristics of specific works and genres.

Korean Semantics

Language is generally viewed as the union of sound and meaning. Semantics is the branch of linguistics concerned with meaning This course will evaluate the definition of meaning, the relationship between the meanings of words, and how they change Furthermore, it will evaluate the meaning of sentences and conversations to facilitate a thorough and comprehensive understanding of the Korean language.

Literary Criticism

This course presupposes the student to have a foundation in various schools of literary criticism from after the Enlightenment Period. The class explore modern Korean literature through different perspectives. One of he primary tasks of literary criticism is to establish standards by which we evaluate a piece of literature.

Readings in Korean Poetry

The goal of this course is to foster the basic ability to analyze poetry, using texts from the Enlightenment Period to the present.

Theory of the Drama

The goal of this course is to engage in demonstrative research of specific modern Korean dramas and their performance. while exploring the unique aesthetics of the genre. Through comparisons with oter genres we will examine how literary ontology is expressed through dramatic styles, and establish a distinctive dramatic aesthetic.

Education of Communicative Competence

The goal of language education, communicative competence has been expanded to encompass discourse competence and socio-pragmatic competence in addition to the traditionally acknowledged linguistic competence. Linguistic competence refers to the structural knowledge at the sentential level. Discourse competence is a higher level of knowledge which construes and constructs coherent and cohesive texts. Sociolinguistic and pragmatic competence modulate the use of language appropriate for the socio-pragmatic context. In addition, communicative competence is further understood to include linguistic as well as nonlinguistic communication strategies that settle communication tasks and problems of various sorts. This course aims to introduce the expanded notion of communicative competence, and help students to acquire communicative competence through various authentic communicative activities.

Mediaeval Korean Grammar

This class will use grammar to look at the structure of the Mediaeval Korean language. Phonemes - consonants, vowels, syllables, accents, and other sounds of the language - will be studied in terms of how they relate to the Mediaeval Korean language's morphemes, vocabulary, phrases and sentences. The goal of the course is to enhance students' understanding of Mediaeval Korean grammar.

Theory of Creative Writing

This course offers studies of theory and practice in novel writing& poet writing, and leads students into successful writing.

History of Korean Linguistics

The course will broaden students' understanding of Korean by reading and analyzing materials with respect to spelling, letters, phonology, grammar, and vocabulary. With philological and bibliographical approaches, students will learn the methods and procedures for dealing with historical texts in Korean.

History of Sino-Korean Literature

This course will investigate the development and classification of distinct periods in the history of classical Korean literature. The two primary components of this course will include critical analysis of the texts and an investigation of the historical context in which it was written.

Topics in Modern Korean Literature

This class is their ability to adapt to the actual theory of modern literary works and authors.

Studies in Korean Teaching Material and Teaching Methods

This class is conducted in connection with the teaching experience program to enhance the student-teachers teaching abilities. It focuses on analyzing and constructing teaching materials so that the student-teachers will be able to

develop their critical and creative abilities in making materials as well as to develop effective teaching-learning aids.

Topics in Classical Korean Literature

The development process of Korean classical literature to understand a historic order. Enhance reading comprehension while reading classical literature, so as to understand the era features.

Comparative Literature

Early modern Korean literature was developed by accepting the influences of Western and other foreign literature. This lecture examines the most important writers of early modern period and their works, focusing on the many influences of foreign literature on their literary output. The lecture proposes to broaden the student's understanding of comparative literature, presenting basic knowledge and prospects of studying Korean literature with a comparative literary method for interested students.

Korean Etymology

This course discusses the lexical structure of Korean. Topics to be dealt with include the internal structure of words,word formation, borrowing of words, word meaning and its change, lexical relations, classification of lexical items, lexical statistics, and lexicography.

Theories of Korean Education

This course covers basic knowledge of the Korean language, including its comprehension and expressions. It provides intensive study on the pronunciation, letters, rules, and other principles needed to learn Korean as a foreign language.

Logic and Statement in Korean Education

This course is general study for teachers to have basic ability of the logical essay writing. Purpose of this essay course is to achieve and to enhance the synthesizing and creative writing as well as to learn the essay education in the Korean Education.

▣ Department of Chinese Language and Literature

Introduction

The department of Chinese language and literature was founded in 1980 with the specific mission of educating students in the Chinese language and in the field of Chinese studies, guiding them to acquire in-depth linguistic and cultural expertise. In addition to a BA degree program allowing students to major or minor in the field, the department also offers a MA degree program, with a particular emphasis on Chinese linguistics and literary studies. The educational focus of the undergraduate program is the Chinese language itself as well as classical and modern Chinese literature－an imperative for understanding the development of China and Chinese society. To enhance students' linguistic competence as well as their intercultural communicative skills, the department offers a wide variety of courses on the Chinese language; students learn and practice listening, speaking, reading, and writing in Mandarin Chinese through course work and opportunities for study abroad, thereby attaining linguistic proficiency and fostering cultural sensitivity. The acquisition of language skills and cultural knowledge prepares Chinese graduates for careers in both domestic and international business firms, governmental agencies, educational institutions, mass media and broadcasting companies, etc.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Intensive Chinese I (3)	1-2-E Intensive Chinese II (3)
1-1-E Elementary Conversational Chinese I (2)	1-2-E Elementary Conversational Chinese II (2)
2-1-R Beginner's Chinese (3)	2-2-R Intermediate Chinese (3)
2-1-R Literature and Art Works in China I (3)	2-2-R Literature and Art Works in China II (3)
2-1-E History of Modern Chinese Literature (3)	2-2-E The Principles of Chinese Characters (3)
2-1-E Introduction to Chinese Linguistics (3)	2-2-E Introduction to Classical Chinese Prose (3)
2-1-E Conversational Chinese I (3)	2-2-E History of Contemporary Chinese Literature (3)
2-1-E Introduction to Classics on Confucianism & other Chinese Thinkers (3)	2-2-E Conversational Chinese II (3)
	2-2-E Introductory Biochemistry Lab. (3)
3-1-E Classical Chinese Poetry I (3)	3-2-E Classical Chinese Poetry II (3)
3-1-E Chinese Grammar I (3)	3-2-E Chinese Grammar II (3)
3-1-E Listening Practice in Chinese (3)	3-2-E Chinese Composition (3)
3-1-E Classical Chinese Fiction I (3)	3-2-E Readings in Modern Chinese Literature (3)
3-1-E Chinese Culture and Literature (3)	3-2-E Chinese as a Second Language (3)
3-1-E Chinese Culture Lexicon (3)	3-2-E Classical Chinese Fiction II (3)
4-1-E Teaching Chinese : Materials and Methods (2)	4-2-E Special Topics in Chinese Literature (3)
4-1-E Contemporary China on the Internet (3)	4-2-E Translation and Interpretation of Chinese (3)
4-1-E Business Chinese (3)	4-2-E Chinese Essay Writing (3)

4-1-E Practicum in the Chinese Language and Culture I (3)	4-2-E Traditional Chinese Songs and Opera (3) 4-2-E Practicum in the Chinese Language and Culture II (3)

● Courses Abstract

Intensive Chinese I

In this three-credit elementary course in Mandarin Chinese, students learn and practice basic sentence patterns and vocabulary relevant to contemporary Chinese society, so that they will be able to express ideas about China.

Elementary Conversational Chinese I

This three-credit elementary course in Mandarin Chinese focuses on improving pronunciation and practicing daily conversational situations.

Intensive Chinese II

This course is a sequel to Intensive Chinese I. Students continue to practice speaking in Chinese, thereby enhancing their linguistic proficiency and their understanding of China and Chinese culture.

Elementary Conversational Chinese II

This course is a sequel to Elementary Conversational Chinese. Students continue to practice speaking in Chinese, thereby enhancing their linguistic proficiency.

Chinese for Beginners

This three-credit elementary course in Mandarin Chinese is designed for beginners; it is mandatory for students majoring in Chinese. It aims to lay a solid foundation for students planning to further their studies of the Chinese language and thus focuses on learning and practicing pronunciation, the Pinyin Romanization system, basic grammar, and vocabulary for conversations about topics commonly encountered in daily life.

Literature and Art Works in China I

This course is mandatory for students majoring in Chinese. It examines the relationship between literature and art in China from ancient times to the present, with a particular focus on those works that have influenced the production of Chinese art and the formation of an artistic heritage. Through the study of literary works as cultural sources for art works or vice versa, the course aims to illustrate the development of literature and art in China, thereby enhancing students' aesthetic appreciation as well as their analytical skills.

Modern Chinese Literature

This course addresses the origins and development of modern Chinese literature and literary criticism in the context of modern Chinese history. Major literary

works are read and analyzed through close reading.

Introduction to Chinese Linguistics

This course deals with major topics in Chinese linguistics, covering phonology, the writing system, ideography, exegetics, and Chinese grammar. Fundamental concepts and terminology are emphasized.

Conversational Chinese I

This course is designed to improve both listening and speaking skills. Students have the opportunity to practice Mandarin Chinese with an instructor who is a native Chinese speaker.

Introduction to the Confucian Classics and Masters Literature

In this course students read important passages and aphorisms from Confucian classics and Masters literature in order to become familiar with Chinese ways of thinking and Chinese tradition and culture. Students learn Chinese characters and the essentials of classical Chinese grammar.

Intermediate Chinese

This course is mandatory for students majoring in Chinese. The texts selected for this reading course deal with contemporary social life in China and Chinese culture. The course aims to improve students' reading skills as well as their understanding of Chinese society.

Literature and Art Works in China II

This course is mandatory for students majoring in Chinese; it is the sequel to Literature and Art Works in China I. The course examines the relationship between literature and art in China from ancient times to the present, with a particular focus on those works that have influenced the production of Chinese art and the formation of an artistic heritage. Through the study of literary works as cultural sources for art works or vice versa, the course aims to illustrate the development of literature and art in China, thereby enhancing students' aesthetic appreciation as well as their analytical skills.

The Chinese Writing System

This course presents the principles of the Chinese writing system, that is, the creation of Chinese characters and their development over time. By gaining a deeper understanding of Chinese characters, students will be able to read Chinese texts with greater ease.

Introduction to Classical Chinese Prose

In this course students read and interpret major works of classical Chinese prose in order to enhance their reading skills in classical Chinese.

Contemporary Chinese Literature

In this course students read and discuss contemporary Chinese literary works.

Because it is a discussion-oriented course, students are encouraged to contribute discussion questions and prepare individual or group presentations about specific topics.

Conversational Chinese Ⅱ

In this course students practice conversing in Chinese and develop their listening skills in order to communicate with greater fluency.

Classical Chinese Poetry I

In this course students read and interpret major works of Tang poetry written by Li Bai, Du Fu, Wang Wei, etc. The course aims to familiarize students with the features and aesthetics of Tang poetry as well as writers' poetic imagination.

Chinese Grammar I

This course presents general rules and principal features of Chinese grammar. Students are encouraged to analyze sentence structure and grammatical components, thereby gaining a solid knowledge of Chinese grammar.

Chinese Listening Practice

This course focuses on practicing listening skills, enabling students to converse in Chinese with greater fluency.

Classical Chinese Fiction I

In this course students read major works of classical Chinese fiction and explore their thematic concerns and aesthetic values.

Chinese Culture and Literature

This course deals with the relationship and interactions between Chinese literature and culture. It traces how Chinese civilization was formed and re-formed through such interactions from the pre-Qin period through the Qing dynasty. It also addresses Sino-Korean relations in terms of cultural exchange and the interaction and development of both cultures.

Classical Chinese Poetry Ⅱ

This course addresses aesthetic features of classical Chinese poetry through close reading and literary analysis, thereby enhancing students' understanding of classical Chinese poetry.

Chinese Grammar Ⅱ

This course is the sequel to Chinese Grammar 1. It focuses on Chinese grammar and the analysis of sentence structure, building on what students learned in the previous course.

Chinese Composition

This course is designed to improve skills in written Chinese by familiarizing students with useful expressions commonly encountered in daily life as well as in academia, business, and international affairs. Students are expected to write and

submit short essays, revising them on the basis of written feedback from the instructor.

Readings in Modern Chinese Literature

This course analyzes major works of modern Chinese literature. Some works are read in Chinese, thereby enhancing students' ability to interpret literary texts in their original language.

Teaching Chinese as a Second Language

This course addresses major approaches to language teaching, particularly Chinese as a second language. Students are encouraged to apply these approaches to teaching Chinese as they prepare to work in junior and senior high schools.

Classical Chinese Fiction I

In this course students read and interpret major works of classical Chinese fiction and become familiar with their themes and literary style.

Teaching Chinese: Materials and Methods

This course addresses various teaching methods and their application in the classroom when teaching Chinese as a second language at junior and senior high schools. The course also covers teaching materials, including text books, audiovisual materials, online resources, etc.

Classical Chinese Fiction II

This course is a sequel to Classical Chinese Fiction I; students read and interpret major works of classical Chinese fiction and become familiar with their themes and literary style.

Business Chinese

This course introduces students to vocabulary, terminology, and expressions used in the business world. Students practice composing official documents and business templates in Chinese.

Practicum in the Chinese Language and Culture I

This course enables students to practice the Chinese language and culture inside and outside of South Korea using the language skills and knowledge acquired through course work.

Special Topics in Chinese Literature

In this course students read and discuss major literary works from imperial China to understand how ideas and concepts of literature were formed and developed over time, with a focus on significant factors leading to literary breakthroughs in the history of Chinese literature. Students are encouraged to give presentations on topics of interest to them.

Translation and Interpretation of Written and Spoken Chinese

This is an advanced Chinese course for students preparing for a career in translation and simultaneous interpretation at international conferences, business meetings, consulting, etc. Students learn theories of translation and interpretation and practice them in mock work settings.

Chinese Essay Writing

In this course students practice writing essays in Chinese, learning how to present ideas creatively and coherently.

Traditional Chinese Songs and Opera

In this course students read and interpret traditional Chinese songs (*Ci*) and works of traditional Chinese opera (*Qu*). The course aims to convey an understanding of traditional Chinese popular culture and art.

Practicum in the Chinese Language and Culture Ⅱ

This course is a sequel to Practicum in the Chinese Language and Culture Ⅰ. It enables students to practice the Chinese language and culture inside and outside of South Korea using the language skills and knowledge acquired through course work.

▣ Department of English Language and Literature

Introduction

The Department of English Language and Literature, founded in 1980, provides a high-quality education in the fields of English linguistics and literature as well as practical English skills for prospective English experts who can contribute to both local and global communities. Graduates from our Department pursue careers in various fields such as teaching, business, civil service, mass media, translation, etc. or continue their studies in graduate school.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(69Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Background of British and American Literature (3)	1-2-R English Grammar(3)
2-1-R English Composition I (3)	2-2-E English Composition II (3)
2-1-R English Conversation I (3)	2-2-E English Conversation II (3)
2-1-E English Phonetics (3)	2-2-E Understanding English Linguistics (3)
2-1-E Understanding British and American Novels (3)	2-2-E Readings in English Short Stories (3)
2-1-E British and American Prose (3)	2-2-E Understanding British and American Drama (3)
2-1-E History of English Literature (3)	
2-1-E English Listening (3)	
3-1-E Practice in English Vocabulary (3)	3-2-E The History of the English Language (3)
3-1-E Understanding British and American Poetry (3)	3-2-E Shakespeare (3)
3-1-E Literary Criticism (3)	3-2-E Modern British and American Poetry (3)
3-1-E English Syntax (3)	3-2-E British and American Novels (3)
3-1-E Children's and Adolescent Literature (3)	3-2-E English Essay Writing (3)
4-1-E Readings in News English (3)	4-2-E Readings in Advanced English (3)
4-1-E Practice in English Grammar (3)	4-2-E The History of American Literature (3)
4-1-E Modern British and American Drama (3)	4-2-E Seminar in English Linguistics (3)
4-1-E Topics in British and American Poetry (3)	4-2-E Topics in English Literature (3)
4-1-E Instructional Resources and Methods in English Education (3)	4-2-E Theories in English Education (3)

● Courses Abstract

Background of British and American Literature

The course introduces students to the background of British & American literature and explores major writings, writers, movements, or topics from a variety of periods.

English Grammar

The course introduces students to essentials of English grammar. Its contents includes word classes, phrasal and clausal structures, and sentence types.

English Composition I

This class focuses on composing expository and descriptive paragraphs.

English Conversation I

The course focuses on learning daily conversational vocabulary and pronunciation/speaking skills. Students will be expected to practice through participatory group activities.

English Phonetics

This course provides a theoretical and practical introduction to English phonetics. It deals with consonants, vowels, sound changes, stress, intonation, etc.

Understanding British and American Novels

The course studies the form of the novel as a genre, explores major developments and significant textual backgrounds, and discusses major works of a particular topic in British & American Novels.

British and American Prose

The objective of this course is to read great and insightful English essays to learn a good English prose style as well as the wisdom of life and to practice English composition based on the reading.

History of English Literature

The course surveys English literature from the Anglo-Saxon period to the twentieth century. Students will explore themes and ideas of works by representative authors and examine the distinctive features of literary genres in their social and historical contexts.

English Listening

This course is designed to help students improve their listening comprehension through a variety of audio and video materials.

English Composition II

As a more advanced course than English Composition I, the course focuses on composing narrative and persuasive paragraphs.

English Conversation II

As a more advanced course than English Conversation I, the course is designed

to help students improve their ability to discuss a variety of topics in English.

Understanding English Linguistics

This course is an introduction to English linguistics, the scientific study of the English language. It deals with the core concepts in phonetics, phonology, morphology, syntax, semantics, pragmatics, etc.

Readings in English Short Stories

The course focuses on the form of short fiction as a genre, reviews its critical and literary contexts, and discusses major works of a particular topic in English short stories.

Understanding British and American Drama

This course offers an introductory study of British and American drama. Students will explore themes and techniques of the plays written in different ages examining the basic features and elements of drama.

Practice in English Vocabulary

This course helps students learn vocabulary effectively based on word formation principles and etymology.

Understanding British and American Poetry

This course focuses on ways of reading, understanding, and appreciating a wide variety of English and American poems. Students explore different ways of interpreting poetry, poetic language, and formal and thematic elements of the major work of a group of English and American poets.

Literary Criticism

The course explores various theoretical methods in literary criticism and focuses on how such critical methods affect the way literary texts are interpreted.

English Syntax

The course introduces students to Chomskyan generative syntax, explicating how canonical English sentences are derived through basic syntactic operations.

Children and Adolescents' Literature

This course is designed to teach students how to approach different versions and interpretations of folk tales, fairy tales, children's and young adult literature. In this course students will read a variety of critical views including historical and psychoanalytic interpretations of stories.

History of the English Language

This is an introduction to the historical development of the English language. It deals with foreign language influences and historical changes in sounds, spelling, vocabulary, syntactic structures, and meaning.

Shakespeare

This course examines a selected reading of Shakespeare's plays. Emphasis is on

how to understand and appreciate Shakespearean drama. Students will also study characteristics of English Renaissance literature and culture at large.

Modern British and American Poetry

This course provides an introduction to British and American poetry of the 20th century, including the works of T. S. Eliot, Ezra Pround, Yeats, and Robert Frost. Students learn the characteristics of Modern poetry, exploring the roots of the Modern in Walt Whitman and Emily Dickinson, as well as their British counter-parts.

British and American Novels

This course aims to read canonical English novels in their historical background and thereby enhance students' understanding of fiction In this course we will also read related critical materials to gain a better understanding of each novel.

English Essay Writing

This writing course aims to develop and expand the skills required to write academic writings such as reports, articles, books and dissertations. Besides grammar and the correct use of language, students learn to write essays that are both effective and appropriate for academic texts.

Readings in News English

This course is designed to read various English newspapers and magazines. The context of articles, stories, and conversations helps you figure out and understand the meaning of English words in the text. Students also learn to translate English text into Korean.

Practice in English Grammar

The course aims to show students how to use their grammatical knowledge for practical purposes, especially for preparing for pre-employment English tests.

Modern British and American Drama

The course examines a selected reading of modern British and American drama. Students will be encouraged to develop their English competence by closely reading texts and to increase their interpretive strategies as readers and critics of the plays.

Topics in British and American Poetry

This course discusses the English Romantic literary movement and characteristics, focusing on its main figures such as Wordsworth, Coleridge, Keats. Students analyze the intellectual, historical, political and social background relevant to an understanding of English Romanticism.

Instructional Resources and Methods in English Education

The course focuses on exploration of instructional resources and methods in English education.

Readings in Advanced English

This course is designed to learn English from various sources such as BBC, CNN, New York Times, LA Times, Time, Newsweek. Students discuss on a variety of topics, writing response essays and sometimes translating articles from Korean into English.

History of American Literature

The course studies major topics and movements in the history of American literature. It also examines major writings, authors, and their historical contexts.

Seminar in English Linguistics

This advanced course helps students understand both theoretical and practical aspects of English phonological patterns.

Topics in English Literature

This course is designed for advanced learners in English literature. Some professors take turns to teach this class in their own specific ares and interests, and thereby students will gain deeper knowledge of literature.

Theories in English Education

The course deals with various theoretical approaches to teaching ESL/EFL.

▣ Department of German Language and Literature

Introduction

The department of German language and literature of Chungbuk University was established in 1980. We are teaching and studying 'German language', 'German literature', 'German as a foreign language' and 'Study on Germany'.

In the field of German language, we specifically study and analyse the changes of German language, the structure of phonology and syntax, and sementics. In the field of German Literature, we classify German literature by the times and writers, and make various and extensive studies on novels, plays, poetry and critics. In the field of "German as a Foreign Language", we enable Korean to acquire basic knowledge on German and have a good command of German through intensive language course. In the field of "Study on Germany", we make a general and deep study of German history, politics, economy, society, culture and so on, which enables us to develop our society and culture in the end.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(69Credits), and electives.

Curriculum :

Yr-Sem-R/E	Course	(Credit)	Yr-Sem-R/E	Course	(Credit)
1-1-R		(3)	1-2-R		(3)
1-1-E		(3)	1-2-R		(3)
1-1-E		(3)	1-2-E		(3)
2-1-E		(3)	2-2-R		(3)
2-1-E		(3)	2-2-E		(3)
2-1-E		(3)	2-1-E		(3)
2-1-E		(3)	2-2-E	Sijo-Gasa	(3)
2-1-E		(3)	2-2-E		(3)
2-1-E		(3)	2-2-E		(3)
2-1-E		(3)			
3-1-E		(3)	3-2-E		(3)
3-1-E			3-2-E		(3)
		(3)	3-2-E		(3)
3-1-E		(3)	3-2-E		(3)
3-1-E		(3)	3-2-E		(3)
3-1-E		(3)	3-2-E		(3)
4-1-E		(3)	4-2-E		(3)
4-1-E		(3)	4-2-E		(3)
4-1-E		(3)	4-2-E		(3)
4-1-E		(3)	4-2-E		
					(3)

● Courses Abstract

German Conversation Ⅰ

This course helps students to improve basic speaking & writing ability used in daily life by repetitive learning. The native professor will teach this course and its curriculum is connected with **German Practice Ⅰ**. This course is the first level among the 4 German advanced course level.

German Practice Ⅰ

This course aims to acquire basic German expressions. Its curriculum is connected with **German Conversation Ⅰ**. This course is the first level among the 4 German advanced course level.

Introduction to German Literature

This course focuses on learning primary features and major authors of German literature. It teaches basic knowledge which helps to understand German language and literature.

German Conversation Ⅱ

This course teaches to apply what they've learn in **German Conversation Ⅰ** and they will develop intermediate German speaking ability. The native professor will teach this course and its curriculum is connected with **German Practice Ⅱ**. This course is the second level among the 4 German advanced course level.

Basic German Grammar

This course deals with learning basic German grammar to understand German language.

German Practice Ⅱ

This course introduces to acquire basic German grammar based on **German Practice Ⅰ**. Its curriculum is connected with **German Conversation Ⅱ**. This course is the second level among the 4 German advanced course level.

German Conversation Ⅲ

This course studies to apply what they've learn in **German Conversation Ⅱ** to enhance their German speaking ability more higher. The native professor will teach this course and its curriculum is connected with **German Practice Ⅲ**. This course is the third level among the 4 German advanced course level.

German Practice Ⅲ

In this course, students can perfectly understand advanced German grammar and text. Its curriculum is connected with **German Conversation Ⅲ**. This course is the third level among the 4 German advanced course level.

Intermediate German Grammar

This course introduces learning intermediate German grammar by various

sentences and practices.

Structure of German Sentences

This course introduces structure of German sentences by analyzing German syntax.

Understanding in German Culture

This is an introduction to German culture. It deals with German policy and culture to understand the real German society.

Contemporary German Society

This course is an introduction to current German society by learning contemporary German issues to develop overall understanding.

Readings in German Fairy Tale

This course deals with major German fairy tales to increase German reading skills. It focuses on understanding cultural value.

German ConversationⅣ

This course focuses on acquiring advanced conversation skills to pass the official German language certificate. This course is connected with **German PracticeⅣ** and the native German professor will teach. This course is the fourth level among the 4 German advanced course level.

German PracticeⅣ

This course focuses on advanced interpretation and reading skills through various reading materials. This course is the fourth level among the 4 German advanced course level.

History of German Literature

The course studies major topics and movements in the history of German literature. It also examines major writings, authors, and their historical contexts.

German Poetry and Song

This course discusses the German Poetry and song to help students understand basic poetic features. It also focuses on learning various cultural and literary values.

Readings in German Short Story

This course is designated to learn German by reading major German short stories to introduce German literature and develop literary attainment.

Screen German

The course focuses on learning German language and culture by studying various audio and video materials.

History of German Language

This is an introduction to the historical development from ancient to contemporary of German language.

Practice of Listening Comprehension in German

This course is designed to help students improve their listening comprehension through a variety of audio and video materials.

German Drama

The course studies the form of the German drama as a genre, explores major developments and significant textual backgrounds, and discusses major works of a particular topic in German drama.

Criticism of German Literature and Art

The course explores various theoretical methods in literary criticism and focuses on learning appropriate ways to criticize.

Business German

This course deals with practical German vocabulary and sentence. The students will be grouped in pairs and practice the expressions related to business situation. It also focuses on increasing vocabulary through reading letter, E-Mail, and official document.

German Composition

This course aims to write simple sentences to short text based on German grammar.

German Expressions and Meanings

This course helps students to understand the German language as a second language by learning the history of semantics.

German Film

This course explores the feature and history of German film by studying theoretical methods.

German Popular Culture

This course deals with the functions of German popular culture and cultural industry. It helps students to understand German popular culture.

German Novel

This course focuses on enhancing students' understanding of German novel by analyzing major novels.

German Essay Practice

This writing course aims to develop and expand the skills required to write German text.

Comparative Syntax of German and Korean

This course introduces the differences between German and Korean by analyzing each syntax.

Seminar in German Area Studies

This course is designated to understand the differences in German area. It

focuses on studying regional background.

German Subject Teaching

The course deals with various theoretical approaches to teaching German as a foreign language.

Comparative Literature and Culture Studies

The course explores German literature and culture. Students will study themes and ideas of works by representative authors and artists.

Topics in German Linguistics

This course studies the differences btweeen German and Korean by various aspects.

German Female Literature

This course analyzes German female literature to understand the historical values of German female authors.

Studies in German Writers

This course aims to study the literary movements and works of particular German authors.

German Instructional Resources and Methods

The course focuses on exploration of instructional resources and methods in German education.

▣ Department of French Language and Literature

Introduction

The department aims to foster talented individuals with expert knowledge on French literature through a systematic curriculum. It also aims to preserve the national's cultural heritage in literature and promote further growth in the future.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(12Credits), a major(102Credits), and electives.

Curriculum :

2016-1-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Phonetic practice of french(3)	1-2-E Basic French Grammar (3)
1-1-E Introduction to French I (3)	1-2-E Basic French Conversation (3)
	1-2-E Introduction to French II (3)
2-1-R French Conversation I (3)	2-2-R French Conversation II (3)
2-1-E Intermediate French Grammar(3)	2-2-E Screen French(3)
2-1-E French Composition I (3)	2-1-E Internet French (3)
2-1-E Journey into the History of France (3)	2-2-E French Composition II (3)
2-1-E Readings of the French Novels(3)	2-2-E French Essay(4)
2-1-E French Art and Language(3)	2-2-E Journey into French Culture(3)
3-1-R History of the French Literature I (3)	3-2-E French Literature and Film(3)
3-1-R French Linguistics I	3-2-E French Linguistics II (3)
3-1-E Children's Literature in French (3)	3-2-E Practice for French Composition II (3)
3-1-E Current French(3)	3-2-E French Essay Practice (3)
3-1-E French Literature and Art(3)	3-2-E History of the French Literature II (3)
3-1-E Practice for French Composition I (3)	3-2-E French Performance art (3)
4-1-E Appreciation of the Famous French Poetry(3)	4-2-E France and Africa (3)
4-1-E History of the French Language(3)	4-2-E Studies in French Writers (3)
4-1-E French Society and Culture (3)	4-2-E Topics in French Literature (3)
4-1-E France and Europe (3)	4-2-E French Subject Teaching(3)
4-1-E French Instructional Resources and Methods (3)	

● Courses Abstract

French Phonetics Practice

To learn French pronunciation and improve reading in French by using systematic approach in class.

Introduction to French I

A thorough introduction to French basic pronunciation, conversation and reading.

Basic French Grammar

An obligatory course for French students. Deals with basic French grammar,

French phonetic spelling and the use of impersonal phrases.

Basic French Conversation

A course for French beginners. To learn day-to-day French expressions through repetition.

Introduction to French Ⅱ

A continuation of "Introduction to French I".

French Conversation I

To improve speaking in French by learning different expressions in given situations.

Intermediate French Grammar

A continuation of "Basic French Grammar", but on a higher level.

French Writing I

Guides students to write simple sentences in French.

Journey into the History of France

The course covers history from the Gaul Era to the Modern Era of France in a chronological order. Discussions about the differences of French culture and to that of other countries are held in class.

Reading Fine Pieces of French Novels

Reading famous French writers from the 19th century and learn cultural background of the stories.

French Art and Language

Enhance ability to understand French language and its culture through art.

French Conversation Ⅱ

Enhance ability to have a conversation with native French speakers in French.

Screens France

This course is for students who completed the basic French lessons (must have completed at least 2 semesters of French lessons) and discusses images of French culture in French.

Internet French

This course is for students who completed the basic French lessons (must have completed at least 2 semesters of French lessons) and discusses images of French culture in French.

French Composition Ⅱ

A continuation of French Composition I.

French Essay

Discuss French grammar and French culture through reading prose.

Journey into the French Culture

Understand culture of different regions of France.

History of French Literature I

Learn about French literature from the Middle Ages to the Classical Ages.

French Linguistics I

This course deals with French phonetics, phonology, syntax and other details related to French Linguistics.

French Children's Literature

Understand french chiilren's Literature.

Current French

Discusses current events in France.

French Literature and Art

Discusses different theories of French art and literature.

French Composition Practice I

Learn how to speak and write in intermediate level of French freely.

French Literature and Film

Enhance knowledge about arts by learning different directors of the French film industry.

French Linguistics II

A continuation of "French Linguistics I".

French Composition Practice II

A continuation of "French Composition Practice I".

French Essay Practice

Enhance French writing skills by training to express thoughts with French interns.

History of French Literature II

A continuation of "History of French Literature I".

French Art Performance

Watch DVDs related to French classical performances and modern performances.

Impressions on French Poetry

To learn famous French poetry from the 19th and 20th centuries.

History of French Language Development

To learn how France developed politically, historically and socially from the earliest periods to modern times.

French Society and Culture

Whilst studying the French society and its culture by using different materials, comprehend what the French people are like overall.

France and Europe

Learn about the relationship between France and other European countries surrounding France, and discuss what position France takes part in the European

Union.

Studies of Teaching Materials and Guidance of the French Department

This course is for students who would like to pursue in an academic field. Students learn to figure out the best method of teaching French through on-field work and research.

France and Africa

Deals with the geography, social, education, culture of French-speaking countries in Africa.

Research on French Authors

Deals with writers during the surrealist movement during the 20th century in France

Crash Course on French Literature

Deals with comprehensive content of French Literature.

French Education Theory

This course is for students who would like to pursue in an academic field. Students get the chance to deeply look into different methods of teaching in different situations.

▣ Department of Philosophy

Introduction

The curriculum overviews the major trends in history from ancient times to modern times and studies the themes related to existence and values, logic, perception and practice. Students are taught to first understand better their own life and seek ways to apply what they learned to society to contribute to an establishment of a philosophical and ideological system that is appropriate for the times. Critical intellectuals with free-flowing imagination, a strong sense of ethics and a pursuit of peace and a willingness to act on what was learned are the qualities that the department seeks to instill within its students.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(30Credits), a major(72Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R *Introduction to Western Philosophy(3)	1-2-R *Introduction to Eastern Philosophy(3)
2-1-E History of Ancient Greek Philosophy(3) 2-1-E Metaphysics(3) 2-1-E Ethics(3) 2-1-E Philosophy of Religion(3) 2-1-E Contemporary Logic(3) 2-1-E Primitive Thoughts in China(3)	2-2-E History of Western Medieval Philosophy(3) 2-2-E History of Western Modern Philosophy(3) 2-2-E Social Philosophy(3) 2-2-E Philosophy of Confucianism(3) 2-2-E Taoist Philosophy(3) 2-2-E History of Indian Philosophy(3)
3-1-E Seminar in Medieval Philosophy(3) 3-1-E Epistemology(3) 3-1-E Contemporary European Philosophy(3) 3-1-E Contemporary British-American Philosophy(3) 3-1-E *History of Korean Philosophy(3) 3-1-E Seminar in Buddhist Philosophy(3)	3-2-E Seminar in Philosophical Anthropology(3) 3-2-E Seminar in Philosophy of History(3) 3-2-E Seminar in Philosophy of Life and Existential Philosophy(3) 3-2-E Seminar in Philosophy of Science(3) 3-2-E Seminar in Korean Philosophy(3) 3-2-E Seminar in Chinese Philosophy(3)
4-1-E Seminar in Western Modern Philosophy(3) 4-1-E Seminar in Theory of Value(3) 4-1-E Seminar in Philosophy of Art(3) 4-1-E Seminar in Eastern Philosophy(3) 4-1-E Instructional Resources and Methods in Philosophy(3) 4-1-E Teaching Course of Philosophical Essay Writing(3)	4-2-E Seminar in Ancient Greek Philosophy(3) 4-2-E Seminar in Philosophy of Mysticism(3) 4-2-E Seminar in Phenomenology and Hermeneutics(3) 4-2-E Seminar in East-Asian Buddhist Philosophy(3) 4-2-E Teaching of Philosophy in Middle Education(3)

● Courses Abstract

Introduction to Western Philosophy

This subject is to provide for the freshmen majoring in philosophy the basic knowledges of western philosophical traditions from the ancient to the contemporary, which would be an important basis for more deeply understanding variant areas of western philosophy in detail.

Introduction to Eastern Philosophy

In this course we learn basic philosophical conceptions and scholastic streams of thoughts, and prepare a necessary basis of research for advanced studies.

History of Ancient Greek Philosophy

The foundation of western civilization is in the ancient Greek philosophy. In this course we study the Milesian school, Pythagorean philosophy, Parmenides, Heraclitus, Pluralist philosophy(natural philosophers) Sophists, Socrates, Plato and Aristotle(Humanism Philosophy). Studying this philosophers we can find the basic features of western civilization

Metaphysics

Studies in selected topics in metaphysics, such as time, space, free will, death, personal identity, mind-body and the possibility of metaphysical knowledge.

Ethics

In this class will be introduced the important philosophers' ethical theories, critically examined the problems of contemporary ethical theories, and after discussed applied ethics (including biological, ecological ethics) issued in the contemporary world.

Philosophy of Religion

This subject discusses the problem of faith, whether it is exclusive or inclusive, caused by the absorption in a specific religious tradition and suggests critical and rational understanding. At the same time by not neglecting the non-rational aspect of religion, it helps to have deep understanding of the world religions.

Contemporary Logic

Theories and rules of three standard branches of modern symbolic logic - Propositional Logic, Monadic Predicate Logic, Polyadic Predicate Logic - are introduced. And through excercise of applying them to actual arguments, let students to cultivate the capacity of analysing philosophical arguments.

Primitive Thoughts in China

Before the first Chinese unification of Chin dynasty, Primitive thoughts represent varied phases of philosophy as Confucianism, Taoism, Moism and the other schools.

History of Western Medieval Philosophy

Medieval Philosophy is closely connected with Greek philosophy and modern philosophy. We can also find the interesting subjects, such as, the problem of reason and revelation, logic and faith, philosophy and religion in medieval philosophy. Through this course student can get the general understanding on these subjects and also the relation between Hellenism and Hebraism.

History of Western Modern Philosophy

This course aims to understand the process of the development of the western modern philosophy in reference to the ancient and medieval philosophy and to prepare to grasp the current philosophical thoughts.

Social Philosophy

In this class will be critically introduced the theoretical and practical implications of freedom, justice, equality and democracy etc dealt with in social and political philosophy, and will be freely discussed how to actualize the values in this world.

Philosophy of Confucianism

An overall investigation will be made on thoughts of Confucius, Mencius, Hsun-tzu, and their historical successors as individuals and sub-schools. Some emphases are placed on comparison of Confucianism with other schools in respects of metaphysics and ethics.

Taoist Philosophy

Taoist philosophy shows the greatness of human being and nature in their masters *Laotzu* and *Chuangtzu*.

History of Indian Philosophy

This subject discusses the origin and the historical development of Indian Philosophy in the aspect of self-salvation and its practice.

Seminar in Medieval Philosophy

In this course students can study the philosophy of Augustine, Thomas Aquinas, and William of Ockham. Student can get the meaning of the problem of reason and revelation, and also understand the basic features of patristic philosophy and scholasticism.

Epistemology

This course aims to examine the possibility, origin, nature, kind, scope and truth of the human knowledge and to criticize the fundamentalism of the classical epistemology from the standpoint of the current philosophy.

Contemporary European Philosophy

A survey lf issues in contemporary european philosophy with special attention to major philosophers such as Schopenhauer, Kierkegaard, Nietzsche, Husserl, Heidegger, and beyond.

Contemporary British-American Philosophy

Contemporary Pragmatism and Linguistic Philosophy are introduced. And criticism and evaluation on their philosophical spirits are attempted.

History of Korean Philosophy

A general survey will be given on the Korean history of ideas in relation to the general history of Korea. Attention of learning is focused on the relation among schools, socio-political hegemony and ways of thinking in particular period of history, and the significance and suggestion of historical philosophies in modern world.

Seminar in Buddhist philosophy

This subject discusses the Buddhist thoughts in the context of Indian philosophy. Therefore it contains the ancient Indian thoughts which caused the evolution of Buddhism and will discuss more fully Primitive, Abhidharma and Mahayana Buddhism.

Seminar in Philosophical Anthropology

The biological anthropology or the cultural anthropology as ethnology presupposes that it knows what the human being is and searches for the physical or cultural characteristics of the mankind. But the philosophical anthropology aims to question the supposed knowledge about the human being of the biological or the cultural anthropology and to inquire into the nature and principle of the human being in its totality.

Seminar in Philosophy of History

In this class will be discussed the meaning of history and the philosophical problems of historical understanding and explanation (including Marxian materialistic understanding of history), and will be freely discussed the task of contemporary philosophy of history.

Seminar in Philosophy of Life and Existential Philosophy

An critical examination of the growth and development of philosophy of life and existential philosophy, with emphasis on the major thinker(e.g., Dilthey, Nietzsche, Bergson, Heidegger, Jaspers, Marcel, Sartre).

Seminar in Philosophy of Science

For understanding the nature of science, contemporary philosophers' views on the problems of demarcation, methodology, logic of explanation, and justification of science are surveyed. And through it, let students to cultivate the capacity of criticizing and evaluating the scientific activity in the contexts of logic, epistemology and metaphysics.

Seminar in Korean Philosophy

This is an intensive course of investigating some particular issues in traditional

philosophy of Korea. Definite themes will be fixed in each semester as changed or varied from those of the previous semester.

Seminar in Chinese Philosophy

As an unrestricted seminar, this course will draw upon philosophical, historical, sociological and political sources, plus a wide range of practical perspectives, in what should be an academically challenging and personally fulfilling learning experience.

Seminar in Western Modern Philosophy

This course examines the Enlightenment that is at its height in but is also overcome by I. Kant. It aims to search the philosophical movement and principle of the Enlightenment in the fields of natural science, epistemology, religion, history, law, society and aesthetics.

Seminar in Theory of Value

In this seminar we discuss on the concrete social and political problems of the living world, that is, on the economic, social, political, cultural and ideological problems in the Age of Globalization, especially on the problems issued during the 'war on terror' after 911.

Seminar in Philosophy of Art

The Aesthetics focuses not only on how the beauty gives meaning to mankind but also on what the aesthetic means, relating with the concrete works in the eastern and western history of art.

Seminar in Eastern Philosophy

This is an intensive course of investigating some specific issues in traditional philosophies of Korea, China and India as compared with those of premodern Europe. Particular themes will be set up varyingly in each semester e.g., "Conceptual and Theoretical Differences between Ontologies of Chi Hsi and Descartes" or "Epochal Turning Points of Philosophy from Ancient Times into Mediaeval Ages in China and Europe."

Seminar in Ancient Greek Philosophy

Plato and Aristotle compiled all the basic features of ancient Greek philosophy. By reading their original text students can deeply understand their basic philosophical problem and its meaning.

Seminar in Philosophy of Mysticism

The aim of this course is understanding mysticism philosophically. For it, the definition of mysticism, the relation between mysticism and intellectualism, mysticism and religion, mysticism and philosophy, and the methods and forms of mystic life are examined.

Seminar in Phenomenology and Hermeneutics

Study of selected works from the beginning to the present, from Nietzsche to Husserl.

Seminar in East-Asian Buddhist Philosophy

This subject extracts the core problems of Indian, Tibetan, Chinese and Korean Buddhism and will analyze its philosophical meaning, way of practice.

▣ Department of History

Introduction

he Aim of History is to grasp and criticize historical materials in the past, to provide general / reasonable foundation about the human future. Department of History in Chungbuk National Univ. was found at 1983 and its curriculum is composed of Korean History, Eastern History, Western History. And their lectures are mainly composed by every period. Besides, lectures on reading historical materials are (Korean, Eastern, Western). Addition to those, some lectures of related departments are authorized as major subjects. Biannual field investigation on national cultural remains is carrying out to study historical remains.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(72Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Readings in East Asian History(3)	1-2-R Series of Biographies in the Shiji(3)
1-1-R Survey of European History(3)	1-2-E History of the Koryo-Dynasty(3)
1-1-E Ancient History of Korea(3)	1-2-E Ancient History of Europe(3)
2-1-R Korean Historiography(3)	2-2-R Readings in Korean History(3)
2-1-R Readings in European History(3)	2-2-E History of Late Chosun-Dynasty(3)
2-1-E History of Early Chosun-Dynasty(3)	2-1-E Modern Ages of East Asia and Imperialism(3)
2-1-E Bibliographical notes of a History(3)	
2-1-E Survey of Chinese History(3)	2-2-E Medieval History of Oriental(3)
2-1-E Ancient History of China(3)	2-2-E Transition from Medieval to Modern Europe(4)
2-1-E Medieval History of Europe(3)	
	2-2-E History of the United States(3)
3-1-R Historic Remains Exploration Ⅰ(3)	3-2-E Contemporary History of Korea(3)
3-1-E Modern History of Korea(3)	3-2-E History of Korean Constitution(3)
3-1-E History of Ming-Qing Period(3)	3-2-E History of Japan(3)
3-1-E Contemporary History of China(3)	3-2-E History of Custom in China(3)
3-1-E Introduction to the Historical Studies(3)	3-2-E History of Islamic World(3)
	3-2-E Modern History of Europe(3)
4-1-R Historic Remains Exploration Ⅱ(3)	4-2-E Topics on Korean History(3)
4-1-E Seminar on Local History(3)	4-2-E Museology and History(3)
4-1-E Topics on East Asian History(3)	4-2-E Topics on European History(3)
4-1-E Contemporary History of Europe(3)	

● Courses Abstract

Readings in East Asian History

Read the Chinese historical records and Oriental history materials, laid the

foundation for the study of the Oriental History.

Survey of European History

The aim of this course is to understand fundamental historical facts of Western History and to lay the foundation of the study on Western History.

Ancient History of Korea

This course offers opportunities to understand the historical development process on politics, economics, society and culture from prehistorical period to the Later Unified Silla(North-South States Period).

Series of Biographies in the Shiji

The understanding of the ancient Chinese society by reading the Series of Biographies in the Shijihermal covering various figures of ancient Chinese

History of the Koryo-Dynasty

This course offers opportunities to survey the changes on politics, economics, society and culture in Koryo.

Ancient History of Europe

The aim of this course is to understand Ancient Western Civilization by the general survey on Orient, Greece and Roman History.

Bibliographical notes of a History

By reading original texts that is necessary to historical study, this course offers opportunities to learn the research basics of Korean History and to estimate the quality and value of the historical materials.

Readings in European History

The aim of this course is to develop the power of research on Western History by reading about fundamental materials of Western History.

History of Early Chosun-Dynasty

This course examines the Chosun-Dynasty from the establishment to Japanese Invasion of Korea in 1592 to survey the development process on politics, economics, society and culture.

Korean Historiography

In order to understand the Korean Historiography, this course reviews views and methods of historians in each period and matters of Historiography and its changing process. Thereby it enables to understand the development process of Historiography and to grasp the Korean History from the diverse standpoint.

Survey of Chinese History

To promote an understanding of the basic facts of Chinese history and laid the foundation for learning Chinese history.

Medieval History Europe

The aim of this course is to survey on Medieval Western History after the

destruction of Western Roman Empire.

Readings in Korean History

Reading original texts in Korean History helps to learn the research basics of Korean History and to estimate the quality and value of the historical materials.

History of Late Chosun-Dynasty

This course examines the Chosun-Dynasty from the Japanese Invasion of Korea to Opening Chosuns to understand the changes on politics, economics, society and culture and to figure out this epoch as the embryonic stage of korean modernization.

Modern Ages of East Asia and Imperialism

From the Opium War to the May 4th Movement of 1919, understand China modernization and the semi colonial Chinese of modern history, and then examine the process of modernization in East asia.

Ancient History of China

Since prehistoric times, while the clean flow of Chinese ancient history with a focus on exploring key themes important to understand the Chinese ancient history.

Transition from Medieval to Modern Europe

The aim of this course is to examine closely about Renaissance, extension of Western power, Reformation and Absolute Monarchy as movements of a fetus of modern society and culture.

History of the United States

The aim of this course is to study the historical transition of United States of America from colonial period to nowadays.

Historic Remains Exploration I

This course provides students with the necessary perspective how to prepare the Historic remains Exploration.

Modern History of China

This course reviews the Middle Ages of Korean History as the Breakup-, Reform-, Modernisation process which are resulted from foreign aggression and resistance against it.

Medieval History of Oriental

By looking at the history of the Tang and Song Dynasty widen the understanding of the Middle Eastern community.

Contemporary History of China

The contemporary China maintains the socialist system, and its national development places major emphasis on economic development, so this course examines such China.

Introduction to the Historical Studies

The aim of this course is to learn scholarly attainments, attitudes, methods by the analytic understanding of historical theories and historical philosophy.

Contemporary History of Korea

This course provides a historical study from the beginnings of modern times to Korean War by focusing on diverse problems of the Contemporary History of Korea.

History of the Japan

This course aims to promote an understanding of the current Japan. What we know about the history of Japan is the most negative aspects such as the colonization of Korea and imperialist aggression. However, a successful country for the first time in a non-Western modernization. The exact understanding of this both sides will be able to extend the width and depth of the astute understanding of the history of Japan.

History of Custom in China

Through the traditional China life history data, learning customs, culture and lifestyle of Traditional China.

Modern History Of Islamic World:

The aim of this course is to study and understand about Islamic History and Culture as a religion and civilization by investigating on the origin of Islam, history, customs etc.

Modern History of Europe

The aim of this course is to understand the modernizing process of Europe by studying about several revolutions of citizens, industrial revolution, liberalism, nationalism.

Historic Remains Exploration Ⅱ

This course helps to extend the historical fact learned from the classroom to the field study.

Seminar on Local History

This seminar gives students the opportunity to train how to research the Local History, the newcomer of the 'cultural era' in the 21 century. With this training it aims furthermore to find the cultural source of the Local History and to develop it to the cultural contents.

History of Ming-Qing Period

Examines History of Ming-Qing Period, and widens understanding of the Oriental modern history.

Topics on East Asian History

To understand the special debate of Chinese history and plan a systematic and

analytical understanding of the overall Chinese history

Contemporary History of Europe

The aim of this course is to understand the imperialism after 19th century, 1st and 2nd World War, the changes of western power relations and thoughts.

History of Korean Constitution

The course reviews the Korean History in the flow of time using the constitutional change in politics, economics, society, military, education and law.

Topics on Korean History

The course focuses on the special topics of the Korean History to promote the systematic and analytic understanding of Korean History.

Museology and History

This course aims to find out the History as practical use and cultural history, while acquiring the historical method of research by far away from researching mainly on philology and instead by using the archeological and art historical relic, antiquity such as antique documents, books and living tool.

Topics on European History

The aim of this course is to understand throughly by the studying about special discussions on Western History.

▣ Department of Archaeology and Art History

Introduction

Archaeology and art history are the study of past cultures for understanding and reconstructing the characteristics of each culture. The Department of Archaelogy and Art History teaches the cultural contents and changed aspects of the world and Korean Peninsula, local cultural characteristics of Chungchengbuk-do province, the method of field investigation and analysis on cultural remains and relics in order to develop students' research skills and build correct perception on cultural heritage.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(108Credits), a major(234Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Introduction to Archaeology(3-3-0)	1-2-R History of Korean Art(3-3-0)
	1-2-R Field Methods in Archaeology(3-2-2)
2-1-R Literature and Art Works in China I (3-3-0)	2-2-R Literature and Art Works in China II(3-3-0)
2-1-E Korean Prehistoric Archaeology(3-3-0)	2-2-E History of Korean Ceramics(3-3-0)
2-1-E East Asian Archaeology(3-3-0)	2-2-E Historical Archaeology of Korea(3-3-0)
2-1-E Practice in Art History(3-3-0)	2-2-E History of Western Art(3-3-0)
2-1-E Readings in Japanese Archaeological Literatures(3-3-0)	2-2-E Arts of China (3-3-0)
2-1-E History of Buddhist Art in East Asia(3-3-0)	2-2-E Western Archaeology(3-3-0)
	2-2-E Readings in Chinese Archaeological Literatures(3-3-0)
3-1-R Quantitative Analysis of Archaeology Data(3-2-2)	3-2-E Special Lectures in Archaeology(3)
3-1-E History of Korean Sculpture(3-3-0)	3-2-E History of Korean Painting(3)
3-1-E Arts of Japan(3-3-0)	3-2-E History of Modern and Contemporary Art(3-3-0)
3-1-E History of Archaeology(3-3-0)	3-2-E xchange of East Asian Arts(3-3-0)
3-1-E SCultural Exchange of the Ancient Northeast Asia(3-3-0)	3-2-E Archaeological Approaches to Tools and Technological Innovation(3-2-2)
3-1-E Readings on Art History of Asia(3-3-0)	3-2-E Readings in Western Archaeological Literatures(3-3-0)
4-1-R Museology(3-3-0)	4-2-R Field Survey(3-1-4)
4-1-E Topics in Prehistoric Archaeology of Korea(3-3-0)	4-2-E Seminar in History of Art(3-3-0)
4-1-E Practice for Thesis(3-3-0)	4-2-E Topics in Historical Archaeology of Korea(3-3-0)
4-1-E Understanding of Ancient Chinese Culture I (3-3-0)	4-2-E Understanding of Ancient Japanese Culture I (3-3-0)

● Courses Abstract

Seminar in History of Art

This course provides students in-depth understanding on art historical research by exploring relevant issues and methodologies.

Practice for Thesis

This course aims to learn how to write a graduation thesis with proper way and theories. Students in this course will learn research achievements in the fields of archaeology and history of art and analyze them in order to achieve the goal of this course.

Understanding of Ancient Chinese Culture I

This course aim to grasp Chinese ancient culture. It is necessary to understand Chinese ancient culture based on Huanghe civilization not only for students majoring in archaeology and art history but also for educated people.

Museology

In this course, students will learn the basic knowledge of museology as well as the different management systems for museums between South and North Korea. Through this, students will have a chance to consider the management systems for museums in preparation for unified Korea.

Exchange of East Asian Arts

This course aims to understand artistic contents and the process of cultural exchange between Korea, China and Japan. The cultural heritages comparable and containing the trace of such exchange will be closely examined to grasp their characteristics.

History of Modern and Contemporary Art

This course will examine the development of Korean traditional art from the early twentieth century and various aspects of contemporary art. It also provides students chances to look systematically into the development and current thought of modern and contemporary art.

History of Korean Painting

The development of Korean paintings of each period will be examined through existing paintings from the prehistoric period to the present. Through the careful reading and understanding of the works the meaning and stature of paintings in Korean history of art would be illuminated.

Readings on Art History of Asia

This course is designed to understand the significance of epigraph and literary materials including various historical records and to learn how to apply the interpretations to research on art history.

Cultural Exchange of the Ancient Northeast Asia

This course aims to grasp basic knowledge about archaeological culture of East Asian countries such as Siberia, Mongolia, Maritime Province in Russia and Japan which have been closely connected with Korean Peninsula from the prehistoric period. Students in this course will have proper understanding of cultural exchange and interrelationship between ancient Northeast Asian countries including Korea.

Arts of Japan

This course is designed to explore the history of Japanese art through masterpieces in existence from Jomon period to the present day. Students will examine the historical backgrounds formulating representative styles of each period and the process of independent development of Japanese art with the strong influence of Chinese and Korean art.

History of Korean Sculpture

In this course, students will examine the development of Buddhist sculpture, one of the main subjects of history of Korean sculpture. Buddhist faith and various background of the time with an emphasis on the process of stylistic changes will be discussed.

History of Western Art

This course is a survey of western art developed in Egypt, Mesopotamia and Europe. Students in this course will explore the formations of various art styles and its development through paintings, sculptures, crafts, and architectures in existence with political, social, economical and religious background of each area.

Arts of China

This course is designed to study the development of Chinese art from prehistoric period to the present. Students will explore the characteristics and stylistic development of various art genres such as paintings, sculptures, crafts, and architectures formulated under political, economical, religious, ideological and cultural background of each period through works of art in existence. Since Chinese art has influenced intensively on development of art of Korea and Japan, exchange and interrelations of east asian art will be examined.

History of Buddhist Art in East Asia

This course is designed to make a comparative consideration on Buddhist art, one of the subjects enable to examine the cultural homogeneity and distinctiveness of East Asia. Students will explore various cultural characteristics exposed in the process of the propagation of Chinese Buddhism to Korea and Japan through sculptures, pagodas, paintings and crafts.

History of Korean Ceramics

This course aims to learn the characteristics and the historical background of Korean traditional ceramics in South Korea from prehistoric period to Joseon dynasty. In addition to that, students will explore the ceramic culture and manufacturing background of the northern part of Korean Peninsula.

Practice in Art History

This course aims to enhance work experiences in the care and handling of works of art through practicing of rubbing, measuring and cataloging activities.

Literature and Art Works in China

This course aims to consider a relationship between Chinese literature and art which influenced the creation of Chinese art in general and formation of its tradition. Students will briefly review the history of Chinese literature and art, and learn development process of Chinese literature and art, the most significant genre among Chinese arts, through the examination of existing art objects.

History of Korean Art

This course helps students grasp the characteristics and significance of Korean art by examining various genres of Korean art such as architecture, sculpture, painting and craft from prehistoric times to modern times. Students also have chances to practice research methodology of art history.

Introduction to Archaeology

This course helps students understand the characteristics of prehistoric and historical culture through excavations. Also, students can have a chance to grasp the significance and research methodology of archaeology.

Field Methods in Archaeology

This course aims to learn the basic knowledge of archaeological materials and practice archaeological skills such as field investigation, actual measurement of relics, writing reports in reality. This course will provide a chance to practice field investigation, restoration, classification, measurement and cataloging activity with lectures on the basic of research and method. So students in this course grasp essential skills in archaeological research.

Korean Prehistoric Archaeology

This courses attempts a proper understanding on Korean culture of prehistoric times, Paleolithic to Bronze Age, based on archaeological material. Relevant archaeological data come from not only Korean Peninsula but also Northeast China.

East Asian Archaeology

This course provides better understanding on prehistoric and historical cultures of East Asian countries, Korea, China and Japan.

Readings in Japanese Archaeological Literatures

This course aims to improve archaeological understanding of Japan and Japanese culture by studying Japanese archaeological literatures.

Historical Archaeology of Korea

This course will provide better understanding on Korean history by using materials not only from South Korea but also from Liaodong area, Gojoseon's main center of activity and North

Western Archaeology

This course reviews important archaeological materials from the European and American continents, which form the foundation of Western archaeology.

Readings in Chinese Archaeological Literatures

It is important to grasp Chinese culture in order to understand Korean culture because China have a strong influence on Korean history and culture. We will explore the cultural development of China through Chinese archaeological literatures.

Quantitative Analysis of Archaeological Data

Archaeological data are variable in the dimension of time, space, form as well as quantity. This course introduces the techniques and interpretative schemes prevalent in quantitative analysis of archaeological data.

History of Archaeology

New discoveries, methodologies and theories providing the background for current archaeology will be examined in lectures in the view of scholastic history. Special emphasis will be placed on changes of current thought of Western and Korean archaeology.

Cultural Exchange of the Ancient Northeast Asia

This course aims to grasp basic knowledge about archaeological culture of East Asian countries such as Siberia, Mongolia, Maritime Province in Russia and Japan which have been closely connected with Korean Peninsula from prehistoric period. Students in this course will have proper understanding of cultural exchange and interrelationship between ancient Northeast Asian countries including Korea.

Special Lectures in Archaeology

This course pursues an intensive understanding on (traditional) major topics of world archaeology.

Archaeological Approaches to Tools and Technological Innovation

Students in this course will explore the development of tools and technique in the relationship with social development from Paleolithic age to the beginning of civilization. They also have a chance to experience tool production of the past.

Readings in Western Archaeological Literatures

Modern archaeology has been developed in the western society. This course is

designed to enhance students' reading comprehension on archaeological literatures written in western languages, especially English.

Special Lecture of Korean Prehistoric Archaeology

This course is designed for a deeper understanding on culture changes in the context of Korean prehistory on the basis of intensive exploration on the archaeological artifacts.

Field Survey

Students in this course will have chances to accumulate their experience in field survey and ability for material analysis by investigating remains in person and analyzing them.

Topics in Historical Archaeology of Korea

Lectures will be designed to study distinguishing forms and styles of ancient tombs and the characteristics of various excavated relics of each period from Three Kingdoms period to Joseon dynasty.

Understanding of Ancient Japanese Culture I

The goal of this course is to understand Japanese ancient culture. It is very important to understand Japanese cultural history such as Jomon period represented by the potteries decorated with patterns, Yayoi period influenced by Korean agricultural culture, and Kofun period represented by flourishing tumulus culture in order to grasp exchanges between Korea and Japan.

▣ Department of Sociology

Introduction

Sociology is the systematic study of the groups and societies humans build and of the way these alliances affect our behavior. Sociologists do not limit themselves to the study of individuals, current events, and private lives. Rather they examine the way social institutions such as the family, the educational system, or the economy, influence individuals and the way social institutions, and even the whole societies are created, maintained, and changed. Thus, the objects of sociological studies varies widely ranging from the family, culture, religion, and crime to social class/stratification, industry, labor, community, organizations, urbanization, ecology, and social welfare. Sociologists base their knowledge on studies of the empirical world. Sociology uses scientific method to study the empirical world and develops a body of verified knowledge based upon scientific investigation. Thus the purpose of sociological education is to teach students the ability to view the direct or indirect personal experiences in relation to social structure in which they occur and to familiarize students with sociological methodology of studying the society scientifically.

Credit requirements for graduation

Majors of sociology in Chungbuk National University should earn a total of 140 credits including of 33 credits in liberal education, a minimum of 75 credits in sociology major, and possibly some credits of electives from other programs.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)

● Courses Abstract

Introduction to Sociology

Introduces sociology as a discipline and as an approach to knowledge. Designed to equip students with a basic understanding of Korean society.

History of Sociology

Introduces the history of sociology from the establishment of sociology as a discipline up to the 1930s. Focuses on various theoretical perspectives to understand social phenomena.

Social Statistics

Introduces quantitative analysis in social research, including principles of statistics and hypothesis testing, the use of empirical evidence, particularly from social surveys. Includes descriptive and inferential statistics, contingency table analysis, and regression analysis.

Readings in Sociology

Uses English textbooks in sociology and thereby enhances students′ ability to read books in sociology in English. Basic sociological concepts are studied.

Sociology of the Family

Explores the structure and functions of the family and kinship in relation to the totality of social structure, and examines how and why Korean families have changed and the problems faced by the family in the process.

Industrial Sociology

Deals with the formation and development of division of labor, various aspects of modern management, especially the relationship between organizations within individual enterprises on the micro level and industrial organizations on the macro level in contemporary society.

Sociology of Communication

Introduces basic concepts of communication and its functions in society. The interrelationship between social structure and forms of communication is also examined. And thereby enhances students′ understanding of the nature of social communication.

Sociology of Crime

Introduces sociological theories of criminal phenomena, typology of crime, and social control mechanisms. Key actors in the legal system, such as police, courts, and prisons are discussed and the role of these institutions in crime prevention are assessed.

Media Sociology

This course deals with various types of media and contents environment to understand complex ways in which the media reflects the society as well as changes it.

Social Stratification and Inequality

Explores causes and consequences of social inequality. Focuses on the social meanings, functions, and typology of social classes and social mobility as is applied to contemporary Korean society.

Sociology of Visual Images

Introduces sociological perspectives to the analysis of visual images portrayed in commercial and documentary films. Also included is the utilization of visual images in sociological survey research.

Information and Society

Examines specificities of information society in relations to changes in the modern society. By focusing on the causes of the societal transformation we sensitize students to the directions of future social changes and enhance students' adaptability to the future.

Sociology of Gender and Sexuality

Familiarizes students with central issues and theoretical perspectives regarding gender inequality in contemporary society.

Sociological Writing

Selects and examines topics which are not included in the main sociology courses by using sociological perspectives.

Practice in Social Statistics

Explores individual motivations and principles in the formation of social groups and examines the relationship between the role behavior of individuals and the macro social structure. Special attentions are paid to functions and dysfunctions of bureaucratic organizations in relations to the social whole.

Social Research Methods

Guides students through the process of social survey and of producing an original research paper of high quality. Topics include theoretical logic of social survey, identification of research problems, methods of data collection, processing, analysis, and writing-up. Also introduces qualitative methods of social research.

Political Sociology

Familiarizes students with classical political thoughts since Plato and contemporary theories of political sociology.

Civil Society and Social Movements

Examines the relationship between the state and civil society and explores social movements in civil societies from perspectives of new social movements. Also included is the comparison with traditional social movements such as labor movement.

Sociology of Organization and Management

The class aims to understand the basic principles of modern organizations and examine the issue of organizational management from various theoretical perspectives.

Contemporary Sociological Theories

Reviews the currents of contemporary sociological theories since the 1930s including structural functionalism, conflict theory, system theory, symbolic interactionism, exchange theory, role theory, critical theory, and ethnomethodology. Emphasis is placed on adjudicating among competing explanations for complex social phenomena in contemporary society based on critical assessment of a theory‘s logic.

Writing Sociological Essays

Trains students basic skills in writing essays in general and sociological essays in particular. Subjects range from composition of a paragraph, logical deployment of ideas, and to the style and format of essay. This is a preparatory course for writing a thesis, a requirement for graduation.

Workshop in Social Research

Students are encouraged to practice social research with a topic of their selection based on the knowledge acquired from the courses of sociological methods and social statistics. Students are guided to proceed through research procedures meticulously and thereby experience the merits, excitements, and difficulties of social research.

Sociology of Culture

Cultural phenomena are analyzed and discussed in relation to social structure. Topics include science, knowledge, religion, media, mass culture and arts.

Economic Sociology

This course investigates the relationship between economic phenomena and social structure.

Medical Sociology

Explores the social causes of diseases and the meanings of death from society's

point of view. Also discusses the social construction of medical institutions.

Urban Sociology

Introduces the formation and multiphasic development patterns of the city in history from sociological perspectives and thereby enhances students' understanding of modern cities.

Sociology of Science and Technology

Helps students to understand characteristics of science and technology in the context of contemporary society. Topics include the relationship between science/technology and population, sociological research on science/technology, science debates and so on. Discussions on bio- and information technology in terms of their technical, social, and ethical dimensions are helpful for making decisions related to science and technology.

Sociology of Environments

Familiarizes students with global environmental crisis and social ecological theories and ethics.

Seminar in Sociology

By discussing selective topics drawn from contemporary social change this course encourages students to apply their sociological knowledge to social reality.

Globalization and Social Change

Introducing diverse sociological theories to account social change, this course encourages students to study the dynamic aspects of society.

Sociology of Work and Occupations

This course pursues sociological investigation of occupations dealing with various aspects of them including social meanings of occupation, occupational choice, the process of work, occupational mobility and occupational satisfaction.

Demography

Emphasizes the importance of population-related problems by exploring relationships between population and social, cultural, and economic factors.

Studies on Regional Society

Studies theoretical background of the power structure in regional societies and examines the characteristics of regional power structure in the period of regional autonomy in Korea.

Social Policy

Reviews policy solutions to various social problems such as mass poverty, unemployment or underemployment, housing questions, poor public health system, etc. Special attentions are paid to the social and political contexts in which policies were made.

Studies on Korean Society

Analyzes Korean society from sociological perspectives. The objects of the analysis are the family, class, population. the urban and rural. Also relates specificities and generalities of Korean society to the development of globalization.

▣ Department of Psychology

Introduction

1. Definition of psychology

Psychology is a field of inquiry that scientifically and empirically studies the mind and behavior of humans. Due to its strong emphasis on scientific approach, it is often referred to as behavioral science.

2. Scope of interest in psychology

Psychology is situated at the intersection of natural sciences, humanities, and social sciences, and has a wide scope of interest. The extent of application of psychology is increasing worldwide.

3. Major areas of psychology

Psychology comprises many subfields. Areas that examine the psychological basis of human behavior include biological psychology, psychology of perception, cognitive psychology, educational psychology, psycholinguistics, personality psychology, developmental psychology, and social psychology. Areas that aim to apply psychological knowledge to real life include clinical psychology, counseling psychology, industrial/organizational psychology, health psychology, consumer/advertising psychology, and criminal psychology.

4. Characteristics of the department

The Department of Psychology at Chungbuk National University is the only department in Chungbuk province that teaches and conducts research in psychology in undergraduate and graduate programs.

5. Brief history of the department

The Department of Psychology at Chungbuk National University was established in 1981, and started its master's and doctoral programs in 1988 and 1998, respectively.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(90Credits), a major(216Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
	1-2-R* Introduction to Psychology II(3)
1-1-R* Introduction to Psychology I(3)	1-2-E Readings in Psychology I : Major Topics in Psychology(3)
2-1-R* Research Methods in Psychology(3)	2-2-R Statistics and Practicum in Data Analysis(3)
2-1-E Personality Psychology(3)	2-2-R* Biological Psychology(3)
2-1-E Developmental Psychology and Laboratory(3)	2-2-E Developmental Psychopathology and Exercise(3)
2-1-E Industrial Psychology and Laboratory(3)	2-2-E Social Psychology and Laboratory(3)
2-1-E Seminar on Growth Psychology(3)	3-2-R* Experimental Psychology and Laboratory(3)
2-1-E Psychology of Learning(3)	3-2-E Practicum in Counseling(3)
3-1-E Reading in psychology II : Applied Psychology(3)	3-2-E Psychological assessment(3)
3-1-E Theories of Psychotherapy and Counseling(3)	3-2-E Cognitive Psychology and Laboratory(3)
3-1-E Abnormal Psychology and Exercise(3)	3-2-E Development of Children's Thinking and Laboratory(3)
3-1-E Organizational Psychology(3)	3-2-E Traffic Psychology and Laboratory(3)
3-1-E Psychology of Perception and Laboratory(3)	3-2-E Criminal Psychology and Practicum(3)
3-1-E Health Psychology(3)	4-2-E History of Psychology(3)
	4-2-E Psychology and Law(3)
4-1-E Psychology of Creative Problem-Solving(3)	4-2-E Practicum in Clinical Psychology(3)
4-1-E Clinical Psychology and Practicum(3)	4-2-E Psychology of Intergroup Bias(3)
4-1-E Psychology of Aging(3)	4-2-E Application of Engineering Psychology and Cognitive Ergonomics(3)
4-1-E Psychology of Language(3)	4-2-E Research Practicum in Psychology II(2)
4-1-E Research Practicum in Psychology I(2)	**Neurobiology(3)
	**Mathematical Statistics I(3)
	**Mathematical Statistics II(3)
	**Marketing Management(3)
	**Organization Behavior(3)
	**Consumer Behavior(3)
	**Human Anatomy and Psysiology I 3)
	**Human Anatomy and Psysiology II(3)

*Requirements for a minor.

**Electives which students may take from other department.

● Courses Abstract

Introduction to Psychology I, II

Introduce the basic contents and experiments studied in the various fields of psychology to understand what psychology is about, and how to do it.

Research Methods in Psychology

Learning basic concepts of scientific methods and measurements in Psychology.

Developmental Psychology

This course is designed to give an overview of the developmental process of social and cognitive domains from birth to death.

Psychology of Adjustment and Growth

As a psycho-education program for adaptation and growth in psychology, the major interventions for self-development are offered with the activities such as lecture, practice, and workshop.

Industrial Psychology

We consider the human behaviors occurring in the industrial places and try to find the way to improve the quality of workers' personnel lives.

Readings in Psychology I : Major Topics in Psychology

Based on the original textbook in English, This class will provide the diversified study topics in the field of psychology.

Statistics and Practicum in Data Analysis

Understanding the methods of statistical analysis for psychological data and practicing the use of statistical softwares.

Biological Psychology

Introduce the newest way to approach biological psychology to understand human behavior and mental processes. The latest knowledge in this area serve as a base for the basic and applied fields of psychology. As the Psychology Department has a few experimental equipments for biological psychology course, the audio-visual learning materials will be utilized to help students understand the real biological experiments. In addition, using the 'Biolab', psychophysiology equipment purchased about 1999, the experimental procedures will be carried on for various types of psychophysiological assessment & intervention for a human subject

Psychology of Personality

Dealing with the current personality theories and main topics, we scrutinize the application and suggestion through an auxiliary textbook.

Developmental Psychopathology and Practicum

This course explores how and when the normal development goes awry and develops various psychopathology from infancy through adolescence. This course provide the opportunity to practice an observational study about children with various psychological problems.

Social Psychology and Laboratory

This class will investigate the human cognitive processes and behavior patterns in social situations, and apply the knowledge to solve current social problems.

Experimental Psychology and Laboratory

The experimental method and procedure to do the psychological studies for understanding the mental process would be experienced in this class.

Counseling and Intervention

We study the essential counseling theories, in frame of 1) personality and view of human being, 2) client's problem, 3) counseling process and method, 4) assessment with the case.

Abnormal Psychology and Exercise

Abnormal behaviors are introduced in the descriptive manner focusing at observable phenomenon. Etiological research on psychological disorders and empirical studies on the effectiveness of various psychological interventions are reviewed. Through the case presentation and discussion for various psychological disorders, the holistic viewpoints for abnormal behaviors will be expected to grow. In addition, audio-visual materials as much will be utilized to help students understand various psychopathologies. This subject serves as a basis for a coursework to fulfill a clinical psychologist.

Organizational Psychology

We are interested in the principles of organizations' system and its members' behavior and trying to find the way to harmonize the organizations' goals with the quality of personnel lives.

Psychology of Perception and Laboratory

It deals with the fundamental behavior about how human being perceives the outside world, namely light, sound, and physical pressure etc.

Readings in Psychology Ⅱ : Cultural Psychology

The class will read English texts on cultural psychology which include the overview, the early studies, and major theories on acculturation.

Practicum in Counseling

It's asked to complete the counseling theories course as a pre-requirement. We exercise the method and skill of 'Counseling and Intervention' with role play and case conference.

Cognitive Psychology and Laboratory

In cognitive psychology, we review the studies and phenomena about the encoding, storing, and output(retrieving) of the process of input data. We would discuss the application of the knowledge to our everyday life.

Development of children's Thinking and Practicum

This course is designed to explore the cognitive development in several domain such as perception, categorization, language, and theory of mind in depth. The course also provide the opportunity to practice an empirical study about children's thinking.

Traffic Psychology and Laboratory

We investigate the behaviors of road users in traffic scenes and are trying to construct human behavior models.

History of Psychology

This course explore the historial foundations of modern psychology, from European philosophy and Wundtian psychology to current cognitive psychology.

Clinical Psychology and Exercise

This class provides up-to-date knowledge in psychological assessment, therapy, and clinical research and skills in mental health services to diverse populations. Also, practicum will lead you to the acquisition of diagnostic and therapy skills. In addition, it offers preparation for those considering application to the clinical psychologist in a mental health services.

Psychology of Learning

It helps student to understand the fact and theory regarding the learning process of human mind and behavior.

Psychology and Law

Learning how psychological insights contribute to the development of theories about law and legal procedures operating to affect our society and understanding the use of psychology and psychological experts in the legal system.

Practicum in Clinical Psychology

In the university hospital psychiatric ward, students meet inpatients, join/ talk with them, and observe their behaviors unobtrusively in order to get the real senses and enhance the understanding of various psychopathologies. Also, students will be encouraged to apply to psychiatric inpatients the expertise about various psychological assessment methods and interventions(psychotherapy, rehabilitation training, expressive therapy) acquired at the previous courses. The undergraduate students in practicum will be required to have teamwork with graduate students in practicum, follow graduates' instructions, and discuss with them. In the classroom, the undergraduate and graduate students altogether have conferences under the supervision of instructors, give questions about the observed abnormal behaviors and events, discuss the experiences of a particular patient, and summarize them. It lectures the actual practice of the clinical psychology field which it prepares in clinical psychologist 2nd grade qualifying examination.

Psychology of Language

Psychology of Language, we study theories and research results about the acquisition, comprehension and production processes of language, and the neurological basis of language, which is the state of the art in this field.

Psychology of Creative Problem-Solving

Examine the new paradigm and flowing of psychology and it studies the research trend of recent times.

▣ Department of Public Administration

Introduction

Entering the 21st century, it became necessary new strategies for enhancing national competitiveness in the administration. Public administration research about knowledge and skills required to perform the duties of the modern state.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(33credits), a major(72Credits), and electives. Toal Credits : 140.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Introduction to the Study of Public Administration(3)	
2-1-R Public Personnel Administration(3)	2-2-R Financial Administration(3)
2-1-R Organization and Management(3)	2-2-R Policy Science(3)
2-1-E Reading & Listening to Public Administration(3)	2-2-E Organizational Behavior(3)
	2-2-E Research Methods(3)
2-1-E Public Management Information System(3)	2-2-E Bureaucracy(3)
	2-2-E Administration Law(3)
2-1-E Constitutional Law(3)	2-2-E A Case Study on the Administration(3)
2-1-E General Principles of Civil Law(3)	
2-1-E Public Administration and Gender(3)	
3-1-R Local Autonomy(3)	3-2-R Social Welfare Administration(3)
3-1-E Urban Administration(3)	3-2-R Social Economy and Public Administration (3)
3-1-E Korean Public Administration(3)	
3-1-E Philsosphy of Public Administration(3)	3-2-E Local Government(3)
3-1-E Negotiation Theories(3)	3-2-E Crisis of Emergency Management(3)
3-1-E Local Governance(3)	3-2-E InterGovernmental Relations, IGR(3)
3-1-E Policy Analysis&Evaluation(3)	3-2-E Quantitative analysis and computer science in Public Administration(3)
4-1-E Environmental Administration(3)	4-2-E Public Management Theories and Practices(3)
4-1-E Crisis Management and case Study(3)	
4-1-E Public Finance and Government Accounting(3)	4-2-E Seminar in Public Administration(3)
	4-2-E Government and NGO(3)
4-1-E Comparative and Development Public Administration(3)	4-2-E Enterprise and Government(3)
	4-2-E Logic and Statement in Korean Education (3)

● Courses Abstract

Introduction to the Study of Public Administration

It introduces a basic concept of public administration, and focuses on preparing a basis for systematic understanding of administrative phenomena.

Public Personnel Administration

This class teaches the meanings, functions, and related theories of the public personnel administration and introduces the realities of the Korean public personnel administration systematically.

Organization and Management

It looks around various effort for a system goal from an administrative point of view. And it focus on structure of organization and change problem, to achieve organization goal it searches administration method and it looks around theoretical discussion.

Reading & Listening to Public Administration

This course provides students with skills to understand English-written sentences and terms regarding public adminstration. All students interested in English and public administration are welcome to this class where they may improve their ability of written and spoken English.

Public Management Information System

As a wide applied field including social science knowledge and natural science it studies logics and techniques which make administration system apply computer and telecommunication technology. Especially, it studies preponderantly methodology which support an intention-decision of administration system through computer technology.

Constitutional Law

Through a view of constitution, it systematizes a basic theory, the fundamental rights and a vision of government structure and analyzes problems in Korean constitutional law as Legal Mind.

General Principles of Civil Law

In General Principles of Civil Law, we will examine the fundamental principles covering the whole fields of civil law. Also We will study on the sources of law, persons · juristic person as subject of rights, and things as object of rights.

Public Administration and Gender

This course provides a study that should investigate the different policies based on gender characteristics, gender differences. In addition, the course will look at the national and international gender policy, we will get implications.

Financial Administration

In this class, you understand the various theories and practices about the government budgets. In addition, you learn the dynamics of the government budgets.

Policy Science

The course will provide an overview of how social science research is conducted and how it can be used in policy-making in society.

Organizational Behavior

This subject deal with the theory of individual level, a group level and level of the whole organization. In individual level, it deals with biographical characteristics, personality, motivation, learning, etc., and in a group level it deal with leadership, power, communication, group dynamics, etc. In level of the whole organization, it deals with organizational change, organizational culture, environments, etc.

Research Methods

This course enables students to analyze research problems using statistical methods and qualitative ones. It also helps them to critically examine the policy issues arising from the society as a whole.

Bureaucracy

One of the characteristics of modern administration is the reinforcement of the executive power. This class reviews various bureaucracy theories in order to avoid the self-righteousness of the government bureaucracy with enormous power and find ways of fostering of democracy and directions of compromises.

Administration Law

It study basic theory of Public administration, and through a case study in a administrative work position you will learn real Administration Law.

A Case Study on the Administration

This course study on Administration through the actual case. presentation and discuss about daily topic.

Local Autonomy

public service, governance, and citizenship. It will explore the critical role of politics and the political environment in effective local public management

Urban Administration

Many of the most difficult problems facing public policy makers are concentrated in urban areas. These problems include poverty and unemployment, discrimination in housing and labor markets, homelessness, and a lack of affordable housing.

Korean Public Administration

There is a need to understand the environmental factors, administrative systems, and administrative cultures etc. that make up the administration in order to better understand the Korean administration. This class explores diverse aspects of Korean administration in Korean history, and seeks the desirable direction for the future administration.

Philosophy of Public Administration

It searches a desirable administration models and related theories. Its purpose is at a logical thinking and value-seeking for problem-solving competence.

Negotiation Theories

In modern society, the conflict between the various social stratum is inevitable. In a mature democracy, it is necessary to derive a smooth settlement in this conflict by consensus democracy. Therefore, in this class, you systematically learn the processes and structures, and strategies of negotiation.

Local Governance

Local Governance course is to study the governance theory and the theory of the hierarchy. In addition, this course is to study the relationship between governments, citizens, businesses and civic groups around the region.

Policy Analysis&Evaluation

This is designed to review theories of planning philosophy and the techniques of policy analysis as applied to the filed of public administration and to effectively apply them to the practical fields of public administration.

Social Welfare Administration

It is about a policy and management for social welfare, and cultivates effective welfare problem solution on the basis of administrative relations and theories.

Social Economy and Public Administration

This course is designed to study the differences in the social economy and the capitalist economy. The social economy is made up of the business community, cooperatives and social enterprises. Because this course will examine the policies and statistics associated with it.

Local Government

This subject deals with building a desirable relationship between local government and resident, the resident suffrage and the resident participation of system, the form of local government, the function and coffers of local government, the relationship between central and local government, the local election systems, etc.

Crisis and Emergency Management

This course examines leadership, cooperation, and conflict in times of crisis. An emphasis is placed on understanding the key dynamics that influence the way that decision makers perceive and respond to crises and the kinds of processes that facilitate constructive crisis management.

InterGovernmental Relations, IGR

In this class, you learn about the structure of cooperation, confrontation and conflict between the various governmental organizations, across central and plural

local government levels.

Quantitative analysis and Computer Science in Public administration

This course is designed to study the basic statistical theory. And we will apply statistical knowledge to the administration. and focus on measuring side and prepare basis of a theory formation and analysis techniques in Public administration.

Environmental Administration

To understand the environment problem and correspond administrative, it studies environment-administration system, environment-analysis valuation process, environment-aid policy, comparison-environment policy among the nations.

Crisis Management and Case Study

This subject is to analyze the crisis and emergency management case in Korea. For achieving the policy implications and policy alternatives, this class studies the various crisis management cases, for example, people security crisis, disaster crisis(natural disaster, man-made disaster), conventional security crisis, and critical infrastructure crisis, etc. We are going to construct the theoretical analytic framework and review the established studies, and study the cause and process of the crisis from the perspective of theoretical framework.

Public Finance and Government Accounting

When the government exists for the benefit (good) of the people, we should define what is the benefit and how the government promote it. This course will provide a clue about it, discussing the relationship between the individual and the state.

Comparative and Development Public Administration

It introduces basic concept and theory of change and development. And it studies on the development of administration and administration of development.

Public Management Theories and Practices

Administration has both power aspects and managerial aspects, but the modern administration emphasizing the administrative efficiency focuses on the managerial aspects. This class explores the concepts of modern public management, and the significances and limitations of efficient administration.

Seminar in Public Administration

The purpose of this subject is making students deal with administration-problems, they as a manager or mediator analyzing systematically several problems of society, economy and public administration which are arised present-day society.

Government and NGO

It studies meaning of NGO in the middle of government and market, and

research a essential role for a citizens' societal life.

Enterprise and Government

This course study on the public enterprise, public enterprise, privatization and regulation in the perspective of resources allocation. And we study comparative research on the foreign public enterprise.

▣ Department of Political Science and International Relations

Introduction

The department provides majoring students with programs designed to help them study political phenomena and to cultivate the ability to do research and organize ideas and materials from academic aspects. In addition, it offers various programs that help students obtain proficiency for foreign diplomatic positions. Lecture courses are divided into political science and international relations. The department offers programs for B.A, M.A, Ph. D degrees.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(30Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Principles of Political Science (3)	
2-1-R History of Korean Political Thoughts (3)	2-2-R Comparative Politics (3)
2-1-R World Diplomatic History (3)	2-2-E Chinese Politics (3)
2-1-R Western Political Thoughts (3)	2-2-E European Union (3)
2-1-E Party Politics (3)	2-2-E South and North Korean Relations (3)
2-1-E Studies in Socialism (3)	2-2-E Understanding American Foreign Policy (3)
2-1-E International Relations and Current English (3)	2-2-E Japanese Politics (3)
3-1-R Theories of International Relations (3)	3-2-R Modern Political Theories and Method (3)
3-1-E Japanese Diplomacy (3)	3-2-R Political Process in Information Society (3)
3-1-E Korean Political Parties (3)	3-2-E Modern Politics of Korea (3)
3-1-E Oriental Political Thoughts (3)	3-2-E Politics in Southern Europe (3)
3-1-E Political Economy (3)	3-2-E Peace Studies in the 21st Century (3)
3-1-E The Study of Interest Group and NGO (3)	3-2-E Thoughts on International Relations (3)
3-1-E Contemporary Political Thoughts (3)	
4-1-E The Study of North Korea's Politics and Diplomacy (3)	4-2-E Korean Nationalism (3)
4-1-E International Organization (3)	4-2-E International Politics and International Law (3)
4-1-E Political Development (3)	4-2-E Chinese Diplomacy (3)
4-1-E Democratic Politics (3)	4-2-E Election and Participant Politics (3)
4-1-E Southeast Asian Politics (3)	4-2-E Northeast Asian Security (3)

● Courses Abstract

Principles of Political Science

This is introductory course for freshmen in the Political Science and International Relations. It helps students develop a logical understanding of politics. It surveys the major fields of Political Science including Political Philosophy, Political Theory and Methodology, Political Process, and Comparative Politics, as well as Korean Politics and International Relations.

History of Korean Political Thoughts

A general survey of Korean political thoughts from ancient times to the modern age. Focus on continuity and change in political thought throughout Korean history.

World Diplomatic History

This course studies diplomatic history in both traditional and modern periods with specific features of diverse regions. Also this course explores theoretical perspectives on how we study the historical evolution of diplomatic history and inter-regional relations.

Western Political Thoughts

An introduction to the political thought of ancient Greece, Rome, Medieval Europe, and Modern Europe, with special attention to classical antiquity, Hellenism, Christian thought, Natural Law, Social Contract, Liberalism. Positivism, and early Marxism.

Party Politics

Analytical study of the relationship between party politics and the political systems in which party politics operate.

Studies in Socialism

Comparative analysis of the development and characteristics in Socialism from historical, ideological, and socio-political perspectives.

International Relations and Current English

Study of the current english with various contemporary international political issues.

Comparative Politics

General introduction to the field of comparative politics covering the objectives of comparative political analysis, and a survey of various theoretical approaches employed in the study of comparative political systems.

Chinese Politics

This course cover the following topics which are the origin and course with chinese revolution, chinese political system, chinese political culture, chinese political process, the perspective of chinese political economy.

European Union

An investigation of European countries foreign policies, and the formation, process, and future of the European Union.

South and North Korean Relations

Analyzes of south and north Korean relations from political, economical, military perspectives throughout Korean history.

Understanding American Foreign Policy

Analyzes the goals of American foreign policy and its decision-making process with particular emphasis on the period after World War II

Japanese Politics

Introductory course about the contemporary Japanese political system with emphasis on factors of continuity and change in the political institutions, social structure, and cultural value of Japan.

Theories of International Relations

Critical appraisal of various theories and approaches for the study of international relations.

Japanese Diplomacy

An introduction to Japanese foreign policy and an overview of the objectives, means, and foreign policy decision-making process of Japan.

Korean Political Parties

This course is to study the origin, formation and characteristics of Korean political parties and their system. in particular, it will compare and investigate various theories on peculiarities of Korean political parties and their party system.

Oriental Political Thoughts

A general survey of Oriental political thought from ancient times to the modern age with special emphasis on the rise of China.

Political Economy

A systematic and comprehensive approach to the notion of power that underlies the current world economic structure.

The story of Interest Groups and NGOs

General introduction to interest groups and nongovernment organizations in the modern international societies.

Contemporary Political Thoughts

This course investigates political ideas and theories of the 20th century, including new theories of liberalism and democracy, neo-conservatism, communitarianism, postmodernism and socialism. We will also discuss and critically assess the main arguments of each trend.

Modern Political Theories and Method

Examination of various theoretical approaches currently employed by political scientists with an interest in exploring their relevance to Korean political setting. And critical review of basic assumptions and methods involved in the application of the scientific approach to the study of political phenomena.

Political Process in the Information Society

Analyses and examination of various political process in information society.

Modern Politics of Korea

Historical survey of the developments of the Korean politics since 1945. Attention is given to the role of political groups and pressure groups in contemporary political dynamics of Korea.

Politics in Southern Europe

This course discusses major issues in political institutions and processes in southern europe. For the first half of course, we will examine cabinet, political parties, election, interest group, political economy and other topics. then we will review various policy debates on its future prospect for the second half.

Peace Studies in the 21st Century

Aims to introduce a variety of aspects of peace studies, the application of modern study method. Examines some of the normative, ethical, and philosophical considerations involved.

Thoughts on International Relations

An introduction to the political thought on international relations. Focus on thoughts and scholars from ancient times to the modern age.

The Study of North Korea's Politics and Diplomacy

Analyses of historical and structural nature of politics and diplomacy in North Korea.

International Organization

Examination of international organizations. Particular emphasis is given to the UN, in terms of its historical background, environment, as well as its structure and functions in the context of the evolution of a modern international system.

Political Development

Explores the political development, including political transformations, reforms, coups, and social movements with theoretical approaches.

Democratic Politics

The study of how democracy as the institution of rules of political competition has settled down historically and the functional relationship it has with capitalist society. In addition, this course aims to examine democracy and socialism.

Southeast Asian Politics

Emergence of new political systems in Southeast Asia viewed against the

historical background of Western imperialism and in relation to the changing dynamics of international politics.

Korean Nationalism

This course discusses primary texts concerning Korean nationalism in the late Joseon Dynasty and the colonial period. Focusing on the correlation between modern Korean Enlightenment and nationalism, It will also examine the concepts of national identity, the national state.

International Politics and International Law

Outline of major approaches and theories in the study of international politics and law examines and compared in the light of the evolution of the modern international political system.

Chinese Diplomacy

This class cover the following topics which are motives for political behavior such as power and ideology, political players as an individual or a group, the structure and process of chinese foreign policy, korean diplomatic dilemma of the Korea-China relationship in the China-United States relationship.

Election and Participant Politics

Focuses on electoral forms, analyses on the causes of the particular electoral forms, structural and statistic analyses on the long-term effects derived from results of election. Analyzes diverse results from different voting systems and political factors leading particular voting systems.

Northeast Asian Security

Critical analysis of various security in response to the changing Northeast Asian environment.

▣ Department of Economics

Introduction

The Department of Economics offers a broad range of courses in theoretical and applied economics. Subjects range from basic micro, macro, and econometric principles to public finance, money and banking, international trade and finance, industrial organization, labor relation, environment, and economic history. Currently, about 300 students are enrolled and pursuing their degrees in B.A., M.A., and Ph.D. programs.

The graduates of this Department are active in various fields, such as business, financial institutions, government, research institutions and academia.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Principles of Microeconomics (3)	1-2-E Principles of Macroeconomics (3)
2-1-R Microeconomics I (3) 2-1-R Macroeconomics I (3) 2-1-E Mathematics for Economists (3) 2-1-E General Economic History (3) 2-1-E Principles of Accounting (3)	2-2-R Statistics for Economists (3) 2-2-E Microeconomics II (3) 2-2-E Macroeconomics II (3) 2-2-E History of Economics (3) 2-2-E Modern Economic History (3)
3-1-E Econometrics (3) 3-1-E Money and Banking (3) 3-1-E Labor Economics(3) 3-1-E History of Korean Economy(3) 3-1-E (3) 3-1-E	3-2-E International Trade (3) 3-2-E Public Finance (3) 3-2-E Monetary Policy (3) 3-2-E Industrial Organization (3) 3-2-E Regional Economics (3) 3-2-E Financial Economics I (3) 3-2-E
4-1-E Fiscal Policy(3) 4-1-E Information Economics(3) 4-1-E 4-1-E Economics of Insurance (3) 4-1-E Financial Economics II (3)	4-2-E Economic Development (3) 4-2-E Korean Economy (3) 4-2-E Social Security (3) 4-2-E History of Economic Thoughts(3) 4-2-E Environmental Economics(3)

● Courses Abstract

Principles of Microeconomics

This course introduces basic principles by which various economic agents such as consumers, firms, and government make their economic decisions. Also

covered is how the market works.

Principles of Macroeconomics

This course aims to enhance students' preliminary understanding of national economy and its components such as employment, production, consumption, investment, price, international trade, growth and so on.

Microeconomics I

This course introduces price theory and resource allocation. Emphasis is on developing a detailed understanding of the principles of microeconomic analysis and their application to market behavior and public policy issues.

Macroeconomics I

This course studies the principles of determining national income, price level, employment, and balance of payments in a national economy. Another important area of study in this course is how to analyze the effects of macroeconomic policies.

Mathematics for Economists

This class reviews the mathematics necessary for economic modeling: algebra, calculus, linear algebra and optimization methods. The purpose of this course is to acquaint the students with the central mathematical methods utilized in the mathematical approach to economic analysis, and to show how these methods are applied in the theories of economics. Specifically, the focus will be on learning the concepts of optimization with and without constraints - a main tool in microeconomics and the beginning of macroeconomic analysis.

General Economic History

This course studies the characteristics of various economies which existed in history. To understand the changes of world economy which has developed with mankind, this course will review how different economies evolved in history.

Principles of Accounting

This course deals with the basic principles of double-entry bookkeeping. The primary purpose of this course is to improve the decoding ability of completed financial statements by providing abundant exercises in double-entry bookkeeping.

Statistics for Economists

This course introduces basic statistical concepts for analysing economic data and applying those concepts to economic phenomena. It will provide statistical foundations necessary for econometrics.

Microeconomics II

This course focuses on applications of the basic mathematical tools used extensively in economics. Topics include constrainted optimization, comparative statics, stability, basic mathematical analysis, and dynamics.

Macroeconomics II

This course studies causes and effects of economic fluctuation and reviews theories of economic forecast, fluctuation, and growth, thereby enabling students to forecast Korean business cycle and long-run growth.

History of Economics

Each historical era presented its own set of economic phenomena. This course will cover how thinkers of different time periods reacted to these phenomena. It will also cover the questions they asked, and the different theories and models they proposed as answers.

Modern Economic History

This course studies the change of capitalistic economies in national and regional level. It also covers how the economies evolved by reviewing the economic histories in Asian and American countries as well as European countries.

Econometrics

Econometrics covers the statistical methods which can be applied to quantitatively analyzing the economic problems. The purpose of this course is to introduce students to the theory and application of econometric methods. It covers the basic tools of estimation and inference in the context of the single-equation linear regression model, and deals primarily with least squares methods of estimation. The course emphasizes the intuitive understanding and practical application of these basic tools of regression analysis. Several econometric applications will be introduced to show how these statistical methods are applied to real world data and how the economists should interpret the statistical results.

Money and Banking

This course studies the major institutions which constitute monetary and banking system, and the basic concepts and principles necessary for analysing monetary phenomena and banking activities. And it studies the change of interest rate, exchange rate and stock price and analyzes the role of financial institutions and market.

Labor Economics

This course covers topics related to the study of labor markets. These include the demand for and supply of labor and the equilibrium of the labor markets. Other topics include the human capital theory, wage differentials and the evaluation of social programs.

History of Korean Economy

This course studies the development of Korean economy in historical perspective. To understand the changes of Korean economy in depth, this course reviews the change of the various sectors which constitutes Korean economies.

Statistical Research Application

This course aims to first-hand experience on empirical cases using econometrics, hands-on experience on how to use Eviews, and cover a wide range of data types and econometric methods.

International Finance

This course studies foreign exchange market, balance of payments, exchange rate, international monetary system, and international financial markets, emphasizing practical use of international financial theories.

International Trade

The course aims to train students in how to apply analytical tools from trade theory and industrial organization in order to analyze current topics in international trade. In particular, the course deals with issues related to the globalization of the world economy. Topics studied include basic theory and policy of international trade, the effect of international trade, import tariff and export tax and their effects on the economy.

Public Finance

This course studies fiscal expenditures and tax to understand the role of government and the effect of policies. And this course aims to learn the principles of fiscal phenomena and the implications of fiscal problems and policies in international as well as national level.

Monetary Policy

The purpose of this course is to define the monetary policy and analyze its effect on national and international economies. It covers the behavior of monetary authority and deposit bank, the tools, targets and goals of monetary policy. And it analyzes the macroeconomic effects of monetary policy on interest rate, exchange rate, prices level, national income, employment.

Industrial Organization

This course will examine firm behavior under different market structures, focusing on what market and firm characteristics lead to competition and what characteristics lead to cooperation among firms. The impact of market structure on the well being of the firms and society is analyzed. Emphasis is placed on using theoretical models of firm and industry behavior to explain and analyze real-world examples of firm.

Regional Economics

This course covers the question of spatial resource allocation. It also studies the location and development of cities, and issues related to urban areas such as housing, transportation, and environment.

Financial Economics I

The course aims to develop an understanding of the principles of modern finance theory and their application to the study of financial markets, instruments, and regulations. It is practically oriented and will provide a general body of knowledge on topics such as financial environment, investment tools and asset valuation, portfolio management and efficient diversification. Students are encouraged to explore the potential and limitations of financial theory in dealing with real-world problems. Students will learn how to find and analyze financial data and apply basic economic models for making optimal investment decisions.

Financial Markets and institutions

This course examines the economics of money and capital markets and financial institutions. Topics include the functions and structure of financial markets, interest rate fundamentals, central banking and monetary policy, equity, debt and foreign exchange markets, major financial institutions, and the risk management issues of these institutions. The globalization of today's financial markets will be emphasized throughout this course.

Seminar in Economics

Open only to a limited number of senior students in Economics department. Arrange with instructor before enrolling. Supervised reading and reports in various subjects.

Fiscal Policy

This course discusses the role of government and fiscal policies. This course focuses on fiscal policies, social insurances and their economic and institutional effects.

Information Economics

This course studies how information and information systems affect an economy and economic decisions. Information has special characteristics: It is easy to create but hard to trust. It is easy to spread but hard to control. It influences many decisions. These special characteristics (as compared with other types of goods) complicate many standard economic theories

Understanding Financial Derivatives

This course covers some of the main topics in options, futures, swaps and other derivatives. Students will study the important features of trading strategies and valuation issues in the derivative security markets.

Economics of Insurance

This course helps students to learn the demand and supply of the insurance, which is one of schemes against the unexpected events, the pricing theory of the insurance, concepts of the risk and uncertainty, which are very closely related to it, the adverse selection and the moral hazard, the risk management and its

mechanism, and the basics of the social insurances and financial planning of an individual and the companies, and so on.

Financial Economics II

This course is advanced course of Financial Economics I. It is practically oriented and will provide a general body of knowledge on topics such as financial environment, investment tools and asset valuation, portfolio management and efficient diversification. Students are encouraged to explore the potential and limitations of financial theory in dealing with real-world problems. Students will learn how to find and analyze financial data and apply basic economic models for making optimal investment decisions.

Economic Development

This course is to provide an overview of historical backgrounds of both developed and developing countries and a systematic approach to study policy issues and theories of economic development. Emphasis is placed on the examination of economic development from historical and theoretical perspectives.

Korean Economy

This course reviews the whole area of Korean economy in order to deepen understanding of the reality of the current Korean economy. Students undertake their own researches on Korean economy and discuss the research results.

Social Security

In this course, the concept of social security and the historical development of social security schemes are introduced. The various social security schemes such as national pension, employment insurance, health insurance and income maintenance in Korea and other countries will be covered. The effects of these schemes on economic decisions will be also covered.

History of Economic Thoughts

This course studies economic thoughts which played influential roles to improve economic theory. Students who take part in this course have to study one of the economic thoughts and present the result of his or her study.

Environmental Economics

This course studies the impact of environmental problems on economic life and national and global economy. It covers the institutions, tools which are related with environmental issues. The environmental economics provides analytical tools to solve the environmental problems, for example, environmental pollution and disruption.

▣ Department of Mathematics

Introduction

The department provides an integrated program designed to help students with primary interest in analysis, algebra, geometry, topology and applied mathematics. The department offers programs leading to the degrees of Bachelor of Science, Master of Science, and Doctor of Philosophy in mathematics. Major fields of study for graduate students are analysis, algebra, geometry, and topology. After graduation with the degrees, they can get jobs as professor in university, teacher in middle or high school, computer programer, etc.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(60Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Introduction to Modern Mathematics(2)	
2-1-E Analysis I and Practice(3)	2-2-R Differential Geometry I and Practice(3)
2-1-E Applied Linear Algebra I(3)	2-2-E Complex Variable I and Practice (3)
2-1-E Set Theory (3)	2-1-E Number Theory (3)
2-1-E Differential Equation(3)	2-2-E Analysis Ⅱ(3)
2-1-E Vector Analysis (3)	2-2-E Applied Linear Algebra II(4)
2-1-E Mathematical Statistics I (3)	2-2-E Mathematical Statistics Ⅱ(3)
3-1-R Modern Algebra I and Practice(3)	3-2-E Topology I and Practice (3)
3-1-E Real Analysis I and Practice (3)	3-2-E Modern Algebra Ⅱ (3)
3-1-E Differential Geometry Ⅱ (3)	3-2-E Industrial Mathematics and Practice (3)
3-1-E Complex Variable Ⅱ(3)	3-2-E Real Analysis Ⅱ (3)
3-1-E Introduction to Topology(3)	3-2-E Modern Geometry (3)
3-1-E Numerical Analysis(3)	3-2-E Discrete Mathematics(3)
4-1-E (3)	4-2-E I (3)
4-1-E (3)	4-2-E (3)
4-1-E (3)	4-2-E (3)
4-1-E (3)	4-2-E (3)
4-1-E (3)	4-2-E (3)
	4-2-E (3)

● Courses Abstract

Introduction to Modern Mathematics

Topics to be fundamental in modern mathematics are introduced and practice them in this course. Main goals of this course are to understand and practice the concepts in geometry, algebra, topology, and analysis.

Analysis I and Practice

Topics for algebraic and topological properties of the real line and complex plane, Limits, continuity, differentiation, integration which are necessary for the study of advanced analysis and measure theory.

Applied Linear Algebra I

Study matrices, linear systems, determinant, vector spaces, linear transformations, permutations, and eigenvalues.

Set Theory

Topics includes the following as the basic of modern mathematics: statements, elementary logic, axiomatic system, sets, relations and functions, cardinal numbers, order structure, etc.

Differential Equation

Topics includes solution of ordinary differential equations and integral transforms with applications to mathematical models arising in sciences and engineering.

Vector Analysis

Study limit, continuity, directional derivative, and multiple integration of multi-variable functions. Moreover, Green's theorem, Stokes' theorem, and divergence theorem are included.

Mathematical Statistics I

As fundamental concepts of probability theory and statistics to analyze random phenomena, topics covers probability spaces, random variables, distributions, limit theorems, etc.

Differential Geometry I and Practice

Based under vector analysis and analytic geometry, this course examines the theory of curves in 3-dimensional space. Topics includes representations and classifications of curves, length of arc, curvature, torsion, etc.

Complex Variable I and Practice

Topics includes algebraic and geometric preliminaries, topological and analytic preliminaries, bilinear transformations and maps, complex elementary functions, analytic functions, power series, complex integration and Cauchy's theorem.

Number Theory

Basic concepts of classical number theory and elementary computing algorithm.

Analysis II

Continues Analysis I. Topics includes sequences, limits, continuity, differentiation,

Riemann and Riemann-Stieltjes integrations, sequence of functions, series which are necessary for the study of advanced analysis and measure theory.

Applied Linear Algebra II

Study advanced concepts in linear algebra such as invariant subspaces, direct sums, Jordan canonical factorization, inner product, quadratic form.

Mathematical Statistics II

Continues Mathematical Statistics I. Topics includes fundamental theory of statistical inferences and tests of hypothesis.

Modern Algebra I and Practice

Topics provides basic introduction to groups, classes and properties of groups with applications. Emphasizes axiomatic development.

Real Analysis I and Practice

Topics includes Lebesgue measure, measurable sets, Lebesgue integral, differentiation, etc.

Differential Geometry II

Continues Differential Geometry I. Based under vector analysis and analytic geometry, this course examines the theory of surface in 3-dimensional space. Topics includes representations of surfaces, curvature, simple surfaces, fundamental theorems for surfaces, etc.

Complex Variable II

Continues Complex Variables I. Topics includes Cauchy theorem, Laurent series, residue theorem, etc.

Introduction to Topology

As an extension of usual topology, general topological space is introduced. Topics includes limits, convergences, continuity, metric space, normed space, etc, in general topology.

Numerical Analysis

This course provides methods to find numerical solutions for problems modeled in science and engineering. Topics includes convergences and stability of numerical solution.

Topology I and Practice

Topics provides characteristic properties and structures of the first and second countable topological space, Lindelof space, separable space, T1-space, Hausdorff space, regular space, normal space, compact space, compactification, connected space, product space.

Modern Algebra II

Continues Modern Algebra I. Topics provides basic introduction to rings, structures and properties of rings with applications. Emphasizes axiomatic

development.

Industrial Mathematics and Practice

Study numerical analysis to solve a variety of mathematical problems appearing in applied area and study how to develop and apply numerical method using computer program.

Real Analysis II

Continues Real Analysis I. Topics includes absolutely continuity, Holder and Minkowski inequalities, Banach space, Signed measure, properties of integration, etc.

Modern Geometry

This course provides properties of figures in 3-dimensional Euclidean space. Topics includes directional derivative, differential forms, covariant derivative, frame fields, connection forms, isometric transformations, orientation of curve, coordinate patches, etc.

Discrete Mathematics

Enhance the mathematical ability to find discrete problems in real life, to make a logical decision, and to solve them with creative idea. Study fundamental theories in the following subjects; logic and deduction, set theory, order set, relation and function, probability, combinatorics, Bool algebra, graph theory, algorithm, and optimization, etc.

Topology II

Continues Topology I. This course introduces product space, complete metric space, function space and provides several structures of the topological spaces. Topics includes uniform convergence, compact-open topology, homotopy, fundamental group, etc.

Topics in Algebra

Study one or two topics of advanced number theory (algebraic, analytic number theory, and p-adic analysis), advanced ring theory, module theory, basic algebraic geometry, and group representation.

Mathematical Biology

This is the subject to study many problems in biology, ecology, and medical science using mathematical tools. Main goals are to construct models for difference equations and differential equations of biological systems, to investigate their qualitative-quantitative solutions, and to simulate them using mathematical software.

Theory of Mathematics Education

Based on connection between theory and realization, study topics related to psychological and philosophical idea, resolution, and educational evaluation for

studying mathematics.

Mathematical Finance

Study mathematical methods to understand fundamental knowledge of finance. such as derivatives, discrete stochastic processes, binomial models, price decision of underlying assets, interest rates, and option price, etc.

Information Theory/Combinatorics/Introduction to cryptography

Study mathematical theories in information science such as basic probability theory, concepts and applications of entropy, and coding theory.

Study a variety of discrete structures such as pigeonhole principle, graph theory, recursive sequence, and generating function.

Study the fundamental subjects in cryptography such as congruence, Fermat's little theorem, finite fields, elliptic curves, and public key cryptosystem.

Topics in Geometry

Study how to apply fundamental theories of geometry to physics, engineering, and medical science. Moreover, study their applications in real life.

Introduction to Partial Differential Equations

Study the existence of solutions for partial differential equations (elliptic, parabolic, and hyperbolic), separation of variables, Fourier transform, Sturm-Liouville theory, and Bessel functions. In particular, study mainly heal equations, wave equations, and Laplace equations appearing in sciences and engineering. For prerequisite courses, Analysis and Differential Equations are recommended.

Study on Teaching Materials and Teaching Methods in Mathematical Education

Study curriculum, material analysis, syllabus, and teaching method of mathematical education in middle and high schools.

Logic and Essay Writing in Mathematics Education

Main goal of this course is to enhance the ability to write essay logically in mathematical education.

▣ Department of Physics

Introduction

In the 20th century, physicists opened the new era with quantum mechanics and relativity, producing semiconductors, superconductors, lasers, internet, nuclear energy, and display materials. In the 21 century, it will produce creative technology by interdisciplinary research in NT, IT, and BT. Physics courses include mechanics, electricity and magnetism, thermal physics, optics, quantum mechanics, electronics, elementary particle and nuclear physics, statistical physics, biophysics, solid state physics, and lasers as well as various experimental courses. After completing some of these courses, students will have no difficulty in applying their knowledge to new technologies. In addition, faculty members in various fields in the department and the intellectual rigor of the physics curriculum also help students to develop skills that are invaluable in a diverse range of careers. The disciplined work habits and analytical skills essential for physics majors are important assets to students preparing for careers in medicine and law, as well as for careers in which mathematical modeling plays a significant role.

After graduation with B. S. degrees, they can get jobs in industries and government with physics related certificates such as electricity, optics, nondestructive test, and radioactive isotope treatment. Teaching positions in middle or high schools are also open to the graduates. However, graduates with M.S. degrees have much better chances to get jobs in industry, government and research institutes, because they are trained for independent research for specific projects and develop practical skills in the graduate school. If a student really enjoys physics, the best choice is to go to the graduate school for Ph.D. degree. Research institutes supported by the government or industries look for many physicists.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(62Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E	Course	(Credit)	Yr-Sem-R/E	Course	(Credit)
2-1-R			2-2-R		
2-1-R		(3)	2-2-E		(3)
2-1-R		(3)	2-2-E		(3)
2-1-E		(3)	2-2-E		(3)
2-1-E		(3)	2-2-E		(3)

| | | |

Intermediate Physics

It is intented for students who passed courses General Physics and Lab I and II, and deals with properties of fluids, laws of thermodynamics and heat engines, properties of waves and applications, optics and optical apparatus.

Electronics Laboratory

This course is designed to do experiments on various analog circuits including diode and transistor characteristics, rectifier carry out and filter circuits, transistor amplifiers.

Mathematical Physics II

Second semester cover differential equation, special function, Fourier series, and complex variable and more which is needed in senior-graduate in physical science student.

Mechanics II

As a sequel to Mechanics I, in which Newton's laws and their application to elementary point particles problems were treated, more advanced topics like Lagrangian and Hamiltonian formalism are developed in Mechanics II. Furthermore, continuum mechanics topics like rigid body dynamics, small oscillations and wave propagations are treated with some introduction to tensor calculus.

Electromagnetism II

As a sequel to Electromagnetism I, fields due to moving charges will be mainly treated. As such, the topics of this course include Faraday induction law, Maxwell equations, time-dependent electromagnetic fields, and electromagnetic wave radiation. Once again, understanding of basic concepts and problem solving skill will be emphasized.

Electronics

The course introduces basic theory of electronics necessary for experimental physics. Topics include direct current, alternating currents, basic linear circuit analysis, diodes, transistors amplifier and operational amplifier.

Modern Physics

Quantum mechanics and special theory of relativity developed in the early 20th century comprise two most important pillars of modern physics. In this class, based on these two topics, new conceptual developments that overcome the limit of classical physics and new experimental devices that support new theory will be introduced.

Quantum Mechanics I

This course will introduce the fundamental ideas of quantum mechanics to undergraduate students. The mathematical techniques necessary to understand

and explore physical systems will be presented in the course. The student will have chances to develope their abilities of solving problems in quantum mechanics. This course will cover as much of the following topics: Historical backgrounds of quantum mechanics, the uncertainty principle, Schroodinger's wave equation, eigenfunctions and eignenvalues, one dimensional potential problems, and operator methods.

Thermodynamics

This lecture covers basic thermodynamics with its wide range of application in physics. An equilibrium thermodynamics, a kinetic theory of gases and a transport phenomena are studied.

Optics

It is an introductory course of geometrical and physical optics for physics majors and others who are interested in light and optics. The instruction includes generation, energy flow, sources, reflection, refraction, absorption, colors, scattering, dipole radiation, and polarization of light as well as basic concepts of interference and diffraction. It also covers lenses, mirrors, microscopes, telescopes, fibers, and other optical instruments. Some knowledge of electromagnetism is recommended.

Electronics Device Laboratory

In this course of experiment, various electronic devices such as transistors, amplifiers, solar cell, photodiode are used to understand their functions and applications. In addition to this, electronic devices are used to make some simple physical apparatus.

Electronics Device Physics

This course is designed to do experiments on various devices such as FET, BIT, operational amplifiers. Their working principles and functions are studied.

Computational Physics

This class introduces the computational method of solving mathematical models of physics systems using the computer language of C, FORTRAN, or VISUAL BASIC. The methods will be applied to real physics problems, which the students to understand the principles involved and to enhance problem solving ability

Advanced Technology Seminar

Experts on cutting edge technologies or industry are invited to introduce practical anc commercial high-end technologies. New ideas on current physics are also introduced.

Laboratory in Optical Control and Measurement

This course is designed to do experiments on various optics topics such as

photon absorption, photon measurement, optical control, nonlinear optical properties and related experiments.

Lasers and Applications

The course includes the fundamentals and applications of various lasers with light-atom interactions, stimulated and spontaneous emission, coherence; laser behaviour, spectroscopy and nonlinear optics. It deals with interferometry and Fourier optics of diffraction, image formation; optical transfer function, display, optical data storage, and holography. It also introduces basic concepts of photonic crystals, and near-field optics.

Quantum Mechanics Ⅱ

This course is for the students who already finished the course, "Quantum Mechanics I". More complicate physical systems will be considered, and more advanced techniques in solving problems will be presented. This course will cover as much of the following topics. Angular momentum in quantum mechanics, system of identical particles, hydrogen atoms, atomic structures, variational method, time-independent perturbation theory, and quantum theory of radiations.

Statistical Mechanics

This course deals with fundamental equilibrium statistical mechanics. Micro-canonical, canonical and macro-canonical ensembles are introduced and their various applications are demonstrated.

Advanced Computational Physics

In this course, MATLAB, Python, LabVIEW are used to educate on fundamental knowledge of running equipments and analysis of obtained data.

Science and Logic

Science uses logic to derive reasonable conclusions. Essays are used to persuade others to believe in the results. This is not well known to the secondary school students, because this fact is not included in the current national curriculum. In this class, we build the notion that the western science has been built on logic and scientific thinking. We also deal with how to train students to enhance their ability to use them. Most of the class will adopt problem-based learning or project-based learning.

Laboratory in Advanced Materials I

This course helps students to learn how to fabricate thin film and bulk samples of advanced materials by using various fabrication techniques.

Solid State Physics

Physical properties of metals, semiconductors and insulators are studied. Basic knowledge about classical mechanics, electromagnetism, thermal physics and

quantum mechanics will be applied.

Relativity Theory

It includes both the special relativity, which deals with relativity of the space and time, the equivalence of the matter and energy, and the general relativity, which deals with the deformation of space-time structure by matter.

Radiation Physics

Electric and magnetic properties of nuclear particles are explained with experimental results. It explains general properties of atomic nulei such as the shape of nuclei and nucleons, scattering experiment, nuclear masses, nuclear moments and quantum numbers. The course deal with the interaction of particles by using quantum mechanics. It includes electromagnetic, beta- and alpha- decay during nuclear fission, and explains with decay law and selection rules.

Seminar in Physics

This class encourages students to investigate their own interested topics in physics under the guidances of a professor while they experiment or carry out their projects, thus enabling them to grow in creative mental thinking and activities while they encounter the cutting edge current topics in physics.

Biophysics

The study of complex systems composed of many interacting components is one of the recent trend of science. To understand the emergence of life in biological system from the synergistic approach of statistical mechanics and nonlinear dynamics will be the goal of this class.

Teaching Methods and Study on Teaching Material in Physics

Learning about a guiding principle and a course of study with method hat how collect basic materials and materials collected by hem in order to re-consist of them according to course in middle school.

Astrophysics

Based on physics learned from other classes such as mechanics, electromagnetism, and quantum physics, students will learn to understand astrophysical phenomena occurring heavenly bodies.

Laboratory in Advanced Materials II

This course helps students to learn how to measure the physical properties of fabricated samples of advanced materials such as electric, magnetic, structural, and optical characteristics. It also offers experience with analysis of the data obtained from various techniques.

Nano Science and Technology

Nano Science and Technology,fusion technology for leading the 21st century,covers the fabrication of nanoscale low-dimensional structures and

devices, and understanding of physical phenomena.lecturefurther includes technological applications to nanoelectronics, nanophotonics, and nano sensors.

Nuclear Physics

The course deals with detection of radioactivity, nuclear fission and fusion, and nuclear reaction as well as models of atomic nuclei. It also introduces applications of nuclear physics in industry, medical science, archaeology and cosmology.

Particle Physics

It introduces basic properties of subatomic particles such as electrons and quarks, and their fundament interactions. It also deals with the early universe which is one of the high energy physics phenomena.

Advanced Topics in Undergraduate Physics

The course offers basic concepts for some topics which are important in the current research and technology but hard to teach the undergraduate students in depth. It offers introductions to atomic and molecular physics, spectroscopy, fluid dynamics, plasma, and other interesting technologies. Several professors participate in teaching various topics.

Principles of Physics Education

As a basic course on general topics in physics education, this course will cover the physics history, physics history, physics education curricula and physics education assessment.

Laboratory in Circuit and Device Control

This course is intended for student of physical science to understand working principles of measurement and control boards such as arduino, Galileo Board allowing students to use them for capstone designs or apply their learning to industrial devices.

Capstone Design

In this course, students works in teams to design and manufacture experimental products related to science or technology.

Industrial Technology and Equipment

In this course of experiment, physics professors and experts on industry teach together to educated students on the industrial topics such as making thin films, solar cells. etching processe laser processe.

Internship Ⅰ,Ⅱ,Ⅲ,Ⅳ

In this course, students learn as interns of local business enterprise which use cutting edge equipments of center for research facilities of CBNU, inducing students to have jobs there after graduation.

▣ Department of Chemistry

Introduction

Chungbuk National University offers a Bachelor of Science (BS), Master of Science (MS), and Doctor of Philosophy (Ph.D.) degree in Chemistry. The BS degree meets the standards for the preparation of chemists for entry into graduate school in Chemistry or entry directly into careers in Chemistry. The BS program requires mandatory courses and is designed for programs in the four traditional areas of chemistry such as analytical , inorganic, organic, and physical chemistry as well as in the interdisciplinary fields including nanotechnology and information technology. The MS and Ph. D. degree programs include coursework and teaching, but the heart of a graduate degree is research. Currently, the department of chemistry in CBNU has a faculty of 13 members, 230 undergraduate students, 26 MS degree students, and 10 Ph. D. degree students.

People who graduate from the department may be employed by chemistry-related national research institutes such as Korea Research Institute of Chemical Technology, Electronics and Telecommunication Research Institute, Korea Research Institute of Standards and Science, Korea Research Institute of Bio-science and Biotechnology and also by industrial research centers. Some of them may join academic program in a graduate school to extend their professional carrier.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(48Credits), a major(66Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
2-1-R Physical Chemistry I (3)	2-2-R Physical Chemistry Lab. (2)
2-1-R Organic Chemistry I (3)	2-2-R Analytical Chemistry I (3)
2-1-R Organic Chemistry Lab.(2)	2-2-E Physical Chemistry II (3)
2-1-E Mathematics for Chemistry (3)	2-2-E Organic Chemistry II (3)
3-1-R Inorganic Chemistry I (3)	3-2-R Inorganic Chemistry Lab. (2)
3-1-R Analytical Chemistry Lab. (2)	3-2-E Inorganic Chemistry II (3)
3-1-E Analytical Chemistry II.(2)	3-2-E Spectroscopy of Organic Chemistry (3)
3-1-E Advanced Organic Chemistry (3)	3-2-E Advanced Physical Chemistry (3)
3-1-E Spectroscopy (3)	3-2-E Instrumental Analysis I (3)

4-1-E Polymer Chemistry (3)	4-2-E Quantum Chemistry (3)
4-1-E Physical Organic Chemistry (3)	4-2-E Biochemistry (3)
4-1-E Chemical Kinetics (3)	4-2-E Introductory Bioinformatics (3)
4-1-E Electrochemistry (3)	4-2-E Synthetic Organic Chemistry (3)
4-1-E Molecular Modeling (3)	4-2-E New Material Nano Chemistry (3)
4-1-E Instrumental Analysis II (3)	4-2-E Teaching Methods and study on Teaching Material in Chemistry (3)
4-1-E Advanced Inorganic Chemistry (3)	
4-1-E Theory of Chemical Education (3)	4-2-E Science and Logic (2)

● Courses Abstract

Physical Chemistry I

The concepts that are needed for the discussion of equilibria in chemistry are developed in this course. Equilibria include physical change, such as fusion and vaporization, and chemical change, including electrochemistry. The discussion is in terms of thermodynamics, and particularly in terms of enthalpy and entropy, which deal with the bulk properties of matter.

Organic Chemistry I

It studies a general principle and an application of the organic chemistry. Therefore easily understands. It learns compound nomenclature, energy transfer state, stereochemistry, radical reaction, nucleophillic and electrophillic reaction, conjugation, resonance and so on.

Organic Chemistry Lab.

The course is designed with the purpose of teaching laboratory techniques and clarifying topics covered in other organic chemistry courses. Students are introduced to laboratory safety, how to write lab notebooks, handling lab chemicals and equipments. Experimental topics are also covered on separation methods, preparation of non-aromatic compounds such as alkyl halides, alkenes, organic reactions including oxidation-reduction and Grignard reaction, and extraction of natural products.

Mathematics for Chemistry

Mathematical concepts and methods for chemistry courses. Topics covered differential equations, Laplace transformation, vector analysis, Fourier series, and matrices.

Analytical Chemistry I

Learning classical analytical theories among basic principles of analytical chemistry such as gravimetry and volumetric analysis

Physical Chemistry Lab.

This course is focused on essential laboratory principles and instrumental

operations from experimental studies of fundamental physicochemical properties including various physical properties of substances. This course explores experimental methods and chemical principles from measurements of physiochemical and spectroscopic properties of substances including thermochemistry, equilibrium, and electrochemical reactions.

Physical Chemistry Ⅱ

Basic principles of quantum mechanics which constitutes the fundamental theory in understanding the properties of matters are introduced in this course. The structure and properties of individual atoms and molecules are examined from the viewpoint of quantum mechanics.

Organic Chemistry Ⅱ

Continuation of Organic Chemistry I. This course covers the chemistry of carbonyl compounds, carboxylic acids, carboxylic acid derivatives, amines, and heterocyclic compounds. Topics include aromatic compounds, molecular orbital theory and pericyclic reactions, various natural products and biological molecules including carbohydrates, amino acids, proteins, and lipids.

Inorganic Chemistry Ⅰ

With the present-day objection regarding a inorganic compound bond and a structure it lectures the fundamental concept regarding a chemistry of complex.

Analytical Chemistry Lab.

Learning how to analyze unknown samples throughout qualitative analysis and gravimetric experiments

Spectroscopy

Lectures dealing with various topics related to interactions between light and matters. The topics include molecular symmetry and its applications to molecular structure and spectroscopy, rotational, vibrational and electronic transitions of molecules, lasers and their applications in chemistry, and nuclear magnetic resonance spectroscopy.

Advanced Organic Chemistry

This course aims at the delivery of up-to-date knowledge covering important organic chemical concepts, methodology, and the designing of synthetic target compounds, which are serving as the key stones in modern organic synthesis. Relating with this purpose, synthetic analysis, synthetic strategies, and interrelated organic reactions will be taught. More specifically recent advanced organic reactions such as carbon-carbon coupling reactions, manipulation of functional groups, functional group interchange, thermally unfavorable reactions, cyclization reaction, organometallic reactions, etc., numerous organic mechanisms, and organic structures will be learned.

Analytical Chemistry Ⅱ

Learning the theory and practice on spectroscopic and electrochemical analysis among basic principles of analytical chemistry

Inorganic Chemistry Lab.

The laboratory is intended to introduce the student to some of the more common experimental techniques and methods used by inorganic chemists. As in any laboratory course, principles and theories which are covered in lecture will be illustrated as well. A wide variety of synthetic procedures, methods of purification and characterization, and types of instrumentation will be used.

Advanced Physical Chemistry

The basis of statistical thermodynamics. The diffraction methods. The electric and magnetic properties of molecules. The structures and physical properties of macromolecules.

Spectroscopy of Organic Chemistry

This course contents include the modern spectroscopic methods to elucidate the structures of organic compounds.Methods for establishing the structure of organic compounds are presented with an emphasis on NMR and IR spectroscopy and mass spectrometry.

Instrumental Analysis Ⅰ

Learning the structure and property of instrumental elements based on properties of light, UV-Vis spectroscopy, atomic absorption spectroscopy, and potentiometric analysis

Inorganic Chemistry Ⅱ

It discusses a manufacture, a synthesis and a structure of the simple organometal complex and the coordinated chemical compound. It treats a theory, an interpretation and an applicability of the spectrum.

Chemical Kinetics

Basic concepts of reaction rate. Experimental and theoretical methods to study of rate and mechanism of chemical reaction. The reaction dynamics of elemental processes in molecular level. Application to the study of surface and atmospheric sciences.

Polymer Chemistry

Polymers are large molecules made of monomers. Examples include plastics, rubbers, fibers, biological polymers such as proteins and DNA, and inorganic polymers such as glass. We will discuss the basic concepts in polymer sciences. Covered topics include: Molecular weight & molecular weight determination; Polymer Synthesis; Copolymerization; Characterization of polymers; Polymer structures; Reactions of polymers

Physical Organic Chemistry

This course aims at the understanding of general principles and mechanisms of organic reactions.

Molecular orbital theory, kinetics, thermodynamics, nucleophilic substitution reactions, aromatic substitution reactions, radical reactions and photo reactions will be discussed.

Electrochemistry

This course examines fundamentals of modern electrochemistry including equilibrium/dynamic electrochemistry, and instrumentation associated with these methods.

Molecular Modeling

The basic principles of molecular modeling, quantum chemistry, molecular mechanics, and statistical thermodynamics. The applications of molecular modeling to biomolecules.

Advanced Inorganic Chemistry

This course will develop the concepts of descriptive and theoretical Inorganic Chemistry. The advanced topics to be present will included molecular shape and symmetry, complexes of the *d*-block elements and redox chemistry, an introduction to the electronic spectroscopy and reaction mechanisms of transition metal complexes. This course will present the inorganic chemistry necessary for employment in the chemical industry and further work at the advanced undergraduate level.

Theory of Chemical Education

Historical view as well as goals of the chemical education is covered in this class. The other important subjects convered include teaching-learning theory in chemical eduction, evaluation of chemistry learning, and teaching chemical experiments.

Instrumental Analysis Ⅱ

Learning the structure, property, and analytical methods of instrumental elements related fluorescence, ICS-AES polarography, chromatography.

Quantum Chemistry

A first course in molecular quantum mechanics dealing with the basic elements of quantum chemistry, quantitative treatments of Shrödinger equations and their applications to systems of interest to chemists, the electronic structure of atoms and molecules, and various approximate methods of calculations.

Biochemistry

It handles the important concepts and the fundamental knowledges of a biochemistry.

Introductory Bioinformatics

The basic principles of bioinformatics. Using nucleotide and Protein sequence databases. Similarity searches on sequence databases. Building a multiple sequence alignment. Working with protein 3D structures.

Synthetic Organic Chemistry

To explain the field which the present-day organic chemistry which is excepted from general organic chemistry surveying is aiming easily. This lecture studies a stereochemistry reaction, an organometallic chemistry, an organic molecular photochemistry and the hetero ring chemistry

New Material Nano Chemistry

A study of bonding properties, structure, stereochemistry, and reactivity of fullerenes, carbon nanotubes and nanoparticles. Other topics discussed are nano-characterization methods, lithography including soft lithography and self-assembly monolayer.

Teaching Methods and study on Teaching Material in Chemistry

Textbooks and reference books used in secondary school chemistry coures are reviewed. Chemistry and chemistry-related scientific contents from those books are analyzed and evaluated based on teaching theories.

Science and Logic

Science uses logic to derive reasonable conclusions. Essays are critical for presenting the results obtained from the scientific experiments and observations. In this class logic and methods of scientific thinking are covered which lead to reasonable scientific conclusions.

How to train students to enhance their ability to learn the method of scientific thinking and utilize logics. Teaching students to write scientific essays is an another important topic to be covered in this lecture.

◇ School of Biological Sciences

Introduction

Welcome to the school of Biological Sciences at Chungbuk National University (CBNU). The primary mission of our school is to establish Glocal (connections between global and local) leading research groups and nourish Glocal class scientists in the interdisciplinary areas of biological sciences and bioengineering.

As of 2016, the pre-existing departments of Biology, Microbiology and Biochemistry have been integrated into one new faculty under the designation of the School of Biological Sciences. The new goal is to provide Glocal class education for fundamental knowledge as well as hands-on experiments to prepare the best young students in both undergraduate and graduate program to be the global leaders in biological sciences and bioengineering.

In addition, the Innovation center for integrative Bioscience and Biotechnology (Creative Korea-I), in parallel with the Osong Biological Sciences Subdivision and Chungbuk's Bio Regional Strategic Industry, are running a Biological Sciences specialized program that aims to take the lead in the development of biological sciences by giving their manpower an integrated and practical training in the foundations of biology, as well as the specialized knowledge of their major on the basis of creative research ability.

Through the courses available at the School of Biological Sciences, students are able to learn about the mechanisms that unravel the phenomenon of life through two appropriate academic approaches: the microscopic approach, with courses such as Molecular Biology, Biochemistry, Cell Biology, Animal and Plant embryology, Epigenetics, Immunology, Virology, Metabolic Signaling, Animal and Plant Physiology, Structural Biology, Microbiology, Histology, etc.; and the macroscopic approach, with courses such as Animal and Plant Taxonomy, Evolution, Ecology and Environmental Biology, etc. in about 90 elective lectures.

In detail, the curricula of each of the three former academic departments consist of the following courses: Animal and Vegetal Taxonomy, Morphology, Embryology, Physiology, Epigenetics, Ecology, Histology, Animal Genetics etc. for the major in Biological Sciences; Genetic Engineering, Environmental Microbiology, Physiology of Microorganisms, Genetics of Microorganisms, Applied Microbiology, Virology etc. for the major in Microbiology; and finally, Immunology, Metabolic Signaling, Neurobiochemistry, Protein Crystallography etc. for the major in Biochemistry. The graduate programs leading to MS and PhD degrees are also available to provide

fundamentals for students.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
2-1-E Introduction to Animal Biology (3)	2-2-E Genetics (3)
2-1-E Introduction to Plant Biology (3)	2-2-E Animal Anatomy and Lab. (3)
2-1-E Introduction to Ecology (3)	2-2-E Plant Morpholgy and Lab. (3)
2-1-E Introduction to Microbiology (3)	2-2-E Microbial Physiology (3)
2-1-E Introduction to Microbiology Lab. (3)	2-2-E Experiment in Microbial Physiology (4)
2-1-E Life Sciences and English (3)	2-2-E Computer for Life Science and Lab. (3)
2-1-E Introductory Biochemistry (3)	2-2-E Biomedical Science (3)
2-1-E Introductory Molecular Biology (3)	2-2-E Introduction to Cell Biology (3)
2-1-E Experimental Animals (3)	2-2-E Introductory Biochemistry Lab. (3)

● Courses Abstract

Introduction to Animal Biology

Lecture emphasize basic principles in animal biology including scientific inquiry, cell biology, genetics, evolution, and diversity in animal anatomy and physiology.

Introduction to Plant Biology

In this lecture students can learn about the structure, physiology, reproduction and ecology of plants as a basis for an understanding of broader principles of plant sciences as well as the relation of plants to human life. Includes a survey of the important groups throughout the plant kingdom.

Introduction to Ecology

This lecture let you know the basic concept and principles of ecosystem. You can learn and get an ability to solve the problem and to make the counterplan against destruction of ecosystem.

Introduction to Microbiology

This is a beginning course in the study of microorganisms, a large and diverse group of microscopic organisms that exist as single cell or cell clusters. Students will study the history of microbiology, the general principles of cell structure and function, biochemical processes in cells, and the genetic basis of microbial growth and evolution. The goal of this course is to give students a basic understanding of bacteria, viruses, and fungi, how they live, and the effect they have on our lives. Students will study the experimental basis of microbiology, the classification and diversity of microorganisms, and the ecological activities of microorganisms in nature.

Introduction to Microbiology Lab.

Intensive laboratory exercises will stress fundamentals of compound light

microscopy, aseptic techniques, media preparation, many simple and differential staining procedures, pure culture methods, and isolation techniques.

Life Sciences and English

This course is for the students who want to develop a better understanding of the original textbook in the field of life sciences and to improve their personal reading and writing skills in English.

Introductory Biochemistry

This course designed to give students a basic understanding of biosynthesis of cellular components including such topics as replication gene expression, protein synthesis as well as a discussion of nature and catalytic mechanism of enzymes, and biosynthesis and degradation of various biomolecules.

Introductory Molecular Biology

Introductory Molecular Biology is a research field which explores life phenomena at the molecular level. It tries to understand and characterize the gene expression, regulation of prokaryotes and eukaryotes, protein synthesis, RNA processing, and the mechanism of the flow of genetic information.

Experimental Animals

Basic animal handling methods, anaesthesis of animals, behavior testing using animals are covered as well as animal model research topics. Moreover, the basics of making transgenic animals, such as basic molecular biology, embryology and genetics will be provided. Also, the techniques related to the production of transgenic animals such as pronuclear injection, nuclear transfer, gene editing, embryonic stem cell biology and the application of transgenic animals in biological and medical science will be provided.

Genetics

The purpose of this lecture is to study the genetic phenomena which is one of the most important field in biology mechanisms. You can study about the nature and the characteristics of genes, and about the mechanism of gene expression.

Animal Anatomy and Lab.

In this course we will study the anatomy of vertebrates. We will comparatively study the different organs and structures that make vertebrates differ from one another. There differences are correlated with unique adaptations of the different vertebrate groups and are the result of evolution. Consequently, our guiding approach will be the analysis of the evolutionary morphology of vertebrates.

Plant Morphology and Lab.

This lecture will study external and internal morphology observed in vegetative and reproductive organs, and diverse types of tissues in the course of functional specialization. Also, this lecture will enhance the understanding of the students for

the functional diversity related with the morphological characteristics of leaf, root, stem, fruit, and seed through experiments.

Microbial Physiology

As a pivotal course in the field of microbiology, this course aims to help students to perceive concepts of principle of life phenomena. This course covers main aspects of microbial growth, energy and biosynthesis pathways, metabolic regulation and integrated pathways into a coherent system. Also emphasis on physiological diversity and global control systems govern adaptation of microorganisms to environmental changes.

Experiment in Microbial Physiology

Students will obtain a good understanding of laboratory practices in microbial physiology and taxonomy. Lab topics will include aseptic technique, bacterial and fungal isolation methodology, antibiotic sensitivity testing, various biochemical tests, identification of microorganism using a wide variety of diagnostic procedures.

Computer for Life Sciences and Lab.

This Class will provide students with an overview of computer science and its applications to life sciences. Specific areas and topics that will be discussed include understanding computer, basic principles of bioinformatics, nucleotide and protein sequence databases, homology search, and multiple sequence alignment.

Biomedical Science

This course provide a background for a more in-depth analysis of nervous system functions and clinical disorders. Having provided the student with a basic understanding of the gross anatomy and general functions of the brain and spinal cord, this course then introduces a series of topics designed to provide an understanding of the basic elements of the nervous system and the role they play in neuronal communication.

Introduction to Cell Biology

This course helps students to obtain basic knowledges of cell biology covering the constituents, structures, and biological mechanisms of cell. So those who study in this course will have a broad concept for understanding the cell unit, a major component of all living things.

Introductory Biochemistry Lab.

Students are expected to comprehend the chemical basis of the constituents of living organisms, and to understand metabolism, biological catalysis by enzyme and biosynthesis from the aspect of physical chemistry.

Biological Sciences

Introduction

Welcome to the Biological Sciences Major, the home for fundamental research and education in biology at Chungbuk National University.

The Biological Sciences Major is at the center of biological sciences research at CBNU. It has been established since 1978 to endeavor the endless challenges and leap in order to foster the professional human resources of biology. Since 1983 when it produced the first graduates, it has produced 40 alumni every year and they are contributing to the development of biology in various areas of life science.

Our mission is to deepen our understanding of the biological phenomema from molecules to cells, and organisms to ecosystems. We have 6 full-time faculty members to commit to excellence in research and education, and are proud of the outstanding students and staff who make this possible. A degree in our biology can be the gateway to a career in any of numerous diverse industries as technological advances open up opportunities in new directions.

We have proclaimed the year 2014 as 'the year of reform and the creation of future values' and established the 'VISION 2030' which is the long-term development plan of Biological Sciences Major, and we are doing the best to foster the 'future biologists' who will lead the creative society of the 21st century. It is an exciting time to be a biologist.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(47Credits), a major(75Credits), and electives(0-18Credits).

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Molecular Animal Embryology and Lab. (4)	3-2-R Animal systematics and Lab. (3)
3-1-R Plant Taxonomy and Lab. (4)	3-2-R Plant Physiology and Lab. (4)
3-1-R Genomics (3)	3-2-R Animal Physiology and Lab. (4)
3-1-E Animal Genetics (3)	3-2-E Freshwater Botany (2)
3-1-E Invertebrate Zoology and Lab. (3)	3-2-E Phycology (3)
3-1-E Environmental Biology and Lab. (4)	3-2-E Epigenetics (3)
3-1-E Field and Marine Zoology Lab. (1)	3-2-E Signal Transduction (3)
3-1-E Field Botany Lab. (1)	
3-1-E Experimental Molecular Biology (2)	
4-1-E Biostatistics and Lab. (3)	4-2-E Marine Botany (2)
4-1-E Plant Ecology and Lab. (3)	4-2-E Wild Animal Conservation (2)

4-1-E Plant Conservation (3)	4-2-E Biological Science Seminar (2)
4-1-E Molecular Histology and Lab. (3)	
4-1-E Evolution (2)	
4-1-E Plant Embryology (3)	

● Courses Abstract

Molecular Animal Embryology and Lab.

Descriptive and experimental study of the development of animals with emphasis on vertebrate development. Gameotogenesis, fertilization, cleavage, gastrulation, organogenesis, and mechanism involved in control of shaping. pattern and expression during development. Descriptive and molecular experimental examination of the development of various organism using living and sectioned embryos.

Plant Taxonomy and Lab.

This course aims to provide the fundamental concepts of plant taxonomy, history of taxonomic research, nomenclature, principles and methods of classification for the vascular plants, and develop the ability of students to perceive the representative plant species in Korea. Also, this lecture teaches how to treat the collected plants and how to manage the specimen through the practical exercise of specimen production and arrangement as well as plant collection and identification.

Genomics

The objective of this course is to learn about the structure and function of genome, comparative genomics and the latest techniques and skills for analysis of genomes having the background of molecular biology and genetics.

Animal Genetics

To understand the genetic phenomena you can learn about the DNA which controls the genetic procedures.

Invertebrate Zoology and Lab.

Invertebrate Zoology is an exploration of the life styles of animals without backbones. In this course, we will learn about invertebrate life histories, taxonomy, structures and functions. Also, lectures focus on the unique features of different invertebrate phyla and the interesting ways animals interact with each other and their environments.

Environmental Biology and Lab.

This lecture aims to give the students basic knowledge on biological consequences of human intervention in ecosystems. These include endangered and threatened species, pollution impact on organisms, pest control, pollution dynamics, genetic engineering of agricultural species, management of natural areas and urban ecosystem dynamics.

Field and Marine Zoology Lab.

Wild animal conservation is the scientific field on the wild animal diversity and their management, and we learn about the diversity of wild animal, the principle and methods for their managements, and sustainable utilization of wild animal resources for human welfare. For field and laboratory techniques on the biology and ecology of land plants and marine plants, this course covers the identification of vascular plants and marine algae, the determination of algal primary productivity, and field sampling techniques in plant ecology.

Field Botany Lab.

In this course, the students will observe the inland and coastal plants and understand their distributional characteristics. Also, the students will learn how to measure and analyze qualitative and quantitative characters of the targeted plants, thereby perceiving the diversity and importance of ecological system.

Experimental Molecular Biology

The objective of this course is to obtain the fundamental techniques in molecular biology including gene cloning, protein purification and analysis of gene/protein expression in the cells

Animal Systematics and Lab.

The objective of this course is to understand the diversity of animals and relationship among them in the level of systematic zoology.

Plant Physiology and Lab.

You can learn about physiological, biochemical analysis on energy circulation and metabolite production by photosynthesis. Your knowledge on relationship of lives will be increased by study on the environmental factors which affect on physiological actions.

Animal Physiology and Lab.

The subject of animal physiology is often simply described as the study of "how animals work". In this course we will examine general physiological mechanisms, examining the structure and function of cells, tissues, organs and organ systems in animal as well as the control and integration of these functions.

Freshwater Botany

The aim of this lecture is to present a balanced, comprehensive, and contemporary view of the science of freshwater botany. The cause and ecological consequences of man-made eutrophication will be discussed.

Phycology

This lecture aims to introduce the student to the biology, reproduction, diversity and ecology of marine and freshwater algae. Includes the importance of algae to humans as well as the use of algae in biotechnology.

Epigenetics

The objective of this course is to understand how organisms are adapted to the change in their surroundings in view of epigenetics.

Signal Transduction

The objective of this course is to understand how cells communicate with each other in order to coordinate their growth and differentiation.

Biostatistics and Lab.

Statistical techniques necessary for analyzing data in scientific projects for students : calculation of sample statistics, hypothesis testing, theoretical distribution, sampling, fitness test, analysis of variance, regression and correlation. Non-parametric techniques for statistical analysis will be also covered.

Plant Ecology and Lab.

With the target of plant communities in forest ecosystem which takes up 64% of Korean peninsula, the students will acquire the basic knowledges on community structures and succession. Also this course will enhance the understanding of students on energy flow and metabolism in ecosystem. In addition, students can develop the abilities of discrimination and analysis for plants communities through the practical exercise concerned with assessment of degree of green naturality and making of vegetation map.

Plant Conservation

Plant conservation is a division of biology about conservation of plant diversity. In this course, the students will analyze the reasons for plant community collapse that is going on speedily in the recent time as well as for loss and extinction of genetic diversity for rare plants, and discuss how to evaluate them for conservation.

Molecular Histology and Lab.

Histology will give you an understanding of the structure and function of the cell and extracellular matrix as basic building blocks of tissues and organs.
Specialization of cells and their interactions in forming tissues will be presented as well as how cells and tissues are structurally and functionally linked in organs.
Lecture will focus on relating cell, tissue, and organ structure to their specific functions while laboratory will emphasize microscopic recognition of tissues and organs.

Evolution

Study of the mechanisms responsible for evolutionary change and their results in the organism. History of evolutionary thought, evolution of single-gene and quantitative genetic traits, speciation, and molecular evolution are major concern. Role of evolutionary ideas in issues such as species conservation, medicine,

eugenics are also.

Plant Embryology

This lecture will provide the developmental characteristics in the course of sexual reproduction of higher plants. Especially, the students will understand the diversity of biological phenomena revealed in the formation processes of embryo sacs, pollen grains, mature embryos and seeds.

Marine Botany

In this lecture students can learn about the biological aspects of marine plants. Comparative development, morphology, taxonomy, physiology and ecology will be discussed. Includes the uses and usage of marine plants as well as the microbial activities in marine ecosystems.

Wild animal conservation

Wild animal conservation is the scientific field on the wild animal diversity and their management, and we learn on the diversity of wild animal, the principle and methods for their managements, and sustainable utilization of wild animal resources for human welfare.

Biological Science Seminar

The study of Biological Science is a discipline to increase our fundamental understanding of life phenomena by exploring the complex and mysterious structure and function of living organisms. This seminar course will provide the opportunity to meet most recent research area and trends in the biological science fields for training creative, talented and advanced ability.

Microbiology

Introduction

The department of microbiology that leads the life science of the 21st century

The department of microbiology was established in October 1984 after receiving the approval from the Ministry of Education as the fourth national university. After selecting 40 new students in March of 1985, it has produced hundreds of graduates up to now and significantly contributed to the development of microbiology of Korea.

Microorganisms are a subject that makes up the micro world with microscopic sizes which is essential element that maintains the ecological environment of the earth and has beneficial side and harmful side to humans. Microbiology as application study is becoming the basis of the development of various biotechnologies such as development of new drugs and materials, biotechnology host and development of gene therapy vectors, and environmental purification. Furthermore, as the core basic study field of integration era and system microbiology that will lead the 21st century, it is located in the center of life science research.

In order to foster the qualities as the microbiologist needed in the 21st century, biochemistry, cell and molecular biology, bacteriology, genetics, ecology, virology, mycology, etc were established to help the understanding of basic microbiology. In addition, with the studies of applied microbiology, microbial genomes engineering, synthetic biology, molecular microbiology engineering and system microbial metabolic engineering were established along with biological process validation internship which is associated with the student's career after the graduation. Through this, it enables the students to grow as experts by encountering a wide range of microbiology and furthermore we are trying to facilitate the smooth association with the career.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(47Credits), a major(72Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-E Experiment in Systems	3-2-E Experiment in Environmental and

	Microbiology (3)		Industrial Microbiology (3)
3-1-E	Mycology (3)	3-2-E	Genomics (3)
3-1-E	Synthetic Biology (3)	3-2-E	Microbial Ecology and Cycle of Matters (3)
3-1-E	Bioinformatics (3)		
3-1-E	Microbial Metabolic Biochemistry (3)	3-2-E	Environmental Microbiology
3-1-E	Detection of Microorganisms (3)	3-2-E	Bacteriology (3)
		3-2-E	Microbial Genome Engineering (3)
		3-2-E	Systems Metabolic Engineering (3)
4-1-E	Experiment in Cell culture and virology	4-2-E	Validation for Bioprocess (2)
		4-2-E	Microbiology and Industry (3)
4-1-E	Virology (3)	4-2-E	Practice in Microbiology (3)
4-1-E	Microbial Diversity (3)	4-2-E	Special Topics in Microbiology (3)
4-1-E	Molecular Microbiotechnolgy (3)	4-2-E	Special Topics in Synthetic Biology
4-1-E	Pathogenic Microbiology (3)		

● Courses Abstract

Experiment in Systems Microbiology

This course is a basic introductory course in systems Microbiology designed to provide students with

○ A background knowledge of how microorganisms interact with complex environment and ways by which their cellular metabolism can be controlled.

○ Fundamental technical skills for general use in handling and observing the cellular mechanisms of microorganisms.

○ A basis for further microbiological studies.

Mycology

Mycology is the study of fungi, their genetic and biochemical properties, their taxonomy, and their use to humans as a source for medicine and food (beer, wine, cheese, edible mushrooms), as well as their dangers, such as mycotoxin or mycological infection.

Synthetic Biology

This class will provide students with an overview of one of integrative biological sciences, synthetic biology. Synthetic Biology is focused on the intentional design of artificial biological systems, rather than on the understanding of natural biology. It builds on our current understanding while simplifying some of the complex interactions characteristic of natural biology. Specific areas and topics that will be discussed include gene synthesis, BioBricks, genome synthesis, artificial membrane, and applications of synthetic biology (e.g., drug discovery, bioenergy, biosensor, bioterror/biodefense).

Bioinformatics

Computers have revolutionized modern biological research, by providing biologists with the means to manage and analyze the large amounts of data generated through high-throughput experiments. This course provides a practical introduction to the main algorithms, databases, and tools used in bioinformatics, at the same time providing insight into the biological problems being addressed. The course will cover public databases such as Genbank and PDB, software tools such as BLAST, and their underlying theory and algorithms. Students will learn to perform a number of useful tasks in analyzing sequence data and managing bioinformatic databases using java/biojava programming language.

Microbial Metabolic Biochemistry

Complex metabolic networks result in unique life phenomena of microorganisms. In the class of metabolic biochemistry, students will study microbial metabolisms by analyzing representative metabolic pathways in microbial cells. Basic knowledges of organic chemistry, thermodynamics, and enzymology obtained in the microbial enzyme chemistry will be applied.

Detection of Microorganisms

This course presents the traditional and the latest detection methods for microorganisms and viruses that exist in environment and food causing food poisoning, and that can be used by bio-terrorism.

Experiment in Environmental and Industrial Microbiology

This experimental program provides student with practical skills for isolation of useful microorganisms from various environments. With this course, trainee will learn a method of culture using fermenter, and how to mate, sporulate, and other molecular biological methods of yeast.

Genomics

Students will learn the basic structure and functions of genomes in terms of molecular biology. Students will also learn how the knowledge of genomics is applied to the development of life sciences, especially in human genome project.

Microbial Ecology and Cycle of Matters

This course deals with the principles of microbial ecology and biogeochemical cycling. Students will learn the role that microbes play or have played in a number of fundamental geological process and global cycle of nutrients.

Environmental Microbiology

The main goals of this course are to present an overview of the important microbes involved in environmental microbiology, to discuss the environments where they are found, to learn how they are detected and monitored, and to describe their effects on humans.

Bacteriology

Bacteriologics, which is one of major field of various aspects of Microbiology, is dealt with a various kind of procaryote including Eubacteria and Archaea occurring in vast natural habitats.

Microbial Genome Engineering

The main goal of this lecture is to understand how to manipulate bacteria in the level of the gene as well as the genome. The main topics of the lecture are the basic principles and applications of genetic engineering, introductory microbial genomics, and the basic principles and applications of genome engineering.

Systems Metabolic Engineering

The purpose of this course is to offer an introduction to the principles and methodology of metabolic engineering with the integration and regulation of microbial metabolism by using systems biological approaches. We will cover mathematical and experimental techniques for the quantitative description, modeling, control, and design of metabolic pathways. In addition, the course aims to introduce the students on the field of metabolic engineering and give the students insight in how the technology can be used in the Bio-industry processes.

Experiment in Cell culture and virology

Laboratory exercises are designed to give students useful skills in working with bacteria and viruses in natural environment. Students will learn how to isolate, enumerate, and confirm a variety of microorganisms.

Virology

Students will be acquainted with 1) basic structure and replication mechanisms of viruses, 2) virus-host interactions including pathogenesis, and 3) the current knowledge on the control of viral diseases.

Microbial Diversity

The goal of this course is a comprehensive overview of microbial diversity, an understanding of bacteria as a group. Topics to be covered in addition to microbial diversity include phylogeny and taxonomy of microbes based on analysis of phenotypic characteristics and DNA sequences, and the ability of species to adapt to extreme environments.

Molecular Microbiotechnology

This course covers the biochemistry, molecular biology, and recombinant DNA technology behind biotechnological processes, particularly those involving microorganisms.

Pathogenic Microbiology

Bacterial pathogens have evolved a wide variety of mechanisms to establish

themselves in the host and gain nutrients, subsequently causing host cell damage and disease. This course deals with basic concept of pathogenic microbiology with emphasis on medically important microorganisms, focusing bacterial pathogens causing various infectious diseases, the mechanism of host defense against infectious agents, preventive measures, and control the infectious agents with antimicrobial agents.

Validation for Bioprocess

Students will learn the practical knowledge required for biotech industries such as GMP and biovalidation and are expected to be competitive for employment.

Microbiology and Industry

The goal of this course is a comprehensive overview of industrial microbiology. Industrial microbiology, the major foundation of biotechnology, arose out of empirical developments in the production of wine, vinegar, beer, and withe the traditional fungal fermentations. This field also includes brewing, antibiotic production, amino acid production and industrial enzyme production.

Practice in Microbiology

This course is required for undergraduate students preparing for a graduation thesis. Students choose a topic in the field of microbiology and present experimental results obtained from their research projects. Students will be exposed to scientific writing through data analysis and manuscript writing.

Special Topics in Microbiology

This course will cover in depth topics related to current research in the fields of microbiology. Topics will be selected from traditional and transecting disciplines such as bacteriology, virology, microbial genetics, and molecular biology. Each topic will be addressed in formal lectures given by faculty, and through the presentation and discussion of relevant literature by students.

Special Topics in Synthetic Biology

Synthetic biology builds on the advances in molecular, cell, and systems biology and seeks to transform biology in the same way that synthesis transformed chemistry and integrated circuit design transformed computing. In the part of "Special Topics in Synthetic Biology", we focus on the design and construction of Microbial essencial components (parts of enzymes, genetic circuits, core metabolic pathways, etc.) that can be modeled, understood, and tuned to meet specific performance criteria, and the assembly of these smaller parts and devices into larger integrated systems that solve specific problems.

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Biochemistry

Introduction

The Biochemistry department was established in 1986. M.S. and Ph.D. programs were established in 1990 and 1999, respectively.

Biochemistry describes the molecular nature of life processes, including various chemical reactions occurring in living organisms. The key research areas that are related with biochemistry are as follows: development of novel therapeutic drugs, diagnosis and treatment of various diseases, green revolution for food, biological remediation of environmental pollution, and nanobiotechnology. Our curriculum thus focuses on both understanding of fundamental life processes and application of biochemistry.

In the graduate programs, the students have an opportunity to get more knowledge and experience in enzymology, molecular biology, neuroscience, molecular angiogenesis/protein chemistry, X-ray crystallography, immunology, signal transduction and stem cell biology. Currently, about 20 students are enrolled in the graduate programs, and all the graduate students receive scholarships. After finishing their graduate studies, they work at research institutes, colleges and industries.

Since biochemistry is needed in many areas of research and industry, our graduates work in a lot of different areas. Some graduates work as researchers at government or industrial research institutes. Others are employed at the industry of such areas as public health, medicine, pharmaceuticals, agriculture, animal husbandry, food engineering, and cosmetics.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(47Credits), a major(72Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Biochmistry I	3-2-R Biochemistry II
3-1-R Molecular Biology I	3-2-R Molecular Biology II
3-1-R Molecular Biology Lab.	3-2-R Bioenergetics and Metabolism
3-1-E Molecular Cell Biology I	3-2-E Molecular Cell Biology II
3-1-E Patent for Life Science	3-2-E Protein Biochemistry
3-1-E Immunology	3-2-E Systems Biology
3-1-E Neural Development	3-2-E Experiment in Biological Sciences I

4-1-R Biochemistry of Anabolism	4-2-E Physical Biochemistry
4-1-E Neurobiology	4-2-E Virology
4-1-E Biotechnology	4-2-E Stem Cell Biology
4-1-E Special Topics in Life Science	4-2-E Establishment of Biocompanies
4-1-E Strategies for Employment in Bioindustry	4-2-E Expetiment in Biological Sciences II

● Courses Abstract

Biochemistry I

Structure and function of the cell will be described in this lecture. Molecular structure and function of carbohydrates, lipids, proteins, and nucleic acids will be discussed.

Molecular Biology I

This lecture aims to describe gene structure, cell signaling, regulation of gene expression, and recombinant DNA technology.

Molecular Biology Lab.

Students are expected to learn basic recombinant DNA techniques including gene isolation, DNA purification, and gene cloning.

Molecular Cell Biology I

Students are expected to learn cellular energetics, traffics of proteins and materials, signal transduction, cellular organization, movement, and tissue formation.

Patent for Life Science

With the advancement of life sciences, the significance of intellectual property rights has become inevitable. Therefore, this course will provide basic information on intellectual property rights in the field of life sciences. Students will get the first hand information on search skills of prior art and patent filing strategies through the course.

Immunology

This course is designed to introduce student to basic immunology and to give them an understanding of the process involved in immune reactions, concentrating on the central areas of immunology, namely, immune recognition, cooperation between immunologically active cells and development of immune reactions.

Neural Development

The goal of this course is to provide a contemporary overview of neural development for undergraduate students. The objective of this course is to understand various aspects of neural development at molecular and cellular levels. It contains developmental genetic program, control mechanisms of neuronal differentiation, specification and neuronal cell fate, and neuronal cell death.

Biochemistry II

This course deals with the major metabolic pathways for carbohydrates, lipids, amino acids, and nucleic acids. Emphasis will be on the regulation and interrelationships of the pathways.

Molecular Biology II

This course helps student understand the molecular basis of life processes. This course mainly deals with control of gene expression and biomembrane functions.

Bioenergetics and Metabolism

Bioenergetics and metabolism course is designed to study of the molecular mechanisms in bioenergetics and metabolism. This course covers the principles of bioenergetics, the reactions and pathways of carbohydrate and lipid metabolisms, oxidative phosphorylation, and signaling transduction mechanism.

Molecular Cell Biology I

Students are expected to learn cellular energetics, traffics of proteins and materials, signal transduction, cellular organization, movement, and tissue formation.

Protein Biochemistry

This course explores the physicochemical characteristics and purification methods of proteins.

Systems Biology

Systems biology is an academic field that seeks to integrate different levels of information to understand how biological systems function. By studying the relationships and interactions between various parts of a biological system it is hoped that eventually an understandable model of the whole system can be developed. This course in systems biology is intended to initiate the student to view the living organisms as a system.

Experiment in Biological Sciences I, II

This course is for students who wishes to design and perform experimental research. Students select a theme among various biological phenomena, which can be done within a short period (about 6~8 weeks). This course amis for undergraduate students to enhance their research power by performing numerous related experiments as well as the acquisition of their underlying principles. The students are expected to understand how a piece of textbook knowledge can be obtained through experiments. This course will provide a background to aid the students to become an independent scientist in the future.

Biochemistry of Anabolism

In this course, students will learn the biosynthetic pathways of various biomolecules, such as amino acids, nucleotides, and membrane lipids. Students

will also learn how the anabolic pathways are controlled.

Neurobiology

This lecture aims to describe the structure and function of the nervous system that determines the behavior of living organisms.

Biotechnology

This course is intended for students who wish to learn various experimental techniques and methods that are currently used to analyze the structure and function of the macromolecules, such as proteins, which are key components of living organisms.

Special Topics in Life Science

This lecture aims to understand various topics in life science field including recent hot research issues, pandemic diseases, status of the art in biological research and application, modern technology and instruments.

Strategies for employment in bioindustry

This lecture aims to lead students to well prepare for job opportunities in bioindustrial field. To provide relevant knowledge and skill efficiently, people who are working in biocompanies will give a lecture on the status of the art and the requirements for employment in their companies. Specialists in management/marketing will be also invited to provide basic information on the field.

Physical Chemistry

Students are expected to learn theories and backgrounds of physical chemistry that are required to understand biochemistry.

Virology

In this course, students will get information on diverse viruses. Specifically, they will learn about virion structures, organization and expression of viral genomes, and functions of viral proteins. Students will also learn about viral diseases and how to prevent them.

Stem Cell Biology

This course is aimed to introduce the basis of cell biology, especially on stem cell biology and basic developmental biology. This will also include current topics of cell biology such as cell therapy and development of cell therapeutics.

Establishment of biocompanies

This lecture aims to study basic knowledge and skills for the commencement of biocompanies. The lecture will include systematic thinking for a good management, strategies for marketing, good manufacturing practice, management of a company, financial management and funding.

▣ Department of Information Statistics

Introduction

We are difficult to predict the future situation of living in a flood of information is uncertain. What a simple arrangement of statistical data, but rather only cost, efficiency, given by considering various conditions, such as data, information and best use of scientific theory, based on best guesses about the issues that concern or make decisions for The study methodology and results can be called by setting the right direction will be as important.

In addition, the Information and Statistics majors demand social computing, biotechnology, finance and specialized training courses in this track is configured. Statistics are an essential foundation in all areas of social studies as well as much higher as the interest of as a rapidly developing society, is a science.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(60Credits), a major(75Credits), and electives(5Credits).

Curriculum :

| Yr-Sem-R/E Course (Credit) | | |

of several laws and use the statistical data analysis of actual data and statistics about the actual data by running the package aimed at enhancing the application of force.

Sample Survey and Lab

Acquire the necessary theoretical foundation surveys and working to help increase the efficiency of the statistical survey on the subject. By default, simple random sampling, stratified random sampling, the system theory of the extract, and extracts such as learning, such as rock the House and at the same time actually survey, sampling and analysis of simple statistical data useful to write a great report on the basis of that information.

Mathematical Statistics I

Based on the statistical reasoning being focused in the distribution of the application of the relevant probability distribution for sample approximation theory and mathematical properties and basic variables, learn about the conversion.

Basic Probability Theory and application

Statistical analysis of the data is maintained in an indicator has actively facilitated the application and the underlying Markov Random Walk theory, Possion processes, Martingale theory research and Chain, the probability of default of the queuing system with the Foundation of the model in the model and for an introduction to stochastic process in General.

Applied Linear Algebra I

By default, the matrix and linear thought that in order to understand the nature of the matrix and simultaneous equations, determinant, vector space, linear transforms, substitution, such as learning a unique value.

Exploratory Data Analysis and Lab.

Already, the collected data is a way of obtaining information from the series. Easy-to-use information already collected data is obtained by the formula with a number find using a graph summarizing the data in order to make the data more useful, the data which is suitable for the distribution of the ash or how to recognize data related to analytical methods.

Experimental Design Analysis and Lab.

Basic statistics using the concept of a master at balancing the principle of planning, structural model and experiment analysis of variance theory statistics relating to technology research. The basics of the plan, mainly the two, factorial design experiments, researches such as the split district.

Mathematical Statistics Ⅱ

Statistics based on the mathematical theory of fields so that they can develop and deepen the theoretical background for statistical methods, and to facilitate the

connection of theory and practice.

Statistical Programing Practice and Lab.

Statistical exploratory analysis using data analysis and robust techniques play an important role in this increasingly occupied. Therefore, this course focuses on the basic principles in practice in parallel.

Statistical Packages and Lab.Ⅱ

C++, SAS, Basic dealing with the knowledge of programming languages such as Basic, there are several statistical distribution using grid computation, calculation of the distribution function and density function graphs, statistics and the application of the rules.

Interest and Finance

Learning theory and the basic interest of the financial sector stocks, bonds, futures and options, portfolio theory and so on other financial issues related to banking and finance learning how to solve them.

Applied Linear AlgebraⅡ

In order to acquire in-depth linear algebra theory used in a wide variety of mathematical areas many advanced linear algebra concept invariably subspaces, direct sum decomposition of circulation, and Jordan type, inner space and its bilinear form defined above, operators, etc.

Regression Analysis and Lab.

A variety of problems can analyze the data that appears in the theory, in other words, the relationship between the resources estimated and segments that are either straight lines or curves, to study ways of predicting and mostly simple regression models and regression analysis of the correlation coefficient, coefficient of determination, such as the basic concepts of research.

Introduction to Database

Data to a computer store and manage efficiently a systematic technique to theory and practice by learning in a variety of fields throughout the database to build and cultivate the ability to take advantage of.

Advanced Biostatistics and Lab

Medicine, pharmacy and biotechnology the statistics obtained from the Christian Council for the further analysis. Depending on the content of the lecture the General statistical data analysis is the analysis of the actual data or samples, and life sciences data and statistical significance and interpretation of research.

Statistical Simulation Lab.

The statistical model for describing real phenomena against computer-assisted simulations (Simulation) analysis. Pseudo-random number generated from the computer (Pseudorandom number), the probability of the occurrence of the

principles/values of a variable conversion law law, reverse-creation method, and how the law and reject the synthesis/Monte Carlo learn about distributed reduction techniques, using a wide variety of applications (EM algorithm, the MCMC techniques how to Bootstrap, etc.).

Time Series Analysis and Lab.

Depending on the occurrence of any events the trend at the time of this article will deal with how to analyze Nonstationary time series, mostly Stationary and determine the shape, the ARIMA model, MA models, such as the nature of the model the model AR, ARMA.

Advanced Statistical Data Analysis and Lab

This course is designed for the analysis of the data of the various sectors are in need of a basic methodology in order to understand the lectures on probability and statistics. This course is designed to create a computer program and aims to do.

Quality control

Quality-driven quality strategy as a way for management, quality control and quality engineering quality in all fields of the system on the basis of the general theory and its practice. Major learning challenge corporate management, quality, quality, quality function deployment, quality assurance system, Costco-related techniques and practice.

Insurance Statistics

Population about Jung Tae-statistics, vital statistics, and learn about the writing life-tables, these would reflect the life insurance insurance and how it is being calculated.

Categorical Data Analysis and Lab.

Recently, partly for the category type of material made the rapid development of a statistical analysis of the social sciences and Humanities, natural sciences, medicine, especially in areas such as the widely used bar, split table analysis, generalized linear models, log, logit, logit, repeated measurement, such as the contents of the deals.

Survival Analysis and Lab.

The people (or animals) and observe the life of the material are called survival survival data for statistical analysis, survival analysis data. This course, taught basic survival analysis methods.

Linear Models

Description consisting of cuneiform combined with estimates of the variable response suitable for random variation of the classic linear model to study. Variable selection, made an introduction of the coefficients of regression

Diagnostics also deals with hypothesis testing. Member of the placement, the application of the binary layout, placement practice using the package disbursed (experimental).

Introduction to Multivariate Analysis

The theory of the distribution of three or more variables being applied mainly by principal component analysis, factor analysis, such as the basic purpose of dealing and the field of multivariate normal population in Hotelling'T2 statistic, etc.

Data Mining and Lab.

Large amounts of data from these data, patterns, and relationships that exist within the rules by having useful knowledge to navigate and locate model is a series of process to extract the basic concept and methodology of data mining research and practice. In addition, you can obtain the data directly from the telecommunications sector to investigate the actual project based on learned after collected thereby increasing utilization.

Financial Statistics and Lab.

All sectors of the economy and the financial assets of the financial statistics on debt stock consists of a set of comprehensive data flow. Time series analysis of the empirical analysis-driven research centered on the ARCH models.

Reliability Analysis and Lab.

The system will operate without causing a breakdown when he says the system's reliability the probability. Since the 1950s the theoretical aspects of authentic research reliability theory, as well as the physical system consisting of multiple parts, each part of the system, the reliability of the stochastic characteristics of the distribution and application of the estimated lifetime, reliability and also the usefulness of the system, an efficient way of computing as well as with learning.

Computer-Aided Statistics and Lab.

Many statistical data to analyze the purpose of using the Computer, especially the fundamental principles of statistical data handling program, program of study, such as the interpretation of the results indicated the recipe, and the recipe of the principle, the behavior of the Computer program, such as research and the interpretation of the results indicated the behavior of a Computer program for understanding their relationship with.

Economic Analysis

Statistical methodology in economics and business administration combined the basic principles of statistics and the scope and use of the application, expand the area statistics majors to analysis or the reality of the empirical analysis based on the raise.

Spatial Analysis and Lab

This course is based on the spatial location or the temporal flow of collected materials for a variety of statistical models and methodologies for learning. These spatial analysis is the transportation, environment, weather, health, etc., in various scientific fields.

Statistical Consulting and Lab.

Data for the first half of the statistics, data collection, data analysis methods and error about how to apply the statistical analysis, such as: the introduction of and error prone problems recognize them, and this is when the SAS, SPSS, etc., using hands-on (experimental) and analysis together.

Health statistical Analysis

In the field of personal living habits and health sciences environment and looking for the cause of the disease, caused by members of the research done to promote good health in a systematic and scientifically designed research to collect data, statistical data analysis techniques.

Nonparametric Statistics Analysis and Lab.

There are strict about this home in the medulla or if you are unable to do a home and has never been a non-numerical data rankings category covers mainly the statistical techniques for Sign black, Run black, Wilcoxon black, Friedman black.

Advanced Clinical Data Analysis

Clinical trials of its safety and effectiveness for the research design, compare different medicines and reliable quantification, and results can be playable in a variety of statistical methods.

▣ Department of Astronomy and Space Science

Introduction

Department of Astronomy and Space Science aims to educate students to contribute to the Korean astronomy and space science communities and space industries. The department provides students with the general courses designed to study the physical properties of our solar system, stars, our galaxy, extra-galaxies and the universe and with the courses of space applications such as observational techniques, instruments for space observation, artificial satellites and space data processing. Many students continue to remain in this field by going to a graduate school either in Korea or abroad or by seeking a job in one of the astronomy and space-related institutes such as Korea Astronomy and Space Science Institute, Korea Aerospace Research Institute, Korea Research Institute of Standards and Science and space-related or optics-related companies.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
2-1-R General Astronomy & Lab. I (3)	2-2-R General Astronomy & Lab. II (3)
2-1-R Astronomical Observations & Lab. I (3)	2-2-E Astronomical Observations & Lab. II (3)
2-1-E Basic Astrophysics I (3)	2-2-E Basic Astrophysics II (3)
2-1-E Applied Mathematics for Astronomy I (3)	2-2-E Applied Mathematics for Astronomy (3)
2-1-E Basic Mechanics (3)	2-2-E Applied Mechanics (3)
2-1-E Computer Science for Astronomy & Lab. (3)	2-2-E Electronics & Lab. (3)
3-1-R Stellar Astronomy & Lab. (3)	3-2-R Galactic Astronomy & Lab. (3)
3-1-E Electromagnetic Astrophysics (3)	3-2-E Stellar Structure and Evolution (3)
3-1-E Photometry & Spectroscopy with Lab. (3)	3-2-E Astronomical Instruments (3)
3-1-E Astrodynamics (3)	3-2-E Quantum Mechanics for Astrophysics (3)
3-1-E Small Telescopes Astronomy (3)	3-1-E Introduction to Public Astronomy & Practice (3)
3-1-E Atmospheric Science	3-1-E Weather Forecasting Analysis and Practice (3)
	3-1-E New Frontiers In Astronomy & Space Science (3)
4-1-R Space Science & Laboratory (3)	4-2-E History of Astronomy (3)
4-1-E Supervised Reading & Research (3)	4-2-E Variables and Binaries (3)
4-1-E Radio Astronomy (3)	4-2-E Introduction to Satellite Technology (3)
4-1-E Extra-Galaxies and Cosmology (3)	4-2-E Applications of Space Sciences (3)
4-1-E Spherical Astronomy (3)	
4-1-E Public Astronomy and Astronomical Instruments (3)	

● Credits for degree

● Courses Abstract

General Astronomy & Lab. I

This course provides an introduction to the concepts and methods of astronomy and astrophysics.

Topics covered include: fundamental coordinate system in astronomy, Earth's motion, Moon, Planet, Solar System, star and so on.

Astronomical Observations & Lab. I

This course covers the fundamentals to observe celestial objects using astronomical instrumentation and data analysis as applied to celestial phenomena: normal stars, sun, moon, planet, nebulae, galaxies and variable stars.

Topics covered in this course include: operational principles of the telescope, star atlas, optical observation, photometry, CCD imaging, and data processing.

Basic Astrophysics I

Topics covered in this course include the special theory of relativity, matter waves, Bohr atomic models, Schrodinger's equation.

Applied Mathematics for Astronomy I

Basic mathematical methods needed for understanding astronomy and space science and their applications in the same field.

Basic Mechanics

Introductory classical mechanics for studies in astronomy and space science, Topics include: experimental basis of Newton's laws; force, work and potential energy, particle dynamics.

Computer Science for Astronomy & Lab.

This course introduces programming languages and techniques used by scientists and engineers: BASIC, FORTRAN. This course provides students with the conceptual background necessary to understand and construct programs, basic computational methods useful for astrophysics, and specific examples drawn primarily from astrophysics.

General Astronomy & Lab. II

This course offers a broad overview of Astronomy & Space Science. Students

learn fundamental principles and basic physics related to Astrophysics, Astronomy, and Space Sciences. Topics covered range from near-Earth to distant Galaxies.

Astronomical Observations & Lab. II

For course description, see Astronomical Observations & Lab. I

Basic Astrophysics II

This course provides an introduction to the physics of atomic, molecular for Astrophysics.

Applied Mathematics for Astronomy II

For course description, see Applied Mathematics for Astronomy I

Applied Mechanics

This course covers the general knowledge of Mechanics for students who major in Astronomy and Applied Space Science. This is an extended course from Basic Mechanics.

Electronics & Lab.

This course provides useful information about fundamental aspects in astronomical instrument. It provides a basic knowledge about electronics and applications to astronomical instruments.

Space Science & Laboratory

Introduction to basic plasma physical processes occurring in the Sun, solar wind, magnetospheres, and ionosphere of planets. The students gain a theoretical background in space physics and also learn space weather applications.

Stellar Astronomy & Lab.

The topics to be discussed include the following: stellar structure and evolution, properties of polytopic gas spheres.

Electromagnetic Astrophysics

The electromagnetic theory is essential for astronomy, astrophysics, and space science in many aspects. The general knowledge in electromagnetic theory is covered in this course with applications to astronomy, astrophysics, and space science.

Photometry & Spectroscopy with Lab.

Topics covered in this course: principles and properties of photometry, spectrum and spectroscopy, UBV system, Stromgren ubvy system, Extinction correction, calculation of standard magnitude, photoelectric tube ,optical specification of filter and CCD

Astrodynamics

This course builds a mathematical foundation for understanding and analyzing

artificial Earth satellite orbits. Topics covered in this course: elementary mechanics, central force problem, two-body problem, orbit determination.

Galactic Astronomy & Lab.

Stellar dynamics and properties of galaxies; kinematics and dynamics of Milky Way, Physical processes in the interstellar medium.

Stellar Structure and Evolution

This course is intended to provide general knowledge of stellar astrophysics, Topics include: distance, brightness, temperature, spectrum, motion, radiation transfer, stellar atmospheres, and interstellar medium.

Astronomical Instruments

This course focuses on instruments used in astronomical observations. Topics include: kind and structure of instruments, measurement principle and method for instruments.

Quantum Mechanics for Astrophysics

Quantum mechanics is fundamental to understanding various astronomical phenomena. This course introduces the fundamental knowledge of quantum mechanics, and apply them to the astrophysical phenomena.

Supervised Reading & Research

Students work with faculty members to select their research project topic and study the published literature related to it.

Radio Astronomy

This course introduces the fundamental concepts of radio astronomy and the basic principle of interferometer. Laboratory course to familiarize students with equipment and procedures used in the research laboratory.

Extra-Galaxies and Cosmology

Topics include: Fundamental properties of galaxies, Introduction to cosmology.

Spherical Astronomy

This course guides you topics relate to spherical coordinates, spherical triangle, coordinate transformation, time and standard time.

History of Astronomy

This course provides an overview of Korean ancient astronomy and various instruments based on the historical materials.

Variables and Binaries

Topics include: Spectroscopic and photometric properties of variable stars and binaries, light curve, radial velocity curve, the classification of variable stars, physical processes in variable star, and calculation of orbits.

Introduction to Satellite Technology

This lecture includes the basic studies of a remote exploration and geodesy in satellite applications as well as practicing the satellite imaging analysis, a position measurement using GPS etc.

Applications of Space Sciences

Topics in this course include: solar interior, solar atmosphere, solar wind, explosive solar phenomena, solar-earth connection, space environment and its disturbances related to solar activity, and space weather influences on man-made space materials.

Small Telescopes Astronomy

This course emphasizes actual practice with small telescopes. The course covers the basic techniques to operate small telescopes and the basic methods to analyze observed data.

Atmospheric Science

This course covers the basic physical knowledge in association with the Earth's atmosphere. The topics include atmospheric motions and phenomena, atmospheric observations, upper atmosphere, weather and meteorology.

Introduction to Public Astronomy & Practice

This course includes an introduction to basic knowledge about public astronomy and related astronomical practice and activities for outreach.

Weather Forecasting Analysis and Practice

This course covers the basic methods and knowledge that are needed for weather forecast and related analysis. The course is based on use of actual observation data with practice.

New Frontiers In Astronomy & Space Science

This course introduces a number of frontier topics in astronomy and space science such as large scale structure of the universe, dark matter, gravitational waves, extraterrestrial planets, laboratory astrophysics, solar system exploration.

Public Astronomy and Astronomical Instruments

This course focuses on public outreach activities of astronomy and related observational instruments operated in many observatories and institutes nationwide.

▣ Department of Earth and Environmental Sciences

Introduction

The Earth and Environmental Sciences deal with advanced understanding and appreciation of the Earth: its resources, structure, processes, and history. The courses offered by the department focus on topics to create an informed and scientifically literate public, capable of making the choices required for a sustainable future, and to educate the next generation of leading Earth and planetary scientists. Through basic research, our faculty and students further seek understanding of the past, present, and future whole Earth system, including linkages between the solid Earth, and its enveloping hydrosphere, atmosphere, and biosphere.

The B. A. degree majoring in Earth Sciences (Geological Sciences) can lead to various entry-level positions in the energy and economic-minerals industry, environmental evaluation and regulation, industrial relations, resource evaluation, research, surveying, and numerous other areas. The degree is also excellent preparation for later professional work in such fields as journalism, law, and economics. Energy and mining companies, consulting firms, land development corporations, environmental analysis firms, research organizations, federal agencies, and academic institutions are among the organizations that commonly employ professional earth scientists. The Department offers also an option designed for the students who wish to pursue a career of teaching environmental sciences at middle or high schools. Students interested in professional work in the earth sciences should study sub-disciplines at graduate school.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(48Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
2-1-R Elementary Mineralogy and Lab. (3)	2-2-R Igneous Petrology and Lab. (3)
2-1-R Stratigraphy and Lab. (3)	2-2-R Geophysics and Lab. (3)
2-1-E Mathematics for Geological Sciences (3)	2-1-E Petroleum Geology (3)
2-1-E Thermodynamics of Earth Materials (3)	2-1-E Environmental Earth Science (3)
2-1-E Optical Crystallography and Lab. (3)	2-1-E Sedimentology and Lab. (3)

3-1-R Ore Deposits and Lab. (3) 3-1-E Practice in Field Geology (2) 3-1-E Geological Mapping and Subsurface Interpretation (2) 3-1-E Metamorphic Petrology and Lab. (3) 3-1-E Geochemistry and Lab. (3) 3-1-E Engineering Geology (3) 3-1-E Geostatistics (3)	3-2-R Structural Geology and Lab. (3) 3-2-E Clay Mineralogy and Lab. (3) 3-2-E Rock Mechanics and Lab. (3) 3-2-E GIS and Remote Sensing in Geology (3) 3-2-E Hydrogeology and Practice (3) 3-2-E Exploration Environmental Geochemistry and Lab. (3) 3-2-E Logic and Discourse of Technical Education (2)
4-1-E Isotope Geology and Environment (3) 4-1-E Gemology and Lab. (3) 4-1-E Environmental Geophysics and Lab. (3) 4-1-E Design of tunnel and slope (3) 4-1-E The Theory of Technical Education (3)	4-2-E Historical Geology and Geology of Korea (3) 4-2-E Paleontology and Practice (3) 4-2-E Exploration Geology of Energy and Mineral Resources (3) 4-2-E Meteorites and Planetary Environment (3) 4-2-E Study on Teaching Material and Teaching Methods in Technical Education (3)

● Courses Abstract

Elementary Mineralogy and Lab.

The course deals with crystallography, physical and chemical properties of minerals, descriptive mineralogy, and synthesis of minerals. Laboratory exercises include determination of point groups and crystal systems and observation of various mineral specimens.

Stratigraphy and Lab.

Stratigraphy is the synthesis of geological information in terms of the evolution of the Earth system. It aims at classification, correlation and interpretation of rock bodies. The stratigraphic units can be defined by various data ranging from lithology to isotope ages. Diverse stratigraphic units can be useful for the interpretation of the Earth history. So stratigraphic studies and this subject practice basic stratigraphic principles and their application to real rock bodies in a specific area.

Mathematics for Geological Sciences

Teaching scope includes ordinary and partial differential equations, vector calculus, Fourier transform, and wave equation, etc.

Thermodynamics of Earth Materials

The objective of this course is to apply thermodynamic principles to understand the role of earth materials in the Earth System. The aim is to provide a broad conceptual framework for understanding the thermodynamics of minerals, rocks

and fluids, so material can be integrated into other study disciplines.

Optical Crystallography and Lab.

The course deals with optical crystallography and application of petrographic microscope.

Igneous Petrology and Lab.

This course involves the classification, volcanology, petrogenesis, and partial melting of igneous rocks. In particular, magmatic processes such as crystallization/melting sequences and chemical fractionation, are emphasized on the course, accompanied by the observation of rock-forming minerals using hand lenses for classifying igneous rock samples.

Geophysics and Lab.

The aim is to provide a basic introduction to geophysics, using the mathematics and theoretical physics. The main scopes include the earth interior, gravity, magnetics, seismic waves, EM wave. In addition, the practice and exploration will be conducted along with lecture in the Lab. and field.

Petroleum Geology

This course provide students basic knowlege on petroleum system which comprises three major components (source rocks, reservoir, seal) and three major processes such as generation, migration and accumulation. It also aims at understanding unconventional hydrocabons such as shale gas, oil shale, tar sand and gas hydrate. Through this course, students can figure out the outline of exploration and development of hydrocarbons from the geological perspective.

Environmental Earth Science

Environmental Earth Science includes the understanding of the basic concepts and principles of physical and environmental geology, focusing on earth materials and processes. Help you develop an understanding of natural hazards, relationships between natural resources and pollution, and the basic concepts of environmental management.

Sedimentology and Lab.

Sedimentology deals with the principles of sediment transport and deposition that occur in continental and marine environments. The sedimentary products are anal yzed in terms of sedimentary facies and sequence stratigraphy.

Ore Deposits and Lab.

This course deals with the principles and fundamental data to understanding the genesis and geologic occurrences of ore deposits, and the ore minerals associated with them. Major themes include ore deposits formed by igneous processes, processes at the Earth's surface and hydrothermal processes, and global occurrence of ore deposits.

Practice in Field Geology

This class includes a general introduction into the main features of most rocks, like primary structures (bedding etc.), joints, fractures and veins, as well as, folds, foliation, lineation, and shear zones.

Geological Mapping and Subsurface Interpretation

This practicing course aims at enabling students to understand the composition and structure of geologic materials at the Earth's surface and at depth, and to depict observations and interpretations on maps using symbols and colors. It covers up-to-date mapping technology and its appropriate application to diverse geological problems.

Metamorphic Petrology and Lab.

During the course, students study different methods to investigate mineral assemblages, textures and structures in metamorphic rocks of different composition. They will work in micro- to mega scale in the study of the structural and metamorphic build-up of mountain chains and other geological environments. The course comprises lectures, microscopy, exercises, article seminars and a study visit.

Geochemistry and Lab.

The course is designed to understand as an introduction to geochemistry by undergraduate geology students, and deals with chemistry and laboratory exercises related to chemical processes of the Earth.

Engineering Geology

This course provides knowledge of engineering properties of rock materials and rock masses, geotechnical site investigation, engineering geological evaluation of dam, landslide and tunnel, and introduction to rock and soil slope stability.

Geostatistics

In this course, students study geostatistical analysis, which interprets statistical distributions of geological data and also examines spatial relationships. Geostatistics deals with spatial data, i.e. data for which each value is associated with a location in space. From known values at sampled points, geostatistical analysis can be used to predict spatial distributions of properties over large areas or volumes.

Structural Geology and Lab.

This class includes lectures and laboratory work in which students learn how these structures are formed and how to interpret them. Geological structures are variable depending on the stress fields. They includes planar and linear structures, joints, folds, faults, thrust faults and shear zones.

Clay Mineralogy and Lab.

The courses includes the understanding of the structure and physicochemical properties of clay minerals, and the application of X-ray diffraction and electron microscopy to clay minerals will be emphasized.

Rock Mechanics and Lab.

The course provides fundamental theories and techniques being applied to geotechnical, mining and environmental engineering. Students also participate key laboratory tests including compression, strength index and physical properties of rocks and soils.

GIS and Remote Sensing in Geology

This course helps students to learn a basic knowledge about the GIS (Geographic Information System) and remote sensing data. And those who study in this course can decode about an aerial photograph and experience a simulation techniques.

Hydrogeology and Practice

An introduction to the movement, mass flux, and distribution of groundwater in terms of geological aspects, along with pilot field survey and solution of the problem sets.

Exploration Environmental Geochemistry and Lab.

The course deals with an introduction to geochemistry as applied in exploration for solid minerals and environmental problems, and related laboratory and field survey.

Logic and Discourse of Technical Education

This course helps students to analyse a experiment result and to learn a preparation way.

So those who study in this course can strengthen a writing ability and a presentation ability.

Isotope Geology and Environment

Isotope Geology and Environment is designed as a class to accompany a one semester course in light stable isotope geochemistry. The course includes the understanding of the basic concepts, principles and the applications of light stable isotopes. They are relevant to mineralogy, petrology, hydrology, atmospheric science, and geology of ore deposits.

Gemology and Lab.

The course deals with classification and characterization of gem minerals and related laboratory exercises.

Environmental Geophysics and Lab.

Theory and practice for the application to the various exploration techniques with topics including electrical, magnetic, seismic, and gravity methods.

Design of tunnel and slope

This course provides empirical and analytical theories and numerical analysis techniques that are necessary to understand design process and design considerations of a tunnel and a slope.

The Theory of Technical Education

This course helps students to understand a basic knowledge about the Technical Education. So those who study in this course catch a theory and method that can apply in school.

Historical Geology and Geology of Korea

The course deals with historical geology and geology of Korea.

Paleontology and Practice

Learning the ecology, tributary, and evolution of extinct organism in past geologic age based on fossils of animal and plant and classifying fossils, records, and making experiments related to them

Exploration Geology of Energy and Mineral Resources

This course deals with the principles and fundamental data to understanding the genesis and geologic occurrences of fossil fuels as energy resources and nonmetallic ore deposits.

Meteorites and Planetary Environment

The course deals with classification and characterization of meteorites, planet, and comets in solar system.

Study on Teaching Material and Teaching Methods in Technical Education

This course helps students to learn learning contents composition and educational method. So those who study in this course can reconstruct a curriculum about the Technical Education.

◇ School of Business

Introduction

The educational objective of our school is to foster professional managers and accountants who are well equipped with excellent on-spot capabilities and creative problem-solving capabilities, thus contributing international society along with local and national societies.

To achieve this objective we are focused on teaching expertise knowledge related with on-spot problems solving, and studying diverse research issues dealing with internal and external business environments which are swift fast due to Globalization and advanced information technology.

Historically, the school of business was founded in 1999 by the merge of two departments - business administration and accounting. We put more importance on the following five core values - Creativity, Ethics, Expertise, Local Hub, and Globalization. Our educational curriculum consist of finance, operations, human resource/organization, marketing, accounting, and learning computer as well as foreign language.

Credit requirements for graduation

The department curriculum has three components:
Liberal education requirements(30Credits), a major(Mandatory21 Credits,
Elective 54Credits), and electives.
To graduate, Minimum of 140 Credit Points are required.

Curriculum :

Courses Abstract

Principles of Management

By comprehensively understand and general information about the business, its location, significance, development, function, etc. Students learn the basics of business administration studies in earnest.

Principles of Economics

To understand the basic concepts and principles that explain the phenomena of modern capitalist economy factors related to the configuration of the local, the best activity, accumulation and distribution.

Principles of Accounting

The introductory accounting basis subject line to be acquired before the completion of other advanced accounting courses. Understand the basic principles of double-entry bookkeeping as an exercise to put the emphasis on translation capacity of the completed financial statements.

Cost Accounting

The required courses for the acquisition of theory and practice of cost accounting costs necessary for the efficient management of the manufacturing industry. Cost elements, costing method, as well as standard cost calculation, and calculated the direct costs such as lectures.

Marketing Management

Understand the theory and techniques of marketing activities around the implementation process of individual organizations.

Business Statistics

Understand the marketing theory and techniques of marketing activities around the implementation process of individual organizations.

Business Law

The goal is to deal with commercial activities, the company, bills, laws on checks among law firms raised from business activities.

Organizational Behavior

Learn how with business activities in the organization are made possible by studying the factors that influence human behavior to maximize the satisfaction of interdisciplinary organizational efficiency and organizational members.

Intermediate Accounting Ⅰ,Ⅱ

The prime objective of this lesson is to present critical concepts in a clear, concise way that is most helpful to learning and enhancing the student's interest. Practical examples of all important concepts and procedures enrich this clear, logical, and popular guide to financial accounting(Intermediate Accounting Ⅰ·Ⅱ). This lecture underscore how important it is for users and preparers of financial statements to understand accounting principles and how they are applied in financial reporting decisions. These course presents SKAS(Statements of Korea Accounting Standards) as the current solution to a continually evolving host of financial reporting questions. By acquainting students with the political nature of standard setting, the students becomes aware that both users and preparers are affected by the outcome of the standard setting process. Also, completely updated to reflect all of the latest KASB pronouncements. An excellent preparation resource for the KICPA exam. Contents in Brief;

Intermediate Accounting Ⅰ:

Course includes the following topics; The Role of Accounting as an Information System - Environment and Theoretical Structure of Financial Accounting, Review of the Accounting Process, The Balance Sheet and Financial Disclosures, The Income Statement and Statement of Cash Flows, Income Measurement and Profitability Analysis, Time Value of Money Concepts, Economic Resources - Cash and Receivables, Inventories: Measurement and Additional Issues, Inventories, Operational Assets: Acquisition and Disposition, Operational Assets: Utilization and Impairment, Intangible Assets and Natural Resources.

Intermediate Accounting Ⅱ:

Course includes the following topics: Financial Instruments - Investments, Current Liabilities and Contingencies, Bonds and Long-Term Notes, Leases,

Accounting for Income Taxes, Pensions and Other Postretirement Benefits, Shareholders/Equity, Share-Based Compensation and Earnings per Share, Accounting Changes and Error Corrections, The Statement of Cash Flows Revisited.

Security Market

For students interested in Securities investment advisors, financial management interested in the field of stock market (primary market and the secondary market).

Overall on the securities market, including securities markets and securities laws and regulations are also FSC lecture aims to acquire fundamental knowledge altitude.

Financial Management

Determination of investment to achieve the company's goal of increasing corporate value to be oriented, capital, and learning the theory of such dividend policy.

Management Accounting

Learn how to prepare the financial information needed by management to perform business planning and control tasks and solve them.

Quantitative Business Analysis

Learn the theories and techniques to solve Management decision problem quantitatively.

Consumer Behavior

To investigate the theory that describes the purchase decision process and the factors that affect their purchasing decisions in order to understand the consumer behavior in an interdisciplinary perspective.

Organizational Theory

This course provides an overview of relevant paradigms and theories in the organizational design and change. The course is especially designed to develop a strategic perspective for organizational diagnosis and change management. The course materials will help students not only get a deeper understanding of their organizational problems but also improve many solutions for their organizations' future success. Hence this class gives students a good opportunity to grasp an overall big picture of managerial and organizational issues in many corporations.

Financial Accounting Theory and Practice

Dealing with the concept and theoretical part of the different accounting treatment of financial accounting and analysis of practical application examples.

Production Management(Capstone Design)

It covers the key strategic importance of producing products and services for

corporate competitiveness. Also referred to learn how these basic concepts, etc. and quantitative model according to the design, management and control system of the manufacturing operations to enable best use of resources

Advanced Accounting

Based on the knowledge acquired through accounting principles and intermediate accounting courses, acquire a high level of theory and hands-on branch accounting, consolidated financial statements, mergers, liquidation accounts, special accounting issues.

Introduction to Tax Law

The main purpose of understanding the overall domestic taxation also learn through the basic concepts related to taxation. Study Focusing on the Fundamental Law Tax, Corporate Tax, Income Tax Act, VAT Act.

Marketing Research

Understand the systematic collection, analysis, interpretation techniques of materials needed for the organization's marketing decisions.

Investment Theory

Deals with the actual situation and its investments in securities investment theory.

International Business

Analysis of the company with regard to the international environment and deals with the theory of management strategies and local activities in advance that these can take.

Communication & Negotiation

Learn about the impact factors and effective communication practices takes place in individual, group and organizational levels. In this process, dialogue and meetings, presentations, direct experience about the effectiveness of the communication tools utilized in such organizations create business reports and interviews, and analysis.

Human Resource Management

Efficiently manage the construction of one of the human factors management organization makes to demonstrate their potential. Also, understand the theory and techniques associated with increased organizational efficiency and satisfy members.

Tax Accounting

To cultivate practical skills on the application on the basis of accounting principles and tax law, there is a main objective to understand the difference between the accounting and income tax on the profit logic measured on the tax calculation logic.

Auditing

This course covers the general information about the audit.

Deal with Audit opinions, sampling theory, internal control organization, and auditing standards, including basic knowledge and procedures, legal responsibilities, EDPS audit, audit and government also discussed.

Production Planning and control

Study on general production planning, based on production planning, material requirements planning, capacity requirements planning and production facility planning and control system of the manufacturing company.

Financial Innovation and Valuation of Financial Assets(Capstone Design)

By studying to find the factors that determine the value of financial instruments for them to experience the interrelationship between factors causing investors to investment risks, and learn the theory and techniques to a more favorable investment.

Marketing Channels(Capstone Design)

To learn Development and implementation of systematic planning and control process for the company's distribution activities and logistics strategy.

Service Operations Management

Study the past and the new paradigm of the future of the service industry that is emerging in this era. It also directed the new mechanism for Win-Win strategy of manufacturing industry and the service sector of the economy spindle. At the same time it is dealing with a content that provide an alternative for the future of the service industry. Easy to understand and without prior knowledge by illuminating with a major practical realities and practices and to increase the learning effect.

Strategic Management Accounting(Capstone Design)

The case studies and hands-on learning with respect to the strategic decision-making and evaluation of alternative strategies for the company.

Strategic Management(Capstone Design)

This course provides various concepts, frameworks and theories for the comprehensive analysis of strategic management process in organizations. This is the capstone course which requires expertises from many functional management areas to develop broad concepts, theories, and techniques to formulate and execute socially responsible strategies in a global environment. For that purpose, various case materials are utilized and to be developed in the course.

Labour Relations(Capstone Design)

Learning the main concept of labor relations and a lecture aims to cultivate the ability to apply to the real issue. Assessment is made up of lectures participation,

midterm and final exams, and reports based on the team, and here reflect the peer evaluation among team members to create a team report.

Special Topics in Financial Management

By Using the company's financial and market information, addressing the full range of corporate financial management, value analysis, and financial analysis.

Management Information System

Processing the information received from the tissue inside and the outside environment, and deals with the problem of the structure and organization of decision information of the management information system in order to understand the information system that provides the information required for the determination.

Advertising(Capstone Design)

The purpose of this course is to study the details of the subject of the definition and history of advertising, measurement execution and effectiveness of advertising and comparative advertising, including advertising sexual appeal, and you want to learn how effective advertising.

This course is focused on the theoretical study subjects for advertising planning and strategy development, and impact analysis.

Environmental Management and CSR(Capstone Design)

The paradigm of corporate management is changing on the focus to economic, environment and CSR from traditional financial performance.

It lectures environmental management and CSR Which is main point of Business Management, evolving from environmental management to Sustainable Management.

Cost Management System

By Using case studies and survey analysis methods, It is to enable the practical application of cost reduction and cost control.

Quality Management

We learn the theory of demand forecasting, production planning, inventory and quality needed to manage·operate efficiently for production system.

Business Ethics

The social needs of the enterprise while increasing interest in corporate social responsibility and business ethics are done growing. The beginning of this course is to learn the theory of corporate governance and corporate social responsibility perform. In this case the latter part of the lecture presentations and class discussions are in progress. Evaluation items are composed of three items such as tests, presentations, discussions on the others released.

Subject Teaching

Of commercial educational objectives, content, teaching methods, and by understanding the basic principles of assessment, to acquire the basic knowledge as a teacher to effectively carry out commercial education.

Instructional Resources Methods

Complete the process of teaching as one of the commercial curriculum, it aims to understand the overall framework of commercial education.

Business Education Theoretical Statement

Acquiring the general principles of logical writing. In addition, fostering the quality of the essay writing through logical for a given project should acquire the knowledge to perform effectively as a teacher of commercial education.

Understandings of Chungbuk Business

Visit the corporate management field around the Chungbuk Province. Half of the companies and industries

Through the explanations and interviews with employees it will have the chance to get Work experience.

Internship Ⅰ,Ⅱ,Ⅲ,Ⅳ,Ⅴ,Ⅵ

Through the corporate culture internships and practical skills and problem-solving skills combine it with management theories.

▣ Department of International Business

Introduction

The International Business Department has the educational goal of in training competent persons who possess the knowledge and qualifications required as international business persons in the global community. To achieve this goal, the department provides predominant education programs to help students overcome problems they may encounter in global economic business systems and open market environments, such as those related to differences in language, culture, and business practices.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(30credits), a major(Mandatory 21credits, Elective 54 credits) and electives. To graduate, minimum of 140 credit points are required.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Principles of Accounting (3)	1-2-R Principles of Accounting (3)
1-1-E Business Statistics (3)	1-2-E Business Statistics (3)
1-1-E Principles of Economics (3)	1-2-E Principles of Economics (3)
1-1-E Principles of Management (3)	1-2-E Principles of Management (3)
1-1-E Understanding of Global Business (3)	1-2-E Understanding of Global Business (3)
2-1-R Global Management (3)	2-2-R Global Management (3)
2-1-R Financial Management (3)	2-2-R Financial Management (3)
2-1-R Principles of e-Business (3)	2-2-R Principles of e-Business (3)
2-1-R Human Resource Management (3)	2-2-R Human Resource Management (3)
2-1-E Micro-Economic Theory (3)	2-2-E Macro-Economic Theory (3)
2-1-E Foreign Trade Practices(3)	2-2-E Global Trade Management(3)
2-1-E Introduction to Global Consumer Behavior (3)	2-2-E Banking and Financial Institutions (3)
	2-2-E Business English Conversation (3)
3-1-R Marketing Management(Capstone Design) (3)	3-2-R Marketing Management(Capstone Design) (3)
3-1-R Strategic Management (3)	3-2-R Strategic Management (3)
3-1-E Case Studies of Global Enterprises (3)	3-2-E International Banking and Finance (3)
3-1-E Logistics and Transportation(Capstone Design) (3)	3-2-E International Logistics and Transportation (3)
	3-2-E International Area Studies I: Europe (3)
3-1-E Global Financial Management (3)	3-2-E International Business Communication (3)
3-1-E Global China-market Understandings (3)	3-2-E Born Global Company Strategic Management (Capstone Design)(3)
3-1-E Foreign Direct Investment (3)	
	3-2-E Global Economics (3)
	3-2-E International Marketing (3)
	3-2-E Global Strategic Management (3)
	3-2-E Global Leadership Strategy(3)
4-1-E Seminar on International Business (3)	4-2-E International Area Studies III: Asia(3)
4-1-E International Area Studies II: America (3)	4-2-E Theory of Global Economy (3)

4-1-E Global China-market Research & Investment (3)	4-2-E Global Business Ethics (3)
4-1-E Seminar on Global Marketing (3)	4-2 Internship I (3)
4-1-E Selected Readings in International Business (3)	4-2 Internship II (3)
4-1 Internship I (3)	
4-1 Internship II (3)	

● Courses Abstract

Principles of Accounting

The introductory accounting basis subject line to be acquired before the completion of other advanced accounting courses. Understand the basic principles of double-entry bookkeeping as an exercise to put the emphasis on translation capacity of the completed financial statements.

Business Statistics

The main objective of business statistics is to understand and build up major techniques of quantitative analysis for business adminstration. The techniques will include basic theory of statistics and econometrics and their applications.

Principles of Economics

The main objective of principles of economics is to understand basic definition and economic theory and thereby to build up ability to apply them to solve various economic problems in the real world.

Principles of Management

This course deals with the meanings and the background of the basic theories for corporation management as well as helps understand corporation-related issues generally and broadly.

Understanding of Global Business

The basic understanding of the international business is aimed by defining what the international business is, and what the differences between the international business and the domestic business are with the various elements of their environment surrounded by them and why the international business and the domestic business involved in them are generated, and what we can get through them.

Global Management

This subject explains substance of International business that represent global company. Also, It explicates business operation in a period of internationalization, like a keynote of organization, strategy and management that decide a line of action and relation with the world politics.

Financial Management

Conceptual and analytical understanding of financial management. Time value of

money, valuation of bond and risk-return analysis of financial assets with management portfolios of securities. Application of programming techniques to capital budgeting decision.

Principles of e-Business

This course is designed to help develop e-business application capabilities in value-adding processes. E-business is a transformation of key business processes through the use of Internet information technologies; which merges the standards, simplicity and connectivity of the Internet with the core business processes. The class reviews tools and technologies in the perspective of accomplishing e-business of the people, by the people, and for the people. Business opportunities, challenges, and strategies for use of the information communication technologies are explored. Also strategies and vision on how to leverage the emerging national and global information infrastructure will be discussed. Other topics include the impact of the emerging electronic market and commerce reengineering in today's corporations.

Human Resource Management

Through studying how to choose, train, and motivate suitable human resource to foreign environment, this course has a goal to improve human resource management capability in global business.

Micro-Economic Theory

The main objective of microeconomic theory is to understand the theory of price. This will include theory of consumer, producer and market.

Foreign Trade Practices

Foreign trade practices that contact directly with exportation and importation trade mainly handle currency international trade rules and customs. Recently trade shows marvelous changing to keep pace with development of the technology of communications and transportations. Thus, this subject contains the existing UN agreement about the process of exportation and importation, incoterms, letter of credit, international goods contract, and new trade process like a international electronic commerce, EDI(electronic date interchange). The education by objective is to have abilities to be able to trade through learning the ability to solve brought problems from interests of trade practices, and contract and performance of international goods trade.

Introduction to Global Consumer Behavior

The primary purpose of this course is to provide students with a clear and comprehensive view on the customers' behavior in the context of global competition. While this course will focus on the process by which consumers come to make a final purchase decision and numerous factors affecting it, their

characteristics will be studied briefly, too. In terms of 4Ps' of MNC's activities, this course will concentrate on the Promotion area.

Banking and Financial Institutions

This course is designed to provide students with a conceptual framework necessary for analyzing and understanding the roles and functions of banks and other financial institutions in the process of financial intermediation. The class will explain the role and function of money and money supply in the economy, the organization and structure of financial markets and their relations with real markets, and the behavior of market actors in determining the interest rates and developing the financial instruments. Also strategy and tactics for financial intermediation including asset and liability the interest with risks will be discussed in the perspective of on-going concern with the financial partners. Special attention is focused on maximizing the mutual circulation of the economy in cooperation with the real sectors.

Macro-Economic Theory

Macro Economic Theory is the study of the entire economy in terms of the total amount of the produced goods and services, total income, volume of the total currency, interest rate, price rate, level of employment and their interdependence. By studying this theory we serve to make a framework of macro economical thinking ability and analysis methods.

Business English Conversation

Under today's business circumstances such that various economic exchanges across nations are persistently growing, English conversational ability is an essential tool for communications to manage modern-style businesses including international trade. Accordingly, this course purposes to improve students' English conversational ability relating to international business activities.

Global Trade Management

The aim of this course is to understand global market. Through this course, students will learn how a trading company set a business goal, strategy and operate the organization.

Marketing Management (Capstone Design)

Regardless of the size and form of any modern corporations, their marketing functions are performed in order to survive the competition. This course provides students with basic concepts of marketing functions that any corporations perform, several strategic tools including conventional 4Ps, and how to utilize them to have sustainable competitive advantages.

Strategic Management

The subject acquire the fundamental knowledge regarding various strategic

business strategy facing in business management. Especially, Strategic Management search how to analyze realistic circumstance of enterprise and present the alternative with market positioning view and resource-based view which are important theories of latest business strategy.

Case Studies of Global Enterprises

This subject is to seek for the desirable strategies of Korean enterprises for the future through analyzing the successful cases of the management of the global enterprises which are working actively through export, licensing, foreign direct investment in the world markets.

Logistics and Transportation (Capstone Design)

Logistics and transportation has increasingly become a dominant activity in the development of the modern world. Effective management of the logistics and total supply chain is an essential ingredient for business success becomes a reality. Recently a few new logistic departments in the university and in many graduated school have been established and at a same time many firms are focusing to increase their own competitiveness through logistic reconstruction and therefor they offer many positions for logistic specialists. We admit this kind of social needs and give the basic and special logistic knowledge and developed logistic skills in the modern digital environment and supply the logistic specialists for developing business specific logistic strategy and logistic management.

Global Financial Management

Understanding of international financial environment, with emphasis on the factors affecting exchange rates and strategy dealing with foreign exchange risk. Comprehensive overview of derivative securities including currency futures and options, swaps. Management of translation exposure.

Global China-market Understandings

This subject aims to study the trend issues of chinese economy policy and developing progress under the reform-openness way since 1979. Especially focuses on the reading up on a status of china in the world economy.

Foreign Direct Investment

The objective of this course is to make students to understand the concept and overall process of foreign direct investment(FDI) of international firms. This subject treats various themes like the environment and reasons of FDI, economic and noneconomic effects, specific investment type, case studies and so on. Though this course, students will face many theories and best practices and raise the sense of real business world.

International Banking and Finance

This course is designed to cover the intermediation issues of international

banking, financial markets and institutions which constitute the global firms' financial environments. Crossing-border transactions always incur the serious problems of not only exchange rate changes but also losses of legal forces which cannot be found in domestic transactions. The class will explain the role and function of foreign exchange and money markets, the behavior of market actors in the determination of key variables, the rules and technique of identifying and managing risks. Also conceptual framework for understanding BOP, exchange rate system, exchange reserves and foreign debts will be discussed in the perspective of protecting financial crises. Special attention is focused on the possibilities of commercial banks in providing the business partners with best information, assistance, advices and services that are unique in international transactions.

International Logistics and Transportation

A key feature of the International Logistics and Transportation is its increasingly global scope of logistics and supply management chain(SCM) of producing and distributing firms. In terms of growing activity of multinational firms and globalization not only logistic process of procurement, production, distribution but also logistic function of transportation, stock management, warehouse management will be multi nationalized. We admit students a significant level of international logistics management skill for efficiency and optimization of international business logistics.

International Area Studies I :Europe

We admit students with a significant level of politics, economy, history, culture etc. in each european countries and EU and provide them with the skills and knowledge to pursue careers in international, particularly european countries and EU related business activities. In spite of common value of the globalization in the other hand regionalism like the organizations EU, NAFTA, ASEAN is more and more popular. The growth in size and importance of the European Union and its single market emphasis needs specialists who can operate effectively within this rapidly changing regional environment. This study will serves the good business relation with european countries and supply companies educated student with a good knowledge for european countries.

International Business Communication

This course purposes to enhance basic knowledge and ability of international trade practices through exercises of writing out various international trade documents concerning proposing business, credit inquiry, offer and order, payment, shipment, issuance of documentary draft, claim and so forth.

Born Global Company Strategic Management (Capstone Design)

BGC business strategy contriving the globalization from the beginning of establishment is different from general BGC business strategy that is following traditional business development. It is the purpose of this lecture to research BGC business strategy and specific contents of competitive advantage construction through the theory and case study, and to present the practical business plan that is applicable to the real enterprise studying this.

Global Economics

This subject aims to study the theory of international trade under the global economy circumstances for example WTO, FTA, etc.

International Marketing

Strategically, the MNCs are in pursuit of international expansion as one way of generating their revenues. The course offers insights as well as a fairly standardized approach as to making inroad to global market. While MNC's decision making process is mostly shaped by their objectives, strategies and business polices, such issues-including, selection of target market, information gathering, planning and control-are fundamental ones to be tackled. This course is conducted with students' active participation.

Global Leadership Strategy

This course aims to improve response capability to various negotiation situations through studying basic understanding negotiation, effective global business negotiation, and successful negotiation cases.

Global Strategic Management

This subject makes you know strategy management that is the process which offers a value customers demand and make a value high; Global Strategy Management manages, plans, and embodies high; strategy for successful company operations to have a victory over competition in the market.

Seminar on International Business

This is a programme designed to meet the needs of the firms at an international level and wish to develop a good managers in international business management. This course will allow students to develop critical insights, acquire an in-depth understanding of most of the courses of the department of international business and develop the skills to make a business presentation. Specially we give the student to develop skills for logical business presentation identify the strategies available to firms operating at an international level. And the course aims to prepare the students for a career in an international business activities.

International Area Studies Ⅱ: America

This course purposes to help students understand American countries by studying political, economic, social and cultural affairs of them. Futhermore, it

purposes to improve students' speciality on American areas.

Global China-market Research & Investment

This subject aims to study the theory of overseas investment and international marketing, especially focused on the emerging-market such as BRICs.

Seminar on Global Marketing

As the title of this course implies, a special area, which deserves particular attention, or currently in vogue will be selected by the instructor. And, free and comprehensive discussion will be conducted among students and with him/her. More diverse view and through analysis to the problem to be solved will be sought.

Selected Readings in International Business

As a recommended course for the seniors, the text for this course is written in English where theories and practices contents related with international business are contained. As such, this course is designed to enhance students' reading comprehension skill and have them catch up with current issues regarding global business.

International Area Studies III: Asia

Korea has not only done more than 40% of her foreign trades and more than 50% of Foreign Direct Investment with Asian countries, but also shown the gradual increases of them every year. This subject is to clarify the main reasons of this phenomenon and also find our desirable means in order to face that phenomenon wisely in the future.

Theory of Global Economy

The main objective of theory of global economy is to understand multilateral and bilateral trade codes, current global trade issues, free trade agreements, dispute settlements, World Trade Organization and other market environments for international transactions.

Global Business Ethics

As growing social requirement to global company, attention is being paid to business ethics. Business ethics is the field to distinguish between right and wrong about company. This subject is to consider the ground for raising business ethics, importance of business ethics and social responsibility. It is also analysing moral issues concerned with global company and the way of handling the issues. this course is designed to lear examples of business ethics to apply market, consumer, environment, marketing, employment, and organization.

Internship I

As working in a company, students experience the business for 15weeks. Grade is evaluated by the students' work performance.

Internship II

As working in a company, students experience the business for 4weeks. Grade is evaluated by the students' work performance.

▣ Department of Management Information System

Introduction

The Department of Business information nurtures business information talent who are able to handle excellent communications, systematic thinking, a creative and ethical decision-making. With a focus on practical skills and a well-rounded personality to meet the needs of today's corporations, the Department aims to have the highest ranking in terms of successful job applications in Korea and to become the most preferred department.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(30Credits), a major(75Credits), and electives. To graduate, minimum of 140 credit points are required.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Principles of Accounting(3)	1-2-R Principles of Accounting(3)
1-1-E Principles of Management(3)	1-2-E Business Statistics(3)
1-1-E Practices in Business Communication(3)	1-2-E Management and IT(3)
2-1-R Database Systems(3)	2-2-R Database Systems(3)
2-1-R Marketing Management (3)	2-2-R Marketing Management (3)
2-1-R Business Process Analysis and Application Software Design(3)	2-2-R Business Process Analysis and Application Software Design(3)
2-1-R Organizational Behavior (3)	2-2-R Organizational Behavior (3)
2-1-R Financial Management (3)	2-2-R Financial Management (3)
	2-2-E Introduction to Quantitative Management(3)
	2-2-E Business Communication(3)
	2-2-E Creativity Technology(3)
	2-2-E Introduction to Digital Convergence(3)
3-1-R Production Management(3)	3-2-R Production Management(3)
3-1-R Information and Telecommunication Management(3)	3-2-R Information and Telecommunication Management(3)
3-1-R Programming Language(3)	3-2-R Programming Language(3)
3-1-R Management Information Systems(3)	3-2-R Management Information Systems(3)
3-1-E Object-oriented Application Software Design(3)	3-2-E Supply Chain Management(3)
3-1-E System Simulation(3)	3-2-E Method of ERP Accounting Information Analysis (3)
3-1-E ERP Strategy and Implementation(3)	3-2-E Business Process Management (3)
3-1-E Data Mining(3)	3-2-E English Reading on Special Topic of IT (3)
4-1-E e-Business Systems(3)	4-2-E Technology Management(3)
4-1-E Information Security Management (3)	4-2-E ERP Implementation Project (3)

4-1-E Knowledge Management(3)	4-2-E Project Management (3)
4-1-E Business Process Integration (3)	4-2-E Decision Making(3)
4-1-E Sales and Operation Planning (3)	4-2-E Advanced Business Programming(3)
4-1-E Business Intelligence(3)	4-2-E MIS Project(Capstone Design) Ⅱ (1)
4-1-E Business Programming(3)	
4-1-E MIS Project(Capstone Design) I(1)	
Internship Ⅰ(15)	Internship Ⅱ(15)
Internship Ⅲ(3)	Internship Ⅳ(3)

● Courses Abstract

Principles of Accounting

This is the basic course of the accounting courses required to study businesses.

Principles of Management

The purpose of this course is to provide students with the theories and knowledge about a business and to enhance the academical and practical abilities for enterprises. Main contents are the feature of concurrent businesses, the corporate environment, entrepreneur, corporate strategy, the management of business functions, corporate ethics.

Practices in Business Communication

While the importance of presentation skills has become a central function in business circle today, the opportunity for having such training courses is very limited. This class is to provide hands-on training of presentation skills in business communications with a specific focus on how to develop ideas into informative and persuasive speeches effectively.

Business Statistics

This course aims to acquaint students with basic concepts and techniques on statistical thinking, data collection, and analysis and inference for managerial decisions.

Management and IT

The course primarily provides novices in computer systems with an introduction to the functions of the computers. It increases practical experience on the well-known e-business applications such as spreadsheets, databases, and the World Wide Web.

Database Systems

This course offers students an introduction to the design and operations of database systems. In particular, This course will consist of a basic data modeling exercise with ER(entity-relationship) approach, guided normalization questions, and the use of query languages such as SQL, followed by an exercise of the implementing the basic data model in MS-Access. There will be discussions on

relational algebra and a brief touch upon current topics such as XML databases, data warehousing and OLAP. This is intended to be a first course in database systems for MIS majors. It is thus strongly recommended that students take a computer and information systems- literacy course before taking this course.

Marketing Management

Marketing Management is the art and science of choosing target markets and getting, keeping, and growing customers through creating, delivering, and communicating superior customer value. Marketing management seeks to meet profit maximization by effectively managing markets in a dynamic environment. This course provides an overview of marketing processes and marketing principles, and provides students with the creative insights to apply the key concepts to practical business situations.

Business Process Analysis and Application Software Design

A system is a collection of components that work together to realize some objective forms a system. Basically there are three major components in every system, namely input, processing and output. Systems are created to solve problems. One can think of the systems approach as an organized way of dealing with a problem. The subject Business Information System Analysis and Design mainly deals with the activities to develop software-intensive business systems.

Organization Behavior

Organizational Behavior (OB) is the study and application of knowledge about how people, individuals, and groups act in organizations. It does this by taking a system approach. That is, it interprets people-organization relationships in terms of the whole person, whole group, whole organization, and whole social system. Its purpose is to build better relationships by achieving human objectives, organizational objectives, and social objectives.

This course provides students with diverse theories and of published cases on organizational behavior, so that the students would be able to apply the knowledge to tackle the managerial problems in organizations, including business corporations.

Financial Management

This course teaches students how to maximize firm value by focusing on financial aspects. The course first covers such basic concepts as discounted cash flow valuation, financial analysis, capital budgeting. The course then provides comprehensive introduction to financial theory and practices with respect to investment, financing, and dividend decisions.

Introduction to Quantitative Management

This course is to learn concepts, formulations, solutions, and applications of the

mathematical optimization models in Operations Research, by dealing with the theoretical backgrounds and case studies to understand how to apply the OR techniques in the real world.

Business Communication

This course is to learn the global business and improve English communication skill by dealing with the news and articles in English, aiming to prepare for the globalization.

Creativity Technology

This course aims to help students cultivate creative thinking skills rather than simply learning in theory what is all about creativity. The audience of this course therefore is not limited to social science majors but includes people from other disciplines like pedagogics, engineering and natural sciences, etc. More specifically, the course objective is two-folded: The first is understanding of creativity and creative thinking, and the second embodying the creative thinking skills learned through case studies. This course is designed to achieve its goals by bridging implicit wisdoms of the East and the West (Classics) into explicit methodology (i.e., Systems Thinking) and by encouraging students to participate in workshops of field-case development, presentation, and discussion.

Introduction to Digital Convergence

As information technology has been extending its applied areas, convergence in telecommunications and media has become more distinctive and complex than any other industries. This class has been developed to help students better understand (1) technological developments for digital convergence, (2) convergence in telecommunications, media and Internet, and (3) the recent trends in media convergence such as smart-phones, Tablet PCs, and OTTs in historical contexts.

Production Management

It primarily deals with concepts and models on the design and control of optimal manufacturing system that offers strategic products and services with using manufacturing resources efficiently.

Information and Telecommunication Management

An analysis of technical and managerial perspectives on basic concepts and applications in telecommunication systems. An overview of data communication protocols and standards; local area networks, wide area networks, and internetworks; and trends in telecommunications is provided. The implications of the regulatory environment and communications standards on transmission of voice, data, and image are examined.

Programming Language

Object-oriented programming language enhances SW productivity and maintenance ability. This course provides an in-depth practice in the object-oriented programming languages Java. It also provides an introduction to the object-oriented software design and implementation.

Management Information Systems

This course focuses on the effective use of information technology in business. The learning objectives of this course are to understand the roles of information systems with which businesses gain the competitive advantage, to study the new IT issues such as ERP, SCM, CRM, and KMS, to study the technical and managerial foundations such as IT architecture, database, telecommunication, security, and system development, and to study the information resource management such as the management of information systems and IT organization.

Object-oriented Application Software Design

Software engineering(SE) is the application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software. The discipline of software engineering encompasses knowledge, tools, and methods for defining software requirements, and performing software design, software construction, software testing, and software maintenance tasks. Software engineering also draws on knowledge from fields such as computer engineering, computer science, management, mathematics, project management, quality management, software ergonomics, and systems engineering.

Systems Simulation

This course aims to understand dynamics of societal systems, and thus allow the students to acquire, in a time-efficient and uncomplicated manner, knowledge in the formation and construction of dynamic models for complex systems. At the end of the course, the student is able to describe the components of a complex system; to diagnose the natural evolution of the system under analysis; to create a model of the system and present it using the simulation software; and to carry out simulations with the model, in order to predict the behavior of the system. Typical coverage includes systems thinking, causal loop diagramming, systems modeling components, and systems simulation with PC-based software tool (e.g., VENSIM, POWERSIM).

ERP Strategy and Implementation

The importance of ERP system is increasing. The object of this subject is to understand the basic business process especially through actual use and test of field ERP package modules.

Data Mining

In the business world, we need to analyze the large databases on commercial

transactions with the help of data mining algorithm. This course on data mining will cover methodology, major software tools and applications in this field. By introducing principal ideas in data mining, the course will help students to understand conceptual underpinnings of methods in data mining.

Supply Chain Management

The purpose of this course is to provide students with the theories and knowledge required to manage all processes from manufacturing products and services to consuming them, to create excellent customer's value, and to gain the competitive advantage. Main contents of this course are the strategic supply chain management, inventory management, procurement management, production management, logistics, the new information technology for supply chain management. Certified in Production and Inventory Management (CPIM) is introduced.

Method of ERP Accounting Information Analysis

The course aims to develop an understanding of the fundamental concepts and frameworks through which the potential for Strategic IT applications can be identified and evaluated; to appreciate the context for e-business and to develop a framework for considering e-business initiatives and possible future developments; and to highlight some key applications, issues and challenges that arise from the increasing use of IT from an explicit organizational perspective. The course will not only provide conceptual frameworks but will also attempt to provide a critical appreciation of the debates about strategy and IT. The course will be delivered through a combination of lectures and discussions so as to help students generate critical and reflective thinking in this important area rather than prescriptions.

Business Process Management

Faced with a rapidly changing business environment, organizations are under pressure to effect dramatic performance improvements. Business process re-engineering (BPR) improves productivity through redesign, innovation and the enabling power of modern technology. In this course, you gain the critical skills and tools such as process map and process dictionary needed to implement BPR within an organization.

English Reading on Special Topic of IT

The objective of this course is to introduce latest IT issues in management information system (MIS). In this course, you can realize what is hot issues of current business.

e-Business Systems

e-business and e-commerce have redefined the ways of conducting business, providing new business models, and competing in the global marketplace. This

course is an advanced course on the management issues associated with information technology. It provides students with an understanding of e-business and e-commerce from a business perspective, in a Internet-enabled economy. The course introduces concepts, models, technologies, and frameworks for defining business models, designing inter-organization business processes, describing e-commerce services, and assessing technology environments.

Information Security Management

Various management and legal issues regarding information security in the corporate business environment will be examined, including the myth of information security, features of cyber-crimes and hackers, foundations for information security, as well as threat assessments, risk analysis, tactics, and strategies for effective information security.

Knowledge Management

This course provides an introduction to the analytical, managerial and technological approaches used in the practice of knowledge management. By applying Systems Thinking, key approaches, such as tacit-to-explicit conversion spirals, and collaborative strategies, that are available for knowledge creation and discovery, are examined and contrasted. Implications of recent decision technologies, such as intelligent agents, for the management of the organization's memory are assessed. Economic and social issues in the creation and transfer of knowledge are examined.

The course is designed for students who want to 1) understand and critically evaluate the role and potential contribution of knowledge management for their organizations, and 2) understand various concepts and technologies available for managing organizational knowledge. The course will emphasize the strategic role of organiztional knowledge in management perspectives.

Business Process Integration

Completing this course, students will understand the concept and principle of ERP, ERP system structure and module functions. Especially in this course, students will practice the full procedure of implementing ERP system using such commercial ERP package as SAP R/3.

Sales and Operation Planning

Internet paradigm of Web 2.0 represented by openness, participation, and sharing, and technology such as RSS, Wiki, collective intelligence, and open API are going to influence individual, enterprise, and government. Students should study Internet marketing in order to understand the effects of Internet and to manage the contact point with customers. This course studies the management of product, price, place, and promotion on Internet, studies the strategy of Internet marketing,

customer relationship management, Internet community management, and Internet marketing research, and studies mobile marketing and integration strategy between online and offline marketing.

Business Intelligence

Business Intelligence refers to technologies, applications, and practices for the collection, integration, analysis, and presentation of business information for supporting better business decision making. This course provides heterogeneous distributed data collection, data cleansing, and online data analysis or data mining techniques for business decision supports. Huge data warehousing and OLAP techniques are the key component of the course.

Business Programming

ERP is a key business SW package for most of the large or medium enterprises. This course provides a database programming language for the implementation and maintenance of the ERP systems. We use SAP ERP system as the practice tool and pursue SAP ERP international certificate.

MIS Project (Capstone Design) I

The objective of this course is to help writing paper. In this course, you can get ideas and methods for paper.

Technology Management

This course aims to help students develop a strong conceptual foundation for managing technological innovation. It introduces concepts and frameworks for analyzing how firms can create, commercialize and capture value from technology-based products and services.

ERP Implementation Project

In this course, students will practice the full process of actual ERP system implementation. After completing this course, students will become semi professional ERP consultants.

Project Management

Project management is the application of knowledge, skills, tools and techniques to project activities to meet project requirements. In other words, Project management is the discipline of organizing and managing resources (e.g. people) in such a way that the project is completed within defined scope, quality, time and cost constraints. As a discipline, project management developed from different fields of application including construction, engineering, and defense. In 1981, the PMI Board of Directors authorized the development of what has become *A Guide to the Project Management Body of Knowledge* (PMBOK Guide), containing the standards and guidelines of practice that are widely used throughout the profession. The PMBOK Guide will be detailed in the class. Students study basic

software project concepts and principles as well as general project management theories.

Decision Making

Student study how to make decisions under risks or uncertainty. One is making a decision as opposed to following routines, when one has several plausible courses of actions. According to the Webster Dictionary, deciding is to arrive at a solution that ends uncertainty or dispute about what to do. A decision is made when a course of action is selected among alternatives. In this class, students also study the way of thinking strategically. Strategic thinking is the art of outdoing an adversary, knowing that the adversary is trying to do the same to you. Businessmen and corporations must use good competitive strategies to survive. The branch of social science that studies strategic decision making is called game theory. The concept of Prisoner's Dilemma and how to resolve the dilemma will be addressed.

Advanced Business Programming

Service Oriented Architecture (SOA) is a business-centric IT architectural approach that supports integrating your business as linked, repeatable business tasks, or services. SOA is a key business IT concept for rapid response and modification of enterprise's business IT systems for external changes. In this course, we study web service and business process management, which are key technologies for SOA implementation.

MIS Project (Capstone Design) Ⅱ

The objective of this course is to help writing paper. In this course, you can get ideas and methods for paper.

Internship Ⅰ

This course encourages students to develop and improve their problem-solving and professional management skills, and to explore career areas of particular interest. This course is graded pass or fail based on students' satisfactory work at the internship site as well as satisfactory attendance.

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▣ Department of Advanced Materials Engineering

Introduction

The Department offers programs concerning extraction of metals from ores, materials processing, structure-property of materials, thermodynamics, ceramics, electronic materials, semi-conductor processing, etc. Also, graduate degree programs for M.S. and PhD. degrees are offered. Current research fields cover ceramics powder processing, metallography and design of alloys, creep and fatigue , display materials and various electronic materials and computer simulation of metal fabrication processes.

Credits Requirements for graduate

The department curriculum has three components: Liberal education requirements(36 Credits), a major(75 Credits), and electives.

Curriculum :

● Courses Abstract

industry.

▣ Department of Safety Engineering

Introduction

The department of safety engineering in Chungbuk National University was established in 1984, which is the first official department in Korea to educate safety engineers.

The object of the engineering is to provide that people can pursue their dream and prosperous future as humanity while it should preserve the national environment. Among various engineering parts, the safety engineering promises all workers to actualize their dream and happiness of life. The department of safety engineering was established to guarantee personal safety and property and the environment against industrial accidents. The aim of this department is to educate safety experts that can give engineering solutions for the industrial accidents by analyzing surrounding risk. The undergraduate course was open in 1984. The undergraduate program includes the following areas : fire and explosion protection, risk assessment and control, human reliability and safety management, industrial hygiene, mechanical safety, electrical safety, chemical safety, construction safety, other safety-related topics. And, to perform creative research and train specialists in safety engineering, the graduate program for M.S. and Ph.D. have been provided since 1988. As a multidisciplinary engineering, students could study multi majors to match various industrial demand. Graduates are working as leading safety engineers in various industries such as electronics companies, heavy industrial companies, automobile companies, chemical companies, construction companies, etc.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(0Credits), a major(111Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Introduction to Intelligent Design (3)	
2-1-E Mechanics of Materials I (3)	2-2-E Statistics and Computer Application(3)
2-1-E Thermo-Fluid Mechanics (3)	2-2-R Working Environment Engineering (3)
2-1-R System Risk Assessment (3)	2-2-R Electromagnetics (3)
2-1-R Engineering Mathematics (3)	2-2-R Chemical Safety Engineering (3)
2-1-R Chemical Process Engineering (3)	2-2-R Mechanics of Materials (4)

2-1-R Physicalchemistry (3)	2-2-R Design of Machine Safety Device(3)
	2-2-R Soil and Reinforced Concrete Engineering(3)
3-1-E Fire Protection Engineering (3)	3-2-E Safety Engineering Lab. (3)
3-1-E Safety Engineering Lab. (3)	3-2-E Electrical Safety Engineering (3)
3-1-R Explosion Protection Engineering (3)	3-2-E Chemical Process Safety;Capstone Design (3)
3-1-R Ergonomics (3)	
3-1-R Electric Circuit Theory (3)	3-2-R Mechanical Facility Safety(3)
3-1-R Fracture of Materials (3)	3-2-R Industrial Safety Management(3)
3-1-R Architectural Construction and Temporay Structure Design ; Capstone Design (3)	3-2-R Disaster Management (3)
	3-2-R Construction Safety Engineering(3)
4-1-E Safety Engineering Lab. (3)	4-2-E Synthetic Design of Safety Engineering; Capstone Design(3)
4-1-R Risk Assessment of Chemical Process (3)	
4-1-R Design of Industrial Ventilation System (3)	4-2-R Safety Management Practice (3)
4-1-R Electrical Safe Installation Design;Capstone Design (3)	4-2-R Design of Electrical fire prevention Equipment (3)
4-1-R Design of Mechanical fire prevention Equipment (3)	4-2-R Environmental Engineering (3)
	4-2-R Internship (3)
4-1-R Risk Assessment of Civil Construction (3)	4-2-R Internship
4-1-R Psychology for Safety Management (3)	
4-1-R Industry-Academic Seminar (1)	
4-1-R Internship (15)	
4-1-R Internship (3)	

● Courses Abstract

Introduction to Intelligent Design

This course provides introduction to creative engineering design by studying basic concepts and knowledge for material & safety engineering design to freshman engineering students

Mechanics of Materials I

As a basic course for the safety of structures, basic matters in mechanics of materials are provided. They include statics, stress, strain, torsional stress, bending moment and bending stress. Through solving of many example problems, the ability of understanding and application will be increased.

Thermo-Fluid Mechanics

This course is to make the students with an understanding of the basic principles of fluid mechanics and heat transfer. It includes fluid statics and the fundamental equations of fluid motion as continuity equation, Bernoullis equation, momentum equation, energy equation. Also it deals with pipe flow, compressible flow, open channel flow, turbo machinery and the elementary course of heat

transfer.

System Risk Assessment

Throughout the course period, the view as a system engineer would be emphasized, and various systematic methods for analyzing industrial accidents will be studied in detail that become larger and larger with years.

To list a few, hazard analysis techniques such as Preliminary Hazard Analysis (PHA) and Operation Hazard Analysis (OHA) will be introduced as naive techniques, and Failure Mode & Effect Analysis (FMEA) and Fault Tree Analysis (FTA) will be studied.

At around the close of the course work, diverse risk assessment cases from several industries will be introduced for the study in depth and practices, and system development procedure for the safety will also be added for Product Liability and Product Safety.

Engineering Mathematics I

'Engineering Mathematics I' includes ordinary differential equation, linear algebra and vector, Fourier series and partial differential equation and complex number etc. as a field of mathematics to apply mathematical principle to each field of engineering. This course provides modeling an electrical problem into mathematical form, solving the model by applying a suitable mathematical method and interpreting the mathematical result into electrical or other terms.

Chemical Process Engineering

The concept of chemical process and process design technic is prepared.

This includes basic step of chemical process design and modeling, dimensional analysis.

Major chemical engineering processes such as synthetic process, fuel cell and air pollution control process are designed and analyzed.

Physicalchemistry

This course provides the fundamental knowledge for physical-chemical characteristics and various risk of chemical materials. Also, offers the measure for the prevention of accident occurrence in according to study the technical management in the use and treatment of chemical materials.

Statistics and Computer Application

During this course work basic statistical knowledge and techniques will be studied that are necessary for statistic analysis from data collection to statistical inference in view of safety assessment. Additionally, fundamental concept for experimental design will be introduced around close of the course work.

Discussions on random variables, probability distribution functions, change of variables, statistical testing and regression analysis and so on will be major

study topics during course work, and computer application ability of students would be checked up step by step. All the students would hereby have practical computer application ability to commit statistical analysis for themselves.

Work Environment Engineering

Work environment affects worker's health and work efficiency.

To improve the work environment, the environment should be evaluated and improved it by using engineering technique. Work environment includes indoor air quality, noise, heat stress, etc.

Electromagnetics

This lecture provides the full understanding about various phenomena and laws of electricity and magnetics through electrostatic field, magnetostatic field, electric current field and electromagnetic field. And this lecture deals with electric and magnetic field intensity, electric potential and energy, capacitance and inductance, Gauss's law, Maxwell's equations and uniform plane waves.

Chemical Safety Engineering

In this course the following subjects will be studied:

(1) Introduction to the hazard and effect of the accidents in chemical industry

(2) Danger and risk of the chemical material's reaction

(3) Consider a countermeasure against risk in chemical process

(4) Safety management of the chemical apparatus and equipments

Mechanics of Materials II

As a basic course for the safety of structures, basic matters in mechanics of materials are provided. They include Mohr's circle, bending stress, deflection due to bending, energy method and buckling. Through solving of many example problems, the ability of understanding and application will be increased.

Design of Machine Safety Device

This course is to make the students with an understanding of the safety principal in manufacturing process. It includes the method of various manufacturing process and the design of related safety devices, such as press, welding, grinding, etc. Also It provides the student to experience several experiments, such as welding, gas cutting, machining, etc.

Soil and Reinforced Concrete Engineering

This course deals with the soil mechanics, foundation engineering, and reinforced concrete engineering. In order to understand the ground works, the mechanics of soil and the safety of soil structures such as retain walls, foundations, piles are studied. For the reinforced concrete, the basic assumption, material characteristics, and design method for reinforced concrete member are studied in order to understand concrete works.

Fire Protection Engineering

In this course the following subjects will be studied:

(1) Introduction to the fire of combustible materials

(2) Fire phenomena relative to liquid oil and polymer

(3) Principal methods to the prevention and detection of fire

(4) Principal methods to the protection and suppression of fire

Safety Engineering Lab. I

Based on the studies in the course of Safety Engineering, various experiments will be accomplished. Course topics include basic experiments related to electromagnetic and circuit theory, ergonomics, field safety. This course also verifies the operation of basic electric and electronic circuit, human behaviors and also get training in operation of basic measuring instruments.

Explosion Prevention Engineering

Explosion in the industry can be prevented and protected by understand the principles of fire and explosion. In this study, the conditions of explosions are studied and the explosion prevention engineering technique isprovided.

Ergonomics

All the machines and workplaces are designed as means to accomplish the goal of work activities though, in actual fact they may act as negative factors that result in industrial accidents or human errors because they are in lack of balance between work abilities of human beings and work requirement of machines.

In this subject, characteristics and limits of physical and mental functions of human beings that will be the major component in work performance are introduced, and characteristics of environmental factors such as lighting, noise, vibration, etc., that may affect on human work abilities are examined.

Electric Circuit Theory

This course introduces the analysis of physical circuits through the use of Kirchhoff's laws and ideal circuit element models. Strong emphasis is placed on the formulation of nodal equations for linear resistive circuits as a foundation, but generalizations necessary for handling nonlinear elements are also highlighted. Consequences of linearity are emphasized through superposition and Thevenin/Norton equivalents. For linear circuits excited with sinusoidal sources, phasor and frequency domain analysis techniques for determining steady state response are emphasized.

Fracture of Materials

This course provides basic engineering principles and application techniques to prevent disaster due to material damage, fracture, fatigue and corrosion. It includes mechanical properties of materials, basic of fracture mechanics, fatigue

phenomena, fracture toughness tests and nondestructive tests.

Architectural Construction and Temporary Structure Design

Basic theories of the building construction and construction methods are studied in this course. In addition, the design of the temporary structures is performed. To play an important role as a safety manager in the construction site, it is essential to get an expert knowledge for the construction part as well as legal and educational part. This course focuses on training safety managers with a sufficient knowledge for construction methods. In addition, the design of temporary structures including the support for concrete casting work and the retaining wall for excavation work is carried out in practice.

Safety Engineering Lab. II

In this course, experiments for structural safety will be performed. It includes stress measurement using strain gauges, tension test, hardness test, corrosion test and nondestructive tests such as ultrasonic test, dye-penetrant test and magnetic particle test.

Electrical Safety Engineering

This course offers and overview of large currents and high voltage engineering can give electric shock to human body. Engineering analysis and design techniques for safe electric apparatus are also covered. Also, this covers effects of electrical current in the human body, static-electricity generating mechanism, electrical fires and how to control electrical hazards.

Mechanical Facility Safety

This course provide safety assessment methods to improve the safety of mechanical facility. Lectures will be given on basic requirements of mechanical safety, FTA, FMEA, reliability assessment and design review. For the detail design review, machine element design is also considered.

Industrial Safety Management

Most activities for accident prevention can be successfully implemented by not only satisfying legal requirement but also voluntarily applying scientific management techniques based on comprehensive understanding of human beings.

Therefore throughout this course, relevant knowledge about the legal system and safety organization which is necessary for safety management activities is introduced. Besides, lots of techniques including intervention of unsafe factors, prevention of unsafe acts, accident investigation, and so on are discussed and followed by case studies.

As a consequence, not after the accident approach but perspective view will be emphasized in the end which would be quite necessary for preventing industrial accidents getting more complex and larger day by day.

Disaster Management

Basic theories of the disaster management and disaster planning are studied in this course. Definitions, phenomena, damage cases, and protection methods against natural disasters such as the storm and flood damage, the drought damage, the earthquake damage, the heavy snow damage, and the yellow dust are explained. The protection method and disaster planning against the human disasters such as the fire, the forest fire, the facility damage, the building damage, and terror are studied. In addition, the domestic disaster management system and disaster relief exercise are studied.

Construction Safety Engineering

The object of this course is to learn the construction safety which is essential subject to safety engineers in construction field. Through this course, the students can study the accident types and prevention in the construction field, In addition, this course studies the safety of construction machine, the safety facilities, and the temporary scaffold and support.

Safety Engineering Lab. Ⅲ

This laboratory course provides how to measure basic physical & chemical properties in chemical safety engineering, such as density and viscosity of combustible liquids, oxygen index, heat energy and combustion velocity of combustible solids.

Assessment of Chemical Process

This course provides outlines of the risk based on industrial activities, acquirement & comprehension of analytical methods for risk assessment before accident, consideration for the counterplan of safety in the induty fields

Design of Industrial Ventilation System

Industrial ventilation is the technic to control and remove hazardous materials at indoor air and it is the majorcontrolling technic of work environmental engineering. In this study, the theoretical basis and design technicof industrial ventilation is prepared.

Electrical Safe Installation Design

This lecture aims at understanding about the design of electric installation operated by alternating current(AC) in order to set up safe electrical environment, in sufficient depth to give the student the basic theory at undergraduate level. And this lecture deals with characteristics and configurations of power system, transmission and distribution system, protective devices and other system units. The approach is designed to develop student′ thinking process, enabling them to reach a sound understanding of a broad range of topics related to design of safe power-system, while motivating their interest in the industrial safety.

Design of Mechanical Fire Prevention Equipment

This course is to intend to provide a better knowledge and design capability of fire protection mechanical equipment. The fire protection mechanical equipment includes the automatic sprinkler systems, foam extinguishing systems, carbon dioxide and halogen agents systems, dry chemical agents systems, etc.

Risk Assessment of Civil Construction

The risk assessment for the prevention of accidents at the construction site is practically studied after learning the basic theories of the civil engineering construction and construction methods. In order to train a safety manager in the civil construction, this course focus on understanding of the basic principle and construction process as well as types of construction works. The risk assessment for construction works is also exercised to find out the hazard and countermeasures.

Psychology for Safety Management

By understanding diverse causes related with industrial accidents through psychological approach method in view of human factors, this course work would emphasize the importances of human worker themselves as accident sources, and would thereby facilitate students to draw out effective and practical counter plans in the managerial aspect.

Study topics would be divided into two area, the one would belong to Industrial and Organizational Psychology including task analysis and assessment, organization and teamwork, work motivation, and leadership, and the other would belong to Introductory Risk Theory including definition and characteristics of risk, composition of risk images, biases in risk perception, risk communication and mass-communication, and so on.

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them.

Synthetic Design of Safety Engineering

Based on the knowledge studied during the safety engineering courses, typical problems in the synthetic design of safety engineering and safety assessment will be studied.

Safety Management Practices

Practical safety management activities and know-how which will be confronted by safety engineers after their graduation will be studied from the realistic point of view. Major subjects will include safety education planning, risk assessment,

accident prevention planning. Also several legal mandatory procedures for Accident Report, Accident Cause Analysis, and application and approval process Industrial Accident Compensation Insurance will be studied with practices.

In addition, studies on not only basic reliability concepts required for effective failure prevention & facility management and but also fundamental terminology for comprehension of production managements will promote adaptation to the practical safety management activities afterwards.

Design of Electrical Fire Protection Equipment

This lecture aims at understanding about a better knowledge and design capability of fire protection electrical equipments. As the name implies, is given lectures about fire protection electrical equipments, which are composed of automatic fire alarm system, sprinkler system, fire extinguishing system, cabinets, hose & accessories, connections, valves and fire extinguisher etc. Also are given any approach of many problems about laws required for the operation of fire protection electrical equipments. The objective of this lecture is to present methods of design ability of fire protection electrical equipments for practical use.

Environmental Engineering

In the industry, safety engineers are used to work at the department of safety and environment, and they need to know the concept of environmental engineering. In this lecture, the basis of environmental engineering, control technic of air and water pollution, and waste disposal is prepared.

▣ Department of Chemical Engineering

Introduction

Chemical engineering is the study of development, design, operation, and management operations of chemical, physical and biological processes to create necessary materials from natural resources for human life.

Especially in recent years, the chemical industry has developed comprehensive engineering including energy, environment, biology, chemical engineering, process systems, polymers, semiconductors and electronic materials processing, the chemical engineering industry based on chemical engineering as a national key industry have an important role to influence the level of culture and life scales.

Chemical Engineering as comprehensive study is still remains as the frontiers due to the wide width of its application field. New fields of chemical engineering are constantly being created including biochemical engineering, the new process, organic and inorganic new materials, plastics, precision chemical process automation, alternative"Eclean energy, and high-tech fields such as nanotechnology were required for the development of industry.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
	1-2-E Introduction in Creative Engineering Design (3)
2-1-R Chem. Eng. Calculation (3)	2-2-R Chem. Eng. Thermodynamics I (3)
2-1-R Physical Chemistry I (3)	2-2-E Engineering Mathematics II (3)
2-1-R Organic Chemistry I (3)	2-2-E Physical Chemistry II (3)
2-1-E Engineering Mathematics I (3)	2-2-E Organic Chemistry II (3)
2-1-E Chem. Eng. Analysis Lab. (2)	2-2-E Electrochemistry (3)
3-1-R Fluid Mechanics (3)	3-2-R Heat and Mass transfer (3)
3-1-R Reaction Engineering I (3)	3-2-R Polymer Science (3)
3-1-E Chem. Eng. Thermodynamics II (3)	3-2-E Reaction Engineering II (3)
3-1-E Modeling in Chem. Eng. (3)	3-2-E Energy Engineering (3)
3-1-E Process Engineering (3)	3-2-E Engineering Biology (3)
3-1-E Chem. Engineering Experiment I (2)	3-2-E Chem. Engineering Experiment II (2)
	3-2-E Logic & writing in Chemical · Textile Engineering Education (3)

4-1-R Process Control (3)	4-2-E Chemical Plant Design (3)
4-1-E Separation Process (3)	4-2-E Biochemical Eng. (3)
4-1-E Equipment and Plant Design in Chem. Eng. (3)	4-2-E Creative Research Design and Seminar (3)
4-1-E Polymer Engineering (3)	4-2-E Nano-Chemical Materials (3)
4-1-E Chemical Process of Semiconductor (3)	4-2-E (3)
4-1-E Chem. Engineering Experiment Ⅲ (2)	
4-1-E Chemical · Textile Engineering Education (3)	
4-1-E Industry-Academic Seminar(1)	

● Courses Abstract

Introduction in Creative Engineering Design

This course provides introduction to creative engineering design by studying basic concepts and knowledges for freshman engineering students.

Chemical Engineering Calculation

This introductory stoichiometric course in chemical engineering prepares students to formulate and solve material and energy balances on chemical process systems and lays the foundation for subsequent courses in thermodynamics, unit operations, kinetics, and process dynamics.

Physical Chemistry Ⅰ, Ⅱ

Physical chemistry is the study of the underlying physical principles that govern the properties and behavior of chemical systems. We can divide physical chemistry into thermodynamics, quantum chemistry, statistical mechanics, and kinetics. We study this four areas in the viewpoint of chemical engineers.

Organic Chemistry Ⅰ, Ⅱ

The following subjects will be studied :(1)classification of organic compounds and their nomenclature, (2)basic theories and concepts related to organic compounds, (3)chemical reactions of organic compounds and their reaction mechanism, (4)theories and techniques of fundamental spectroscopy to analyze structures of organic compounds.

Engineering Mathematics Ⅰ, Ⅱ

Ordinary differential equation, linear algebra, and vector calculus will be studied. Physical information can be converted into the mathematical expressions by modeling of the system.

Chemical Engineering Analysis Laboratory

This laboratory course provides how to measure basic physical properties important in chemical engineering, such as density, viscosity, heat capacity, and surface tension.

Electrochemistry

We are interested in fundamental theories of fuel cell for electrochemical energy conversion technology.

Fluid Mechanics

This course provides background for the study of flowing fluids and discusses flows that are practically one-dimensional by learning properties of fluids, fluid statics, Bernoulli's equation, fluid friction, and the momentum balance.

Reaction Engineering Ⅰ, Ⅱ

To design and operate chemical reactors chemical reaction engineering deals with the concept of chemical reactors, chemical kinetics, analysis of chemical reactors, etc.

Chemical Engineering Thermodynamics Ⅰ, Ⅱ

First and second law of thermodynamics, properties of the fluid, internal engine, and refrigeration will be studied. Effective use of energy will be covered with the chemical engineering approach.

Modeling in Chemical Engineering

The purpose of this course is to present the fundamental theory and application of mathematical methods for the solution of practical engineering problems.

Process Engineering

Process optimization and programming are applied to the analysis and design of the chemical processes.

Chemical Engineering Experiment Ⅰ, Ⅱ, Ⅲ

This laboratory course provides understanding basic principles and operations in chemical engineering by practicing selected experiments in fluid mechanics, heat and mass transfer, and particle engineering.

Heat and Mass transfer

This course is to learn and understand the fundamental laws and applications with heat and mass transfer for chemical process

Polymer Science

The following subjects will be studied :(1)basic theories and concepts related to polymers, (2)raw materials used to synthesize polymers, (3)polymerization methods and processes, (4)classification of polymers, (5)characterization of polymers.

Energy Engineering

Theory and application of coal, petroleum, atomic, natural, bio, and waste energy will be studied. It covers the currently available energy and future energy.

Engineering Biology

This course provides basic biology such as microbiology, biochemistry, and molecular biology for the study of biochemical engineering later by learning cells, enzymes, biological molecules, metabolism, cell growth, genetics, and recombinant DNA technology.

Logic & writing in Chemical · Textile Engineering Education

In order to educate the Chemical · Textile Engineering Education, the structure and characteristics of education course is analyzed systematically. The ability of education is trained by presentation and discussion.

Process Control

Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.

Separation Process

Mixture of multi-component can be separated into single component by mechanical methods. Grinding and filtration of solid, and transportation, sedimentation and separation of powder will be studied. Control and drying of moisture will also be studied.

Equipment Design in Chemical Engineering

This course provides principles and design method of equipments and plants in chemical engineering.

Polymer Engineering

The following subjects will be studied : (1)physical properties and applications of polymers, (2)principles and techniques to measure physical properties of polymers, (3)structure-property relationship of polymers, (4)modification of polymers and blends, (5)fundamental polymer processing methods.

Chemical Process of Semiconductor

In this course the individual processes utilized in the fabrication of silicon VLSI circuits are covered in depth(e.g. epitaxial growth, CVD, DVD, thermal oxidation, diffusion, ion implantation, microlithography and etching process).

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them

Chemical · Textile Engineering Education

The common senses, goals, contents, methods and recent trends of Chemical · Textile Engineering Education are covered. The understanding of the learning course and the methodology of teaching course is studied.

Chemical Plant Design

Principles of Chemical engineering process design. Emphasis on equipment types, equipment principles. Typical problems in the design of chemical plants. Comprehensive reports are required.

Biochemical Engineering

This course provides engineering principles for bioprocesses by learning bioreactor design, operation and control, scale-up, product recovery, and applications to unconventional biosystems.

Creative Engineering Design and Seminar

Based on the knowledge studied during the chemical engineering courses the senior students will respectively develop the engineering senses in the creative application domains.

Nano-Chemical Materials

The structure and properties of the nano materials, which are used in chemical engineering field, will be studied.

Teaching Method & Study on Teaching Materials in Chemical · Textile Engineering

The teaching materials are prepared from the general texts of Chemical · Textile Engineering Education which are used in theoretical teaching. The teaching methods of Chemical · Textile Engineering Education are studied by the analysis of the general texts.

▣ Department of Engineering Chemistry

Introduction

The Department of Engineering Chemistry(EC) is to have a central role for both teaching and research in leading the society as well as to devote significant contribution on chemical engineering and technology in the 21st century. The department is making efforts to assist students to be more creative and better devotional leaders in the future. To make students meet such requirements, EC has enhanced its curricula related to basic and applied courses such as new chemical processes, advanced purification and processing methods, and new chemical technologies on the basis of theories and practices. Classrooms and laboratories were also renovated to provide a broad spectrum of high quality academic services and a wide range of top notch facilities for advanced researches.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36 Credits), a major(75 Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
	1-2-E Introduction in Creative Engineering Design (3)
2-1-R Engineering Chemistry Calculation(3) 2-1-R Physical Chemistry I (3) 2-1-R Organic Chemistry I (3) 2-1-E Engineering Mathematics I (3) 2-1-E Engineering Chemistry Fundamental Lab. (2)	2-2-E Engineering Mathematics II (3) 2-2-E Engineering Chemistry Calculation and Design (4) 2-2-E Physical Chemistry II (3) 2-2-E Organic Chemistry II (3) 2-2-E Thermodynamics I (3) 2-2-E Energy System Engineering (3)
3-1-R Transport Processes (3) 3-1-R Unit Process in Organic Synthesis and Design (4) 3-1-E Materials Science and Engineering(3) 3-1-E Industrial Analytical Chemistry (3) 3-1-E Organic Synthesis Lab. (1) 3-1-E Inorganic Chemistry (3) 3-1-E Thermodynamics II (3)	3-2-R Polymer Chemistry and Design (4) 3-2-R Inorganic Unit Process and Design (4) 3-2-E Unit Operation and Design (4) 3-2-E Industrial Organic Chemistry (3) 3-2-E Instrumental Analysis (3) 3-2-E Instrumental Analysis Lab. (1) 3-2-E Inorganic Unit Process Lab. (1)
4-1-R Electrochemistry and Design (4) 4-1-E Biochemical Engineering (3)	4-2-R Engineering Chemistry Capstone Design (3)

4-1-E Industrial Polymer Chemistry (3)	4-2-E Composite Material (3)
4-1-E Organic Synthetic Chemistry (3)	4-2-E Fine Chemistry (3)
4-1-E Industrial Inorganic Chemistry (3)	4-2-E Catalytic Engineering (3)
4-1-E Industry - Academic Seminar (1)	

● Courses Abstract

Introduction in Creative Engineering Design

This subject aims to interest students in and excite them about engineering, particularly with the creative challenge and reward of engineering design.

Industrial Engineering Chemistry Calculation

Introduces fundamental understanding of physical variables, mass and energy indices to design chemical process.

Physical Chemistry Ⅰ,Ⅱ

Introductory gas law; thermodynamics equilibrium state quantum theory atomic structure; solid state chemistry; spectroscopy.

Organic Chemistry Ⅰ,Ⅱ

Introduction to organic chemistry. Development of basic principles to understand the structure and reactivity of organic molecules. Methods for the synthesis of organic compounds. Special topics illustrating the role of organic chemistry in practice.

Engineering Mathematics Ⅰ,Ⅱ

Mathematical techniques necessary for industrial chemistry topics such as materials response to applied fields, energetics, materials structure and symmetry, physics of solids and soft materials. Topics include linear algebra, quadratic forms, tensor operations, symmetry operations, calculus of several variables, and so on.

Engineering Chemistry Fundamental Lab.

This laboratory course provides how to measure basic physical properties important industrial engineering chemistry such as density, viscosity, heat capacity, and surface tension.

Engineering Chemistry Calculation and Design

This course study about the materials and energy balance to design process related about industrial engineering chemistry

Thermodynamics Ⅰ,Ⅱ

To enhance understanding of the general phenomena in industrial engineering chemistry, 0th, 1st, 2nd and 3rd laws of thermodynamics, many basic concepts of thermodynamics, P-V-T relationships of simple fluid and mixture, phase

equilibrium fundamentals, operation of heat engine and pump, solution thermodynamics, chemical reaction

Energy System Engineering

Introductory ultra high-capacity energy-storage-devices and related reaction principles.

Transport Processes

Basic principles of momentum, heat and mass transfer processes such as Newton's law, laminar and turbulent fluid flow concepts for momentum transfer, conduction, convection and radiation heat transfer, Fick's law for mass transfer will be studied.

Unit Process in Organic Synthesis and Design

The aim of this subject is improving knowledge for theoretical study of organic synthetic chemistry and skill to design for the industrial applications.

Materials Science and Engineering

This subject describes the fundamentals of bondiing and structure that is very important concept in materials science. This subject also includes the introduction of thermodynamic functions and laws governing equilibrium properties of polymers, metals and ceramics.

Industrial Analytical Chemistry

Introduce general qualitative and quantitative analytical methods for the modern chemical industry.

Organic Synthesis Lab.

Introduces experimental chemistry for students who are majoring in industrial chemistry. Principles and applications of chemical laboratory techniques, including preparation and analysis of chemical materials, measurement of pH, gas and liquid chromatography, visible-ultraviolet spectrophotometry, infrared spectroscopy, kinetics, data analysis, and elementary synthesis.

Inorganic Chemistry

In this program, we will study of major organic primary products and raw materials, industrially, important materials of the manufacturing process is introduced.

Polymer Chemistry and Design

Studies synthesis of polymeric materials. Chemical pathways include traditional approaches such as anionic, radical condensation, and ring-opening polymerizations as well as new techniques, including ATRP. Micro-architecture includes tacticity, molecular-weight distribution, sequence distributions in copolymers will be discussed.

Inorganic Unit Process and Design

Systematic presentation of the chemical applications of inorganic chemistry. Emphasis is on the raw materials, synthetic theory, synthetic reaction, and process of inorganic chemical compounds.

Unit Operation and Design

This course provides basic concepts of unit operation and design principles of many equipments using in the chemical industry. Design principles of fluid processing and metering equipments, evaporation equipments, distillation and absorption column, adsorption, drying extraction equipments will be studied.

Industrial Organic Chemistry

Theory and production process of organic materials in industry including paints, foods, oils and surfactants.

Instrumental Analysis

Theoretical study of modern analytical instruments. GC, LC, UV, IR, NMR, Mass, AA, spectrophotometer and polarograph.

Instrumental Analysis Lab.

Student project teams investigate the origin of chemical mixture using GC, LC, UV, IR, NMR, Mass, AA, spectrophotometer and polarograph. Goals include using instrumental analysis fundamentals in a practical application. Teams document their progress and final results by means of written and oral communication.

Inorganic Unit Process Lab.

Student learns experimental skills, characterization methods through laboratory scale inorganic chemical experiments.

Electrochemistry and Design

Electrochemistry is the study of phenomena at electrode-solution interfaces. Also introduction to redox equilibrium and electrode potentials.

Biochemical Engineering and Design

This course provides basic biology concepts (microbiology, biochemistry, and molecular biology) and engineering principles for bioprocessing by learning many bioraction mechanism and bioreactor design, operation and control, scale-up, product recovery. Bioreactor design and new trends in biochemical engineering fields will be studied by performing the design term projects.

Industrial Polymer Chemistry

This course provides physical properties of polymeric materials in aspect of thermal transition, mechanical characterization and molecular weights and their distribution. Preparation process of polymeric materials for commercial application will be also discussed.

Organic Synthetic Chemistry

In this program, we will study of major organic primary products and raw

materials, industrially, important materials of the manufacturing process is introduced.

Industrial Inorganic Chemistry

Theory and application of inorganic chemistry for practical product. Topic include: review of inorganic chemistry, theory of molecular orbital and acid-base reaction.

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them.

Engineering Chemistry Capstone Design

In this course, student teams conduct their own research project after join to each department laboratory. Teams document their progress and final results by means of written graduation thesis and presentation.

Composite Materials

The electrical, optical and mechanical properties of composites are presented with respect to the underlying physics and physical chemistry of materials in melt, solution and solid state.

Fine Chemistry

This subject will introduce the relationship between physical properties and chemical structure of fine chemicals. Emphasize real application of fine chemical product to daily life.

Catalytic Engineering

Theory and fundamental understanding of catalyst will be presented. Emphasize functions, design and process of catalyst.

▣ Department of Environmental Engineering

Introduction

Environmental Engineering is concerned with the principles, technology and methodology for solving problems related to the quality of the environment as well as the impact of their application to society. A proficient environmental engineer requires the ability to contribute to the planning, design, evaluation and analysis of technological innovations for improving environmental quality in response to overmanaging goals and the needs of society. Within the Department of Environmental Engineering, there are five major areas: water and wastewater treatments, air pollution controls, solid wastes managements, environmental system analysis and impact assessment, environmental biotechnology. The degrees of B.E., M.S. and Ph.D. are offered within the department.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(45Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E	Course (Credit)	Yr-Sem-R/E	Course (Credit)
		1-2-E	(3)
2-1-R	(3)	2-2-R	(3)
2-1-R	(3)	2-2-R	
2-1-R	(3)		(3)
2-1-E	(3)	2-2-R	(3)
2-1-E	Environmental Ecology (3)	2-2-E	(3)
2-1-E		2-2-E	(3)
2-1-E	Environmental Informatics (3)	2-2-E	(3)
3-1-E	(3)	3-2-E	(2)
3-1-E	(3)	3-2-E	
3-1-E	(3)	3-2-E	(3)
3-1-E		3-2-E	Internship (3)
	(3)	3-2-E	
3-1-E	(3)		(3)
3-1-E	(3)	3-2-E	(3)
3-1-E		3-2-E	
	(3)		(3)
3-1-E		3-2-E	(3)
	(3)	3-2-E	
			(3)
		3-2-E	

												(3)		
4-1-E					(3)	4-2-E								
4-1-E					(3)				(3)					
4-1-E				(3)		4-2-E							(3)	
4-1-E						4-2-E						(3)		
		(3)				4-2-E							(2)	
4-1-E				(3)		4-2-E								
4-1-E										(3)				
			(3)			4-2-E					(1)			

● Courses Abstract

Introduction to Engineering Design

This class introduces the principle methods of engineering design through problem identification, creative synthesis, system modeling and analysis, testing and refinement, project management, technical communication, and outcome evaluation. Students will also be introduced to a career aptitude test to start identifying their strengths in academic and professional fields.

Introduction to Environmental Engineering

Fundamentals of environmental engineering, required for environmental engineers to accomplish the research and development activities are lectured. Students obtain fundamental knowledges and informations about water and wastewater treatment, air pollution control, solid waste management, noise and vibration.

Environmental Fluid Mechanics

Fluid mechanics is the study of fluids either in motion(fluid dynamics) or at rest (fluid statics) and the subsequent effects of the fluid on the boundaries, which may be either solid surfaces or other fluids. Both gases and liquids are classified as fluids, and the number of fluids engineering application is enormous: breathing, blood flow, swimming, pumps, fans, turbines, airplanes, ships, rivers, windmills, pipes, missiles, iceberg, engines, filters, jets, and sprinklers, and etc.

Engineering Mathematics

This class introduces the principles of engineering mathematics including formulation of engineering problems, ordinary differential equations, analytical methods, and applications to real engineering problems.

Thermodynamics

This course is designed to provide the fundamental knowledge of thermodynamics emphasizing on energy transfer and energy conversion. The course materials consist of three parts: 1) basic energy analysis, physical properties, and the first thermodynamics law, 2) system analysis of closed and open systems, and 3) the

second thermodynamics law and entropy.

Environmental Ecology

This course deals with the principles of ecology and their implications for analyzing environmental problems. The focus of the course is understanding of the natural environment and the environmental problems that the world faces. These concepts will be applied to the management and restoration of natural resources.

Atmospheric Science & Experiment

This course deals with fundamentals of air pollution concerning about the elements of air pollution, the effects of air pollution, measurements and monitoring of air pollution and meteorology of air pollution, and a variety of air pollution-related topics.

Environmental Informatics

The purpose of this course is to learn the techniques to handle and analyze data applications for the analysis of environmental phenomena. To solve these problems, students will learn ana practice the essential concepts about statistical analysis, numerical analysis, and drawing figures with several basic computer programs such as Microsoft Excel, Microsoft PowerPoint, and SigmaPlot.

Physical Chemistry

This lecture is designed to provide necessary knowledges for understanding and elucidating natural phenomena accompanying chemical reactions. The course topics include thermodynamics laws, chemical equilibrium, electrochemistry, chemical reaction rate, basic quantum mechanics, and computational chemistry.

Numerical Analysis for Environmental Engineers

This class provides fundamentals of numerical methods for environmental engineers that include roots of equations, linear algebraic equations, curve fitting and data analysis, ordinary differential equations, and their applications to solve engineering problems.

Environmental Microbiology

The goal of this course is to learn about 1)the general concepts of microbiology, such as growth, metabolism, genetics, and microbial structure, and functions, and 2)specific environmental microbiology topics such as microbial roles in wastewater treatment, disinfection, waterborne microbial pathogens, indicator organisms, and pollution control.

Environmental Chemistry

This course helps students study the fundamental knowledge of general chemistry, organic chemistry and physical chemistry, focusing on chemical equilibrium, interaction, recycle and impact in the ecosystem of hydrosphere,

atmosphere, and lithosphere. Furthermore, a variety of pollution measurement and control technologies are reviewed in a viewpoint based on chemistry.

Fundamental of Air Pollution Control

Atmospheric pollution is caused mostly by both the particulate matters and hazardous gaseous components produced in the various kinds of combustors. Therefore for prevention of the atmospheric pollution, it is important to control the production of these components in the combustion process, however, the components produced to be emitted without being controlled owing to the technical limitation have to be removed by the appropriate methods to the level to meet the Air Pollution Prevention Act. For these purposes, students will learn in this course the production mechanisms of the combustion products in the combustion processes, the combustion calculation, the mass transfer theory, the atmospheric dispersion theory, and the photochemical reaction, to understand what type of the components are produced, to be able to predict or estimate both the kinds and quantities of the components being produced and the volume or mass of the combustion flue gases, to be able to design or selection of the removal process of the combustion products, for understanding the transfer phenomena of the substances emitted to the atmosphere and their conversion to the secondary pollutant in the atmosphere, respectively.

Environmental Energy Engineering

The energy-related problems due to the use of fossil fuels are of great concern to the world. So, modern society needs new technology and resource of energy. This class will introduce the fundamental concepts of solar, photovoltaic, geothermal, wind, nonfossil fuel (hydrogen and biomass), and ocean (thermal gradient, tidal, and wave) source of energy.

Air Pollution Engineering

For prevention of the atmospheric pollution caused by the particulate matters and various kinds of the gaseous components produced in the combustion processes, it is important to control primarily their production in the combustion process. However, these components have to be removed by the appropriate equipments and processes because they can't be controlled completely only by the combustion process control to the level to meet the Air Pollution Prevention Act owing to the technical limitation. Therefore students will learn in this course the various unit processes applicable to removal of the particulate matters and each gaseous components and the theories to be applied to determine or calculate the size of the treatment vessels or reactors for their removal.

Environmental Chemical Reaction Engineering

The goal of this course is to design and operate advanced chemical reactors.

Through the Environmental Chemical Reaction Engineering course, the reaction mechanisms, reaction rate, and types of reactors are discussed to improve the ability for the design of reactors and the reaction analysis of reactors.

Wastewater Treatment Engineering

This course provides an overview of the wastewater systems, treatment methods and processes. The contents of this course are wastewater systems, wastewater generation, wastewater treatment: physical, chemical, and biological unit processes, advanced wastewater treatment, and sludge treatment and disposal. Students will be able to acquire knowledge on basic wastewater treatment and process design.

Environmental Molecular Biology & Experiment

The ultimate goal of the course is to provide students with a working knowledge of current molecular biology tools to utilize in the field of environmental engineering such as bioremediation, wastewater treatment, and pollution control. Students will be provided 1)with basic knowledge about nucleic acid and protein synthesis, and 2)with applied techniques such as PCR and microbial community structure analysis methods.

Environmental Instrumental Analysis

This course provides basic principles and practical training of analytical instruments for students who may need to acquire analytical techniques used in industry. Analytical instruments students use in this course include gas chromatography (GC), high performance liquid chromatography (HPLC), ion chromatography (IC), and ultraviolet-visible spectroscopy (UV-Vis). The basic principles and application of X-ray spectroscopy are also discussed.

Environmental Hydraulics and Design

This class introduces the principles of hydraulics required for environmental engineers, and applications to the planning and design of hydraulic structures, water and wastewater pipeline systems, and water pollution management.

Solid Waste Engineering and Management I

Fundamental approach to solid waste treatment technologies that describe behavior of MSW and engineered environmental systems including physical and chemical analysis, shredding, separation, compression and landfill.

Natural Resources & Environmental Technology Engineering Education

Various environmental law education the choice of education in general subjects Hamyang and other knowledge acquisition.

Air Pollution Engineering Experiment

To prevent the atmospheric pollution caused by the particulate matters and various kinds of the gaseous components produced in the combustion processes,

it is important to control primarily their production in the combustion process, and the components produced without being controlled completely owing to technical limitation have to be removed by the appropriate removal equipments and/or processes to the level to meet the Air Pollution Prevention Act. However, it is required, to do so, to have grasp of what components and how much of them are produced in the combustion process and present in the atmosphere first, which can be performed by in situ measurement or experiments in laboratory for analysis of given volume of mass of the atmosphere sampled. Therefore the students will learn in this course the sampling · measurement · analysis principles of the various kinds of sampling and analysis equipments, and will practice experiments to sample some volume of the atmosphere with these equipments to measure the concentration of the atmospheric pollutants.

Noise and Vibration

Noise and vibration class offers mechanical, acoustical, architectural, electrical and chemical engineers and students the engineering principles necessary for designing quiet conditions into industrial machinery motors, power plant equipment, air-conditioning systems, factories, buildings, and transportation systems. Students learn how sound propagates outdoors, around or over barriers and in enclosed spaces such as rooms and vehicles.

Water Supply and Sewerage Engineering

This course introduces water and sewage treatment networks including drinking water quality standard, effluent standard, conventional and advanced water and sewage treatment processes. Students will be able to acquire knowledge on applied water and sewage treatment techniques and process design.

Internship

Internship program offers students improvement of adaptability through experiment in industries and research institutes during vacation period.

Solid Waste Engineering and Management Ⅱ

Advanced approach to various treatment technologies, topics in applied theory, design and operation of equipment and process for incineration, pyrolysis, gasification, manufacturing of SRFs, and anaerobic-digestion of MSW.

Prerequisites : 6544105 Solid waste engineering Ⅰ

Environmental Toxicology

The aim of this course is understanding the effects of hazardous substances on human and ecological health and understanding how this knowledge can be applied to improve the quality of the environment. In this course, students will learn the basic concepts of toxicology, the effects of major environmental pollutants on human and ecological receptors, methods of toxicity evaluation and

the outline of environmental risk assessment.

Environmental Engineering and Experiment

The goal of this course is to learn about 1) the general concepts of microbiology, such as growth, metabolism, genetics, and microbial structure and function, and 2) specific environmental microbiology topics such as microbial roles in wastewater treatment, disinfection, waterborne microbial pathogens, indicator organisms, and pollution control.

Water Quality Modeling

This class introduces the principles of water pollution and water quality modeling, contaminants transport and mixing, chemical and biogeochemcal processes, mass balance and system analysis of reactors, and applications to real water quality problems .

Design of Greenhouse Gas Control Systems

Greenhouse gases and their control systems are studied in this course. Combustion calculations are conducted to understand the emissions of the greenhouse gases. Absorption tower and adsorption bed are designed to control greenhouse gases. Various control systems and their operation principles are studied.

Teaching Method & Study on Teaching Materials in Natural Resources & Environmental Technology

Environmental education materials used in middle school curriculum in basically when students were in the teaching profession using the acquisition of a study of teaching materials and school how to do.

Capstone Design for Water Treatment System

This course provides a sound understanding of design principles in water supply systems and treatment processes. Students will be able to acquire sufficient knowledge on basic design procedure of conventional and advanced water treatment processes through oral and written presentations of their design practices.

Process Engineering Design, Capstone Design

It is very important in the designing of the air pollution prevention facilities to calculate or determine size and type of the treatment vessels or reactors which are the core equipments of the process and to determine or select the specifications(type, size, capacity, material, thickness, etc.) of the pumps/valves/blowers and pipes/fittings for transportation of the emitted gases to be treated, various kinds of regents and additives required for this treatment process, the treated gas, and the by-products, etc., and other auxiliary equipments. Accordingly the students will learn in this course how the basic size

of the treatment vessels or reactors is calculated or determined, and will learn the kinds and type of the pumps/valves/blowers and pipes/fittings and their function to be able to determine their specifications(type, size, capacity, material, thickness, etc.) to meet the characteristics of the air pollution prevention facilities through practise.

Advanced Wastewater Treatment

This course deals with metabolism, stoichiometry, kinetics, and thermodynamics of microbial processes for the transformation of environmental contaminants. The major elements of biochemistry, microbiology and mathematical modelling are discussed for understanding how biological wastewater operations function and providing a design criteria. Design applications include treatment of nutrients and hazardous chemicals in municipal, industrial wastewater, and groundwater.

Environmental Planning and Impact Assessment

This course is designed to study the assessment technique of environmental impact of the planned development. Students are required to measure the anticipated effects on the environment of a proposed development or project with consideration of relevant regulations.

Resource Recovery of Solid Wastes

Lecture and case study of the physical, chemical and biological recycling and recovery technologies of organic and inorganic materials and renewable waste energy from industrial wastes.

Logic & Writing in Natural Resources & Environmental Technology

The fundamental law of logical thinking about education environment and puts the emphasis on training on the essay.

Design for Domestic Wastewater Treatment System

This course provides a sound understanding of design principles in sewerage systems and domestic wastewater treatment systems. Students will be able to acquire sufficient knowledge on basic design procedure of conventional and advanced domestic wastewater treatment processes through oral and written presentations of their design practices.

Soil Contamination and Remediation

Discussion of physical, chemical, and biological soil structure and characteristics, soil contamination, prevention of soil contamination and remediation of contaminated soil.

Industrial Wastewater Treatment

Industrial wastewater are extremely varied and this complicates their treatment and discussion. The course aims to provide a link between theory and practice. It does not only cover the application of state of art technology but also includes

much information that would usually be accessible only to persons who have handled wastewater and treatment facilities personally. Case studies of various industrial wastewater are used to illustrate the application of technology to specific industrial applications.

Solid Waste Engineering Experiment

Experiment based in 6544105 Solid waste engineering I, physical and chemical analysis of MSW.

Capstone Design of Environmental Engineering

As Design of engineered environmental systems for water or wastewater treatment, air Pollution control, solid waste treatment.

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them.

◇ School of Mechanical Engineering

Introduction

The goal of the school is to cultivate highly-educated engineers in the fields of mechanical engineering. The school offers both an undergraduate and graduate programs. The curriculum of the school covers a wide range of classical mechanical engineering such as thermal/fluid engineering, solid mechanics, machine design, vibration and control. Also, the program includes newly-emerging fields of mechanical engineering such as CAD/CAM, automation, robotics, precision machining and measurements. Furthermore, the school supports the accreditation of engineering education through internships and capstone designs. School graduates find their jobs in various areas including automobile industry, electric/electronic and telecommunication industry, construction and ship-building industry. Also, the graduates with MS/Ph.D degrees are involved with research works in government-supported institutes as well as private companies.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(39Credits), a major(78Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Introduction to Capstone Design(3)	1-2-R Statics(3)
1-1-E Engineering Materials(3)	1-2-R Engineering Mathematics I (3)
1-1-E Machine Drawing(3)	1-2-E Computer-Aided Design(2)
2-1-R Manufacturing Processes I (3)	2-2-R Dynamics(3)
2-1-E Mechanics of Materials I (3)	2-2-R Mechanics of Materials II (3)
2-1-E Thermodynamics I (3)	2-2-R Thermodynamics II (3)
2-1-E Engineering Mathematics II (3)	2-2-R Manufacturing and Material Engineering. Lab.(2)
2-1-E Kinematics(3)	2-2-E Fluid Mechanics I (3)
	2-2-E Numerical Analysis(3)
	2-2-E Mechatronics(3)
	2-2-E Manufacturing Processes II (3)
3-1-R Fluid Mechanics II (3)	3-2-R Mechanical Design II (3)
3-1-R Mechanical Design I (3)	3-2-R Thermodynamics and Fluid Mechanics Lab(2)
3-1-R Vibrations and Mechatronics Lab.(2)	3-2-E Automatic Control(3)
3-1-E Internal Combustion Engines(3)	3-2-E Heat Transfer(3)
3-1-E Mechanical Vibrations(3)	3-2-E Additive Manufacturing System(3D Printing(3)
3-1-E Measurement Engineering(3)	3-2-E Thermal Power Plant Engineering(3)
3-1-E Machine Tools(3)	3-2-E Logic and Statement on Mechanical and Materials Education(3)
3-1-E Green Car Component Design(3)	3-2-E Green Car System Engineering(3)

4-1-E Fluid Machinery(3) 4-1-E Energy, environment, Air Conditioning and Refrigeration(3) 4-1-E Numerical Analysis of Solid Mechanics(3) 4-1-E Computer Aided Design/Computer Aided Manufacturing(3) 4-1-E Micro Electro Mechanical Systems(3) 4-1-E Capstone Design I (3) 4-1-E Mechanical and Materials Education Methodology(3) 4-1-E Industry-Academic Seminar(1)	3-2-E Propulsion engineering(3) 4-2-E Thermo-fluid Design Engineering (3) 4-2-E Robot Design (3) 4-2-E Automotive Engineering (3) 4-2-E Computer Methods in Thermal-Fluid Engineering(3) 4-2-E Precision Manufacturing System(3) 4-2-E Experiment of Mechanics(3) 4-2-E Capstone Design Ⅱ(3) 4-2-E Teaching Resources and Research Methodology on Mechanical and Materials Education(3)

● Courses Abstract

Introduction to Capstone Design

The introduction to capstone design is a team activity based on design problems and case studies concerning basic engineering problems. Students learn a structure approach to product realization as well as teamwork and presentation skill.

Engineering Materials

Steel, nonferrous metal, standard and specification, heat treatment, and mechanical property are introduced and students will improve their ability to design a product and treat a materials in this course.

Machine Drawing

By this subject, students majoring in mechanical engineering study about refering to much document for machine and sketching machinery parts by oneself understanding drawing.

Statics

Statics Analysis of forces on structures in statics equilibrium, properties of forces, moments, couples and resultant, conditions for statics equilibrium, friction, centroids, and area moments of inertia.

Engineering Mathematics I

First order differential equations(linear, separable, exact), second order differential equations, Wronskians, method of undetermined coefficients, variation of parameters. higher order equations, Laplace transforms, Vectors, lines and planes, vector spaces, bases and dimension. Linear equations, Gaussian elimination, matrices, Orthogonality, linear transformations, determinants, eigenvalues and eigenvectors, diagonalization, least squares minimization techniques.

Computer-Aided Design

To study computer design on the basis of fundamental knowledge of machine drawing

Mechanics of Materials Ⅰ

First course of a two-semester sequence in solid mechanics. This course will examine the basic mechanics of rigid and deformable bodies in the equilibrium state. Topics include stress and strain, axially loading members, torsional members, shear force and bending moment of beams, and stresses in beams.

Manufacturing Processes Ⅰ

This lecture reviews the various manufacturing processes on plastics, ferrous and nonferrous materials.

Thermodynamics Ⅰ

Thermodynamics I deals with the first and second laws of thermodynamics and the application abilities of these laws in the real energy systems.

Engineering Mathematics Ⅱ

Vectors, lines, planes and vector-valued functions. partial derivatives, multiple integrals and calculus of vector fields. divergence and curl, Stokes's theorem, Fourier series, Heat equation, separation of variables, vibrating strings.

Kinematics

Kinematics is an introductory course to mechanical engineering by providing the process of design through mechanisms, which tend to be intuitive for visualization and creativity of mechanical design.

Dynamics

Dynamics deals with Newton's Laws of Motion throughout the course and applies the laws to the particles and rigid bodies of machinery around us.

Manufacturing and Material Engr. Lab.

Based on the studies in the course of Manufacturing Processes and Mechanics of Materials, various experiments will be accomplished. Course topics include material processes with machining, welding and heat treatments, mechanical material testing and structural measurement using strain gages and optical techniques.

Mechanics of Materials Ⅱ

Second course of a two-semester sequence in solid mechanics. This course will examine the advanced mechanics of rigid and deformable bodies in the equilibrium state. Topics include analysis of stress and strain, application of plane stress, deflections of elastic beams, and columns with buckling formula. A design project related to this material is given.

Numerical Analysis

The objects of the course are understanding of basic concepts of numerical

analysis with the application and the implementation using programming languages such as Basic/Fortran/C.

Thermodynamics Ⅱ

Thermodynamics II deals with the analysis of energy systems including energy analysis, vapor and gas power cycles, refrigeration and heat pump cycles, psychrometrics, thermodynamic relations and combustions.

Mechatronics

In order to automate mechanical system, micro processor application technique, computer interfacing with mechanical system will be learned through lecture and experiment

Manufacturing Processes Ⅱ

This course provides an operational experience in the development of innovative and realistic engineered products. Design concepts and techniques are introduced, and the student's design ability is developed in a design or feasibility study.

Fluid Mechanics Ⅰ

Fundamentals of fluid dynamics intrinsic to natural physical phenomena and/or engineering processes. Survey of principal concepts and methods of fluid dynamics. Mass conservation, momentum, and energy equations for continua. Navier-Stokes equation for viscous flows. Hydrostatics. Circulation and vorticity theorems. Bernouille equation. Potential flow.

Mechanical Design Ⅰ

Failure criteria, Design for static strength, deflection, and reliability. Engineering design of machine elements: brakes and power screws. Mechanical power transmission: Gear derives, clutches, Welded and riveted structure.

Vibrations and Mechatronics Lab.

Hands-on experiments involving applications of robot system, mechanical system, gas dynamics, aerodynamics, and fluid power.

Internal Combustion Engines

Internal combustion engine is a mechanical system which converts heat energy to mechanical energy. This course deals with operation principle and structure of internal combustion engines.

Mechanical Vibrations

This course is intended to provide a better knowledge and physical understanding of the vibration and dynamic responses of mechanical and structural systems.

Measurement Engineering

This is an introductory course on measurements which are widely used in mechanical engineering. We will examine the measurement techniques using various sensors and also study basic optics and electrical circuit related to strain

gages. Experiment using strain gages, loadcell and optical techniques are emphasized and will be accomplished in this course

Machine Tools

The fundamental mechanics for machine tools is understood with the method of economical cutting with improving technology of the tool life and wear. Also, chip control, power transmission and the design of automated machine tool are studied.

Green Car Component Design

This is an introductory course to an eco-friendly design of automobile components that covers various concepts and applications such as lightening and the emission reduction. Also, many different types of green cars such as hybrid electric vehicles, electric vehicles, fuel cell cars are presented and compared from an eco-friendliness viewpoint.

Mechanical Design Ⅱ

Design for fatigue strength, deflection, and reliability. Engineering design of machine elements: shafts, bearings, springs. Computer-based analysis in support of design.

Thermodynamics and Fluid Mechanics Lab.

Experimental investigation of engineering systems and of phenomena of interest to mechanical engineers. Thermodynamics, Internal Engine, Heat pump, Heat transfer, Design and planning of experiments. Analysis of data and reporting of experimental results.

Fluid Mechanics Ⅱ

Integrated development of the fundamental principles of fluid mechanics with applications. Boundary layers and separation. Introduction to turbulence. Lift and drag. Fundamental concepts and results for the compressible flow of gases. Topics include thermodynamics, appropriate conservation laws; propagation of disturbances; isentropic flows; normal shock wave relations, oblique shock waves, weak and strong shocks, and shock wave structure; compressible flows in ducts with area changes, friction, or heat addition.

Automatic Control

Increasing ability of mathematical modeling, stability analysis, controller design for modern many kinds of mechanical system including industrial machine and home appliance.

Heat Transfer

This course covers transport processes of mass, momentum, and energy from a macroscopic view with emphasis both on understanding why matter behaves as it does and on developing practical problem solving skills. The course is divided

into four parts: introduction, conduction, convection, and radiation.

Additive Manufacturing System(3D Printing

This course will introduce the Additive Manufacturing (AM, 3D printing) system which has been used for the fabrication of a prototype in manufacturing. The objective of this course is to familiarize students with overall technological bases and applications of AM technology.

Thermal Power Plant Engineering

Thermal power plant engineering deals with the subject about the power generation based upon the first and second laws of thermodynamics. The scope of this course covers the vapor power cycle, gas turbine cycle, steam turbine, boiler and combustion.

Logic and Statement on Mechanical and Materials Education

This course takes care about logical thinking and analytic method for engineering theories and practices of subject education, and also writing method to express analytically and systematically the engineering logic.

It is the main purpose of this subjects how to train students to enhance their ability to learn the method of engineering thinking and utilize logics. An another important topic to be covered in this course is teaching students to write essays.

Green Car System Engineering

This course introduces general background on future green car system. Students will have a great opportunity to learn fundamental principles, theories and structure of the systems such as clean diesel, hybrid car, electronic car and solar vehicles. Numerous novel technologies applied to future vehicles will be also discussed in this course.

Fluid Machinery

Fluid turbo-machinery theory, performance characteristics of centrifugal and axial flow fans, compressors, pumps and turbines, fluid vibrations and sound, water hammer, introduction to fluid power controls and fluid amplifiers.

Energy, environment, Air Conditioning and Refrigeration

Introduces the compression refrigeration cycle, common refrigerants and their applications, and the theory of heat transfer as related to the refrigeration process. Studies the construction and operation of gas fired, oil fired, and electric forced air heating equipment Applies the theory and principles of refrigeration to comfort cooling and explains the use of electric heat pumps in residential and light commercial applications.

Numerical Analysis of Solid Mechanics

Students will acquire the stress and strain using computer aided mechanics of

structure.

Thermo-fluid Design Engineering

Review and system thermal and fluid design of integrated systems involved with thermal sciences, optimization methods, introduction to thermal design and optimization, design of different thermal systems such as heat exchanger, energy conversion, heat transfer enhancement, Cryogenics, micro-electronic cooling, environmental issues and thermoeconomics.

Computer Aided Design/Computer Aided Manufacturing

Basic theory about CAD/CAM system and application to the practical design problems and manufacturing process will be learned.

Micro Electro Mechanical Systems

This course is aimed to provide basic understanding of microfabrication processes, fundamentals of micro-electro-mechanical systems (MEMS) technologies including physical principles, device analysis and design, manufacturing processes, and applications of microsensors and microactuators.

Capstone Design I

Application of design concepts in mechanical engineering. Problem definition, design specifications. Modeling and analysis methods. Design optimization, economics, reliability. Manufacturing considerations in design.

Mechanical and Materials Education Methodology

Learning about a guiding engineering principle and a course of study with method hat how collect basic materials and materials collected by them in order to consist of them according to course in middle and high school.

Robotics Design

This course introduces the design of robots through the synthesis of human functions by mechanical manipulation, locomotion, computer vision and artificial intelligence.

Automotive Engineering

It studies as follows: A theory and design of a characteristic of automobile engine, a transmission of power, steering and appliance of break, A performance of running, break and maneuverability, Stability, Ride comfort A fuel of automobile.

Computer Methods in Thermal-Fluid Engineering

Introduction to numerical methods; interpolation, differentiation, integration, systems of linear equation. Solution of differential equations by numerical integration, partial differential equations of fluid flow and heat transfer: finite difference methods, boundary integral equation panel methods.

Propulsion engineering

Students will learn the operating principles of propulsion devices such as gas turbine engine, ramjet engine, rocket engine based on thermodynamics and fluid mechanics.

Precision Manufacturing System

The method of precision manufacturing and the process are studying for improving the ability to use and apply the technology in industry

Experiment of Mechanics

This course will help the student to understand various mechanical and electrical theories and measuring methods to raise student's abilities of the application.

Capstone Design Ⅱ

Simulation of industrial environment for product development. Product concept, Creative design, and manufacturing. Capstone design projects.

Teaching Resources and Research Methodology on Mechanical and Materials Education

This course provides the improvement of engineering subject teaching skill with learning about the understanding of engineering subject characteristics, analysis of middle and high school' textbook contents, the forming technique of lesson schedule, and teaching methods. From this course, students learn the overall knowledge about engineering itself and its applications, and study the instructional resources about basic teaching skills and practices.

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them

Internship Ⅰ,Ⅱ,Ⅲ,Ⅳ

Internships provide opportunities for students to gain experience in engineering field, determine if they have an interest in a particular career and create a network of contacts. During this period students have to work at a company or organization and can gain certain school credits.

◇ School of Civil Engineering

Introduction

Civil Engineering is concerned with all aspects of scientific and technical skills for the construction of facilities which advance our society toward the attainment of such basic objectives as economic development, environmental protection and social well-being. Various branches of the department of civil engineering makes an essential contribution to such programs as structural engineering, hydraulic and water resource engineering, soil mechanics and geo-technical engineering, surveying and geo-spatial information engineering, construction engineering and management and environmental engineering. These subjects are focused on such topics as economic analysis, information and computer systems, engineering risk assessment, operation and optimization. The undergraduate civil engineering program provides a solid base of the sciences, mathematics, engineering fundamentals, design and management concepts, and humanities/ social sciences. The Graduate programs in civil engineering, leading to the master of science and doctor of philosophy degrees, are offered in structural engineering, hydraulic and water resource engineering, soil mechanics and geo-technical engineering, surveying and geo-spatial information engineering, construction engineering and management, and environmental engineering .

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(42Credits), a major(85Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Engineering Economy (3)	1-2-E Engineering Mechanics (3) 1-2-E Introduction to Creative Engineering Design (3)
2-1-E Mechanics of Materials (3) 2-1-E CAD in Civil Engineering (3) 2-1-E Engineering Mathematics I (3) 2-1-E Fluid Mechanics I (3) 2-1-E Construction Materials and Lab (3)	2-2-E Surveying I and Practices (3) 2-2-E Structural Mechanics I (3) 2-2-E Engineering Mathematics II (3) 2-2-E Fluid Mechanics II (3) 2-2-E Reinforced Concrete Structures and Lab (3) 2-2-E Soil Mechanics I (3)
3-1-E Structural Mechanics II (3) 3-1-E Concrete Structure Engineering (3) 3-1-E Hydrology (3) 3-1-E Hydraulics I (3)	3-2-E Numerical Analysis (3) 3-2-E Steel Structure Engineering (3) 3-2-E Hydraulics II and Lab. (3) 3-2-E Water Resources Engineering (3)

3-1-E Surveying II and Practices (3) 3-1-E Soil Mechanics II and Lab (4) 3-1-E Numerical Analysis (3) 3-1-E Infrastructure System Engineering (3) 3-1-E Introduction to Overseas Construction (3)	3-2-E Water Supply and Sewerage (3) 3-2-E Photogrammetry (3) 3-2-E Foundation Engineering (3) 3-2-E Construction Methods in Civil Engineering (3) 3-2-E Vibration (3) 3-2-E Civil Engineering Systems Analysis and Degsign (3) 3-2-E Design Criteria in International Construction (3)
4-1-E Design of Civil Structures(Capstone Design) (3) 4-1-E Computational Structural Analysis (3) 4-1-E Geo-Spatial Information Engineering (3) 4-1-E Highway Engineering (3) 4-1-E Construction Management (3) 4-1-E River Engineering (3) 4-1-E Prestressed Concrete Structures (3) 4-1-E Geotechnical Engineering (3) 4-1-E Civil Engineering Planning (3) 4-1-E Overseas Construction Contracts and Claims (3) 4-1-E Teaching Methods in Construction and Industrial Engineering (3) 4-1-E Overseas Construction Estimate (3)	4-2-E Harbour and Coastal Engineering (3) 4-2-E Transportation Engineering (3) 4-2-E Capstone Design (3) 4-2-E Rock Mechanics (3) 4-2-E Computer-Aided Engineering (3) 4-2-E International Construction Project Management (3) 4-2-E Professional Program in Overseas Construction (3) 4-2-E Industry-Academic Seminar (1)

● Courses Abstract

Engineering Economy

This course covers the concepts of time value of the money and various tools for analyzing economic feasibilities. Topics include: Understanding money and its management, evaluating business and engineering assets, development of project cash flows, and financial statements.

Engineering Mechanics

Mechanics is the study of forces and their effects on the particle, system of particles, and rigid body or deformable body. Elementary mechanics is divided into statics, the study of objects in equilibrium, and dynamics, the study of objects in motion. The results obtained in elementary mechanics apply directly to many fields of engineering, especially in structural engineering. In this class, students learn problem-solving procedure using fundamental concepts of Newtonian mechanics and analytical methods.

Introduction to Creative Engineering Design

This course is introduction to creative engineering for supporting the problem solving process, i.e. problem definition, idea creation, idea refinement, and selecting the best idea. This course also gives introduction to systems engineering for constructing the optimal system by considering user requirements.

Mechanics of Materials

Mechanics of Materials is a part of Mechanics that is applied to moving object

under loading. The objective of analysis, generally, is to determine the stress, strain and deflection caused by loads. Understanding of Mechanical behavior is the necessity to lay out a building, bridge, machine, engine, submarine, ship, aircraft, antenna and so on.

CAD in Civil Engineering

The Civil CAD is a solid foundation for engineers in civil engineering construction field, which providing a clear understanding of the design drawings. Students should have the ability to understand/make drawings.

Engineering Mathematics I

'Engineering Mathematics I' includes Handle ordinary differential equation, linear algebra and vector, Fourier series and partial differential equation, numerical analysis and complex number etc. as a field of mathematics to apply mathematical principle to each field of engineering. Ordinary differential equation including power series and aplace transformation is explained.

Fluid Mechanics I

The Fluid Mechanics is the learning to study all the states of fluid which is stopping or moving.(The incompressible ideal fluid flow, The compressible ideal fluid flow, The real fluid flow : external flow, internal flow, The pipe network, The open channel flow etc.)

Construction Materials and Lab.

In order to analyze and lay out a structure, mechanical behavior and material characteristics of cement, concrete, steel and lumber are studied through experiments.

Surveying I and Practices

The surveying I is used to determine position, direction, angle, distance, area, etc. and practices using the surveying instruments.

Structural Mechanics I

Structural Mechanism is based on the theory of statics and applied mechanics and a course to do research on reaction, shear, moment, stress, strain and deflection by loading. The structures applied are beam, truss, arch, frame and so on.

Engineering Mathematics Ⅱ

As a branch of mathematics applying mathematical principle to each field of engineering, it is a course solving the solution through comprehension and numerical analysis of equation of Ordinary differential equation, Linear algebra, Vector, Fourier progression, Partial differential equation and so on.

Reinforced Concrete Structures and Lab.

The primary objective of this course is to extend the student's knowledge and

proficiency in analysis and design of reinforced concrete structures. To accomplish this objective, the course will discuss topics related to the flexible and compressive behavior of reinforced concrete member. In addition, the flexible behavior of simple concrete beam will be evaluated by the experimental program.

Soil Mechanics I

Soil mechanics is a kind of course to learn the mechanical characteristic and behavior of soil. It includes the concepts of the dynamics, kinetics and the hydraulic. When constructing a building on soil or using soil as construction material, it must be known the behavior and the nature of soil very well before using.

Structural Mechanics II

This course is to make students familiar with structural mechanism of a intermediate grade. It deals with structural analyses used with deflection, slope-deflection, moment distribution method. Moreover, This course provide the base of advanced structural analysis method such as the Matrix analysis method and the finite element analysis.

Concrete Structure Engineering

The design methods of the reinforced concrete structures are reviewed. The member-wise design theory of the concrete structure is dealt with. The design of practical concrete structure are conducted in the course.

Hydrology

Hydrology is a sort of earth science studying water of occurrence and circulation, distribution, chemical and physical characteristics, and relation with creature. Hydrology is divided into surface water hydrology and underground water hydrology.

Hydraulics I

In this course, it is dealt with physical property of water, hydrostatic, hydrodynamics, analysis of flow in pipeline, and so on. In the section of physical property, it is dealt with the property having the important effect on the mechanics of water, which is stopping or moving such as density, specific gravity, viscosity or kinematic viscosity, surface tension, and compressibility. In the static state, it is dealt with he pressure, buoyancy, and stability of flotation resulting from water pressure. Finally, in the hydrodynamics, it is studied the equation of continuity that indicates continuity of flow of velocity, acceleration and mass.

Surveying II and Practices

This course is about surveying of distance, angel, hight, etc. and includes applied-surveying of route surveying, tunnel surveying and mine surveying, etc..

Soil Mechanics II and Lab.

To design and construct the structure building on earth in the area of construction engineering, it must be understood the physical and mechanical properties of soil. In this class, how to do Lab. test and field test and how to analyze the data obtained from the tests are given.

Numerical Analysis

The objective of this course is to provide an understanding of numerical methods, their derivation, analysis and applicability. Students will be able to learn how to approximate solutions of nonlinear equations, interpolate data points with polynomials, estimate the numerical values of derivatives and integrals, and numerically solve ordinary differential equations.

Infrastructure Systems Engineering

Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem. The civil engineering profession is undergoing change. Technology and competition require that civil engineers must become involved in all aspects of the problem, from traditional infrastructure areas to the economic, social, environmental, and political factors, and that they interact with multidisciplinary teams in a global market. Infrastructure systems engineering is an interdisciplinary engineering approach to solve the contemporary and future challenges of the civil engineering by introducing and applying new systems engineering methodology to meet the social and technological requirements of the day.

Introduction to Overseas Construction

Study of environments of international construction markets and English for practice with term projects for practical cases.

Steel Structure Engineering

Main goal of this course is basic comprehension of behavior of steel structures. In this course, you will learn a design and analysis of steel structures through basic and practical application. And it may become an useful course for the future structural engineer and expert.

Hydraulics II and Lab.

On the analysis of the steady state current in the pipeline, it is dealt with pipeline systems, analytical method of flow in pipeline networks, water hammer, and function and design of surge tank in this course. In the analysis of the steady state current in the open channel, it is dealt with the distribution of the

flow velocity, current estimation, and the best suited hydraulic cross section. In the analysis of steady nonuniform flow, it is dealt with gradually varied flow, rapidly varied flow, specific energy, specific force, and hydraulic jump. Also, in the natural stream, it is dealt with the basic theory of the sediment velocity, bed load discharge, and settling velocity.

Water Resources Engineering

Based on hydrography and hydrology, it gives the knowledge of basic principle to manage water and design the various hydraulic structure.

Water Supply and Sewerage Engineering and Lab.

On the analysis of the steady state current in the pipeline, it is dealt with pipeline systems, analytical method of flow in pipeline networks, water hammer, and function and design of surge tank in this course. In the analysis of the steady state current in the open channel, it is dealt with the distribution of the flow velocity, current estimation, and the best suited hydraulic cross section. In the analysis of steady nonuniform flow, it is dealt with gradually varied flow, rapidly varied flow, specific energy, specific force, and hydraulic jump. Also, in the natural stream, it is dealt with the basic theory of the sediment velocity, bed load discharge, and settling velocity.

Photogrammetry

The photogrammetry is to analyze position, feature and quality of object by using the image and gives the knowledge of the aerial photogrammetry, the terrestrial photogrammetry and applied-surveying.

Foundation Engineering

Foundation engineering is to give a knowledge of designing a structure foundation and with the basic principle of soil mechanics, rock mechanics and structure mechanics. A good engineer must have the ability to predict the behavior and reaction when the foundation is loaded.

Construction Methods in Civil Engineering

It is very essential in every industry improvement as the construction businesses playing an important role in our country's economic development. As the level of civil works construction technic is developed and improved due to overseas expansion and increased domestic construction businesses, you can learn the knowledge and basic theory about usage for the important construction codes of new technic, new construction method and designs of civil structure at the time of constructing roads, railways, dams, harbors, airports, bridges and rivers.

Vibration

Frequency and time domain analysis of simple mechanical systems. Natural frequencies, normal mode vibrations, free and forced vibrations of 1 dof and

multi-dof systems.

Civil Engineering Systems Analysis and Design

This course introduces the student to the concept and methods of the systems analysis and design methodology for civil engineers in systems engineering context. Systems Engineering is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem. Systems analysis involves a detailed study of the current system, leading to specifications of a new system and systems design, which is normally proceeds in two stages of preliminary and detailed design, is a most crucial work in the development of a system.

Design Criteria in International Construction

Study of international design criteria in international construction.

Design of Civil Structures(Capstone Design)

This course studies the Working Stress Design and Strength Design Method for bridge, retaining wall and many other civil structures. Course covers topics of the design and laboratory works which focus on the stability of the structural design.

Computational Structural Analysis

This course covers the theory of basic structural analysis applied to the analysis and design of complicated system. And the technique of the structural analysis using the computer are practiced.

Geo-Spatial Information Engineering

Combining the terrain space and space information efficiently, it gives the knowledge of information systematization to analyze the terrain characteristics for point, line, surface or a solid in order to solve the problems and improve the efficiency of intention determination.

Highway Engineering

The road plays a important role in the traffic. To improve the traffic efficiency, it must be understood the characteristics, designing and constructing of the road.

Construction Management

It can be comprehended in this course the particularity of supervision system in many areas, such as road, sewer, apartment, general house, machine, electricity etc. It gives the knowledge of quality test, maintaining facilities, safety examination, construction time and cost.

River Engineering

As a applied course of the field of hydrology, it gives how to design, construct the general river facilities.

Prestressed Concrete Structures

The aim of this course is to give the basic knowledge of the behavior of prestressed concrete structures including short and long term analyses, analyzing and design for the prestressed concrete beams with respect to bending and shear and the basic mechanism for the pre and post tensioning technology.

Geotechnical Engineering

Geotechnical engineering is a knowledge of civil engineering related to the ground. In general, the natural material , such as soil and rock, on the ground surface or neighboring are studied.

Civil Engineering Planning

This course will provide a systematic approach to civil engineering planning as a first step for the successful execution of the construction project. It will, hopefully, equip the students with multidisciplinary perspectives as well as technical knowledge of planning to enable them to lead a infrastructure project planning team. and all steps of this course are being made in project management context, and several planning exercises for the virtual project are performed by a team approach.

Overseas Construction Contracts and Claims

Study of legal procedure in contract and claim risk in international construction

Teaching Methods in Construction and Industrial Engineering

This course is about how to make teaching materials from the basic textbooks of Construction Engineering. Students will learn feasible and practical teaching methods for Construction Engineering Education through a critical review of the contents.

Overseas Construction Estimate

Study of civil integration procedure for cost estimation with a variety of practical cases.

Harbour and Coastal Engineering

The harbour is the place where the ship anchors artfully or naturally to protect the ships from the wind wave, wave, and tidal current. The harbour have the cargo handling the shipment establishments. This course gives the information of the plan, design, construction and the management of harbour.

Transportation Engineering

It is science for technical development and practice as learning system in the view of industry partially or synthetically with road safety, symphony with natural environment and improvement of economical function so on, but is generally learning that is focused on road traffic.

Civil Capstone Design

Civil Capstone Design is a very important design practice for civil engineer to deal with designing entire living space of human being. This course covers theoretical and practical aspects of civil engineering design works including industrial complex, buildings, land readjustment, river, harbor and etc. Recent developments of environmentally friendly design technology are also covered in the course.

Rock mechanics

Introduces theoretical and experimental aspects of rock mechanics and ot this basis prepares the student for rock engineering. Includes review of laboratory and field testing; empirical and analytical methods for describing strength, deformability, and permeability of intact rock and rock masses; fracture mechanics and mechanics of discontinua including flow through discontinua; design and analysis of rock slopes and foundations of rock; and discussion of blasting design. Includes term paper/term project.

Computer-Aided Engineering

The objective of this course is to generate an ability and confidence in the use of the computer and engineering software as an aid to engineering design and analysis. Students will learn to use a typical finite element package, generate engineering models for design and analysis, and evaluate the outcomes.

International Construction Project Management

International Construction Project Management is a course to prepare technically qualified students for responsible engineering and management roles in all phases of the development of major constructed facilities. It emphasizes management techniques useful in organizing, planning, and controlling the activities of diverse specialists working within the unique project environment of the overseas construction industry to a global standard PMBOK. This course includes project lifecycle, PM organization, process groups and knowledge areas: scope / time / cost / quality / human resources / communication / risk / procurement.

Professional Program in Overseas Construction

This course gives grade to students who have completed their training to accomplish overseas construction in the three institutions: Korea Institute of Construction Technology Education (KICTE), International Contractors Association of Korea(ICAK), Korea Specialty Contractor Financial Cooperative(KSCFC)

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them

▣ Department of Architectural Engineering

Introduction

Architectural engineering is the application of engineering principles and technology for planning, design, construction, operation, and management of building.

The mission of our department is foster creative and self-initiative architectural engineering student by providing enriched architectural knowledge and hand-on experiences.

To reach this mission, our department established two educational targets. The department of architectural engineering helps that: 1) students lead their career by themselves throughout fundamental and professional knowledge 2) growth of students so that they cooperate with many other professions for valued building design and construction.

Our education goes beyond just design of building by including the engineering of other building parts such as mechanical (HVAC), structural, acoustical, and construction managemental studies. In addition, because architectural engineers work closely with architects in their education they develop a good knowledge of architectural design and drawings as well.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(45Credits), a major(75Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
	1-2-R Capstone Design Introduction(3)
1-1-E Basic Design Practice(3)	1-2-E CAD and Lab
	1-2-E Introduction to Architecture
2-1-R Structural Mechanics I (3)	2-2-R Introductory Design of Architectural
2-1-R Architectural Environment(3)	Engineering(3)
2-1-E Architectural Design of Building	2-2-R Building Construction(3)
Element(3)	2-2-E Architectural Environment System(3)
2-1-E Architectural Planning(3)	2-2-E Structural Mechanics Ⅱ(3)
2-1-E Mechanics of Materials(3)	2-2-E Construction Method(3)
2-1-E Engineering Mathematics(3)	2-2-E History of Architecture(3)
3-1-R Building Mechanical System I (3)	3-2-R Architectural Engineering Design Ⅱ (3)
3-1-R R.C Buildings Structures I (3)	3-2-E R.C Buildings Structures Ⅱ(3)
3-1-E Building Materials(3)	3-2-E Building Code(3)
3-1-E Architectural Engineering Design I (3)	3-2-E Architectural Acoustics(3)

3-1-E Construction Management(3)	3-2-E Test for Building Materials(3)
	3-2-E Building System Analysis and Experiment(3)
4-1-R Integrated Architectural Engineering Design(3)	4-2-E Computational Practice in Architectural Engineering(3)
4-1-E Schedule Management(3)	4-2-E Business Practice of Estimation
4-1-E Steel Structure(3)	Construction Practice(3)
4-1-E Building Mechanical System Ⅱ(3)	4-2-E Environment System Practice(3)
4-1-E Internship(3)	4-2-E Advanced Architectural Engineering
4-1-E Education Theory of Construction and Industrial Engineering(3)	Research(3)
	4-2-E Technical Writing in Construction and Industrial Engineering(3)
	4-2-E Industry-Academic Seminar(3)

● Courses Abstract

Basic Design Practice

Basic skills for architectural design and communications such as orthographic projection, paraline drawing, and perspective projection of simple forms in drafted and freehand methods are introduced.

Capstone Design Introduction

This course is to provide the introduction of design process (the establishment of objectives and criteria, synthesis, analysis, construction, testing and Evaluation).

CAD and Lab

You can learn the drawing process from the architectural plan to the execution plan by means of computer aided design.

Introduction to Architecture

The objective of this course is to provide freshmen a comprehensive knowledge about architectural engineering and architecture. In this course, the students will enhance the basic understanding of architectural engineering and architecture.

Structural Mechanics I

Introduction to the structural mechanics; the objective of this course is to provide students with a basic working knowledge of the fundamental concepts and problem-solving techniques associated with force equilibrium states and with solutions to a variety of application problems. The topics of this course include structural analysis of trusses, frames, arches under static loads; reaction forces of supports, member forces (axial, shear and moment) of structures, cross-sectional properties of structural members, etc.

Architectural Environment

This course aims to give students the environmental concepts of building design and construction with comfort spaces satisfying human's natural and social needs. Especially, this course also includes the principles of environment friendly designs and the application of environmental methods to building design and construction.

The environmental methods are climate design, site design, solar radiation, daylighting, ventilation, shading device, thermal comfort, thermal insulation, building envelope and passive solar technologies which are required for energy savings of building and comfort of human-being.

Architectural Design of Building Element

This course is to provide the initial stages of building design in architectural engineering

Architectural Planning

The course provides an ideological and methodological framework applicable to any type of problem and describes a variety of techniques for problem definition, information gathering, goal setting, demand analysis, environmental analysis, and evaluation.

Mechanics of Materials

The objective of this course is for students to understand internal stress-strain relationship of the structures under external loading. In this course, the students study concept of stress and strain, the mechanical characteristics of structural material and the concept of Mohr's Circle.

Engineering Mathematics

A basic mathematic course intended for the students in Engineering college.

Introductory Design of Architectural Engineering

This course is to provide the introductory design methodology and process of architectural engineering

Building Construction

To completion of the building from geological features investigation, you can understand the structure and embellishments, and the structure system of the other detail of foundation, the wall body, the roof, etc. You can study the fundamental knowledge regarding the quality and the construction method of the various infrastructure which appears it is found in the material.

Architectural Environment System

This course provides fundamental architectural environment theories on thermal, air quality, and visual comfort in building. Throughout understanding of the various elements in architectural environment, integrated design procedure for green building will be emphasized to enhance overall building energy and environment performance.

Structural Mechanics Ⅱ

The objective of this course is to demonstrate the basic characteristics of elastic bodies of structures, and understand the relationship between stress and strain generated in structural members. The topics of this course focuses on analysis of

statically indeterminate structures using classical and numerical methods; method of superposition, moment distribution methdos, matrix structiral analysis, etc.

Construction Method

To completion of the building from geological features investigation, you can understand the structure and embellishments, and the building system of the detail of foundation, the wall body, the roof, etc. You can study the fundamental knowledge regarding the quality and the construction method of the various buildings which appears it is found in the material.

History of Architecture

The course offers a critical examination of the transformations in architectural theory and practice from the ancient.

Building Mechanical System I

This course covers the type and working principals of all the building mechanical systems for heating, ventilation, and air-conditioning. For deep understanding on the function of the system, basic theory on thermal comfort, psychrometirc process, heating and cooling loads calculation, and thermodynamics will be provided prior introduction of the mechanical system.

R.C. Buildings Structures I

This course intends to provide students a basic knowledge about structural behavior and design method for RC structures. In this course, the students study material properties of concrete and steel, design method of RC beams and deflection control of RC beams.

Building Materials

The objective of this course is to investigate the physical and chemical properties of constructional materials in order to apply various aspects of materials into practical uses such as design and construction. The course focuses on macroscopic mechanical behavior in terms of phenomena at the nanometer and micrometer levels for building materials - steel, clay, portland cement concrete, and wood ,etc.

Architectural Engineering Design I

Architectural Engineering Design is an integrated training course to provide solutions for current issues in building construction industry. The students apply construction engineering technologies to an prototype building design which could be originated from students or other sources. The students learn practical working experiences through this course. Architectural Engineering Design I is focus on the technology of building construction and structural design.

Construction Management

The Construction Management is the control regardless of construction scale and

the cost management dealing with cost, schedule, quality as the goal of construction and the quality management, and the management of the materials, the equipment, labor and purchase, the cooperative enterprise, etc. You will be able to study to accomplish a construction successful and efficiently throughout above managements.

Architectural Engineering Design II

Architectural Engineering Design is an integrated training course to provide solutions for current issues in building construction industry. The students apply construction engineering technologies to an prototype building design which could be originated from students or other sources. The students learn practical working experiences through this course. Architectural Engineering Design II is focus on the technology of building facility and environmental design.

R.C. Buildings Structures Ⅱ

This course intends to provide students academic theories about the structural behavior and design method of RC members such as RC slabs, RC footings and RC walls.

Building Code

The course is to introduce application of general building code and regulations in architectural practice. Actual content of code and regulations will be lectured with analysis of actual case problems.

Architectural Acoustics

Architectural acoustics recognizes the design principles of auditoria including halls for music and halls for speech and various events which acoustics are essentially important for aural communications inside the buildings. Also, this course gives the noise control methods of buildings including the noise and vibration reduction methods of outdoor and indoor noises and floor impact noises and community noises.

Test for Building Materials

This course is designed to provide students with experimental experiences for testing construction materials with emphasis on concrete. The course focuses on examination of the influence of cements, aggregates and admixtures on the properties of fresh and hardened concrete, design of concrete mixture, handling and placing of concrete, and behavior of concrete under various loadings, non-destructive material testing methods. The course utilize KS standard material testing methods.

Building System Analysis and Experiment

This course will cover measurement and analysis method of various architectural environmental elements, such as thermal, visual, acoustical, and air quality

aspects. Experiences on how to measure the around environment and evaluate the quality of the environment will provide deep and wide understanding on the importance of building environment problems.

Integrated Architectural Engineering Design

This course is integrated engineering design of architectural buildings to creative engineering for supporting the problem solving process, i.e. problem definition, idea creation, idea refinement, and selecting the best idea. And your problem solving process and idea will be presented by A0 size panel and have to be published.

Schedule Management

Construction work environment is demanded the process control rigidification and systematized because multi branch the difficult situation and sudden variable occur in actuality. It wants quality and term of works that must amend feedback of plan in real-time. The process control is to educate that could be satisfied like this requirements.

Steel Structure

This course intends to provide students academic theories about the structural behavior and design method of steel structures. In this course, students study the member design for steel structures such as connection, tension members, columns, beams with and without lateral support through practicing examples.

Building MechanicalSystemⅡ

This course covers the type and working principals of the rest of building service system that are not provided from the course Building Mechanical System I. The topics cover in this course are plumbing system, sanitary system, electrical system, and building energy management system.

Internship

This course is not a regular lecture course. It, however, provides students with field experiences by working with professional people in industries. Usually, students work for actual company for summer or winter vacation to get senses on the field and academic credits.

Education Theory of Construction and Industrial Engineering

This course is only open for the student who suit to be educator in middel/high school. This course provides educational skills and theories for instructing architectural engineering.

Computational Practice in Architectural Engineering

This course is to provide the computational methodology and applying process of architectural engineering

Business Practice of Estimation Construction Practice

Construction work environment is demanded the cost control and estimating system because multi branch the difficult situation and sudden variable occur in actuality. It wants quality and term of works that must amend feedback of plan in real-time. The business cost control and estimation is to educate that could be satisfied like this requirements.

Environment System Practice

This course aims to give practical exercise of architectural environment systems using passive and active methods. Integrated design and problem-solving techniques are suggested on the executive basis by dealing with environmental analyses and building facility managements.

Advanced Architectural Engineering Research

In this course, students who completed gradually the undergraduate courses about architectural engineering will research the advanced topic among building structure, building construction & material, and building environment & facility.

Technical Writing in Construction and Industrial Engineering

This course provide students communication skill mostly with writing for technical report. Communication skill with writing is especially important for engineers since they could express their engineering result through tables, figures, equations, etc. This lecture focuses on technical writing for architectural design and construction projects.

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them.

▣ Department of Urban Engineering

Introduction

The Department of Urban Engineering, which was established in Oct. 1987, consists of 7 fields: urban planning, transportation engineering, environmental system engineering, urban network, urban design, environmental planning and policy, and spatial econometrics analysis. These include fields from social and economic affairs to architectural, civil and systems engineering. The basic objective of the department is to educate students as highly qualified planners and engineers who can plan and manage urban space and facilities. Therefore, it can be anticipated that students will acquire the ability for public policy making and engineering, in addition to the related research institutes, consulting firms, construction firms and others.

Credit requirements for graduation

For graduation of the department, the student must take at least 140 credits from the liberal Arts, major(required and elective) and general elective courses. Credit requirement for graduation is as follows:

a. Total credits : 140 credits.
b. Liberal Arts : at least 36 credits including required courses(up to 60 credits).
c. Major courses : at least 75 credits, including 19 credits of required.
d. Graduation Thesis : all students must complete graduation project and present graduation exhibition.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Introduction to Cities (3)	1-2-E Statistics and Computer Application (2)
2-1-R Computer Programming and Practice (3)	2-2-E Land Use Planning (3)
2-1-E City Planning History (3)	2-2-E Urban Transportation Planning (3)
2-1-E Urban·Transportation Planning Models (2)	2-2-E Urban Design Practices (2)
2-1-E Urban Planning Theory (2)	2-2-E Urban Economics (2)
2-1-E Urban Space Design (3)	2-2-E Environment·Transportation Surveying Technology and Laboratory (3)
2-1-E Introduction to GIS (2)	2-2-E Numerical Analysis (3)
3-1-R Urban Planning and Transportation Planning Practice (3)	3-2-R Urban Design Studio (3)
3-1-E Site Planning and Visual Landscape Design (3)	3-2-R Urban Environmental Policy (3)
3-1-E Transportation Engineering and Practice (3)	3-2-R Introduction to Urban Water Infrastructure Engineering and Laboratory (3)

3-1-E Environmental Impact Assessment (3)	3-2-E Highway Engineering (3)
3-1-E Urban Housing Planning (3)	3-2-E Real Estate Development and Project Management (3)
3-1-E GIS Application to Urban and Environmental Field (3)	
3-1-E Urban and Transportation Facilities Planning (3)	3-2-E Urban Spatial Structure (2)
4-1-R Transportation Seminar (2)	4-2-E Urban Planning Codes (3)
4-1-R Decision-making and Negotiation Theories (2)	4-2-E Space and Environmental Seminar (2)
4-1-E Urban Development Studies (2)	4-2-E Intelligent Transport System (2)
4-1-E Theory of Urban Architecture (2)	4-2-E Industry-Academic Seminar (1)
4-1-E Eco-city Planning and Design (3)	
4-1-E Introduction to Urban Environment Modeling (2)	

● Courses Abstract

Introduction to Cities

This course offers an interdisciplinary pre-professional undergraduate major designed to prepare students for careers in both the public and private sectors related to urban engineering. It also provides a sound foundation for students intending to do graduate work in law, public policy, development, urban design, management, and planning itself.

Statistics and Computer Application

During one semester course, fundamental statistical knowledge and techniques will be studied that are necessary for statistic analysis from data collection to statistical inference in the view of urban and environment impact assessment. In order to enhance the ability of field application, all participants would hereby have the computer application practices using several statistical subroutine packages. As major topics in the class, discussions on random variables, probability distribution functions, change of variables, statistical testing and regression analysis and so on will be executed during course work with practices.

Computer Programming and Practice

The course is designed for students to be accustomed to manipulate and use personal computers. Students will learn about program development language such as Matlab, Fortran, C, and Visual++ . Major topics will be Matlab/Cemtool syntax and various programming techniques such as decisions, loops, arrays, functions, and file processing.

City Planning History

This course tries to understand developing processes of historical cities, and their social-cultural contexts. ti focuses on the past plans of cities to acquire a basic knowledge of the future urban planning.

Urban·Transportation Planning Models

This course introduces various analysis and forecasting methods related to urban

and transportation planning, and explains urban and regional structures through the practices of planning process. The course deals with the urban population, urban economics, land use, transportation, public facilities and others.

Urban Planning Theory

Urban Theory covers planning implications of economic, geographic, political and social structure of cities and regions. It also explores how social theories of urban life can be related to cities and regions. It aims to generate new ideas about the city by connecting the social and the physical entities.

Urban Space Design

These concerns have long been shared with other design disciplines such as architecture and landscape architecture. Contemporary urban design, however, differs from these design disciplines in the means used to achieve these ends: urban designers modify or create places indirectly. The objective of this course is to introduce you to urban design as a process as well as a product of that process. Through exposure to past and current issues, theories, and values in urban design, you should at the end of the course be aware of the possibilities and opportunities, as well as the complexities and contradictions in urban design. There are two significances of this lectures: you will be exposed to factors affecting the quality of urban life not usually covered in other urban planning courses: you will become aware of the larger context within which your work is situated. All student will benefit from a better understanding of what makes urban places work.

Introduction to GIS

This subject studies basic theories related to the generation of the spatial data and the application technologies of GIS to the management of urban information. The class will be operated two aspects: one is lecturing of the basic GIS theories and practicing the user's manual of the commercialized GIS package.

Land Use Planning

In the first step, this course tries to understand an elementary concept of urban land use planning, and a basic contents in each stage of the planing process. In the second step, it deals with urban land use regulatory for desirable urban growth management including zoning system.

Urban Transportation Planning

This course introduces general theories and planning methods related to transportation planning which is the most important sector of urban planning, and makes the students learn the above topics through the rational discussions. The course gives the particular attention to such topics as the characteristics and problems of urban transportation, planning process, demand theory, demand

forecasting method, project evaluation , and others.

Urban Design Practices

Through exposure to past and current issues, theories, and values in urban design, you should at the end of the course be aware of the possibilities and opportunities, as well as the complexities and contradictions in creating and maintaining quality urban places. There are two approaches of this lectures: you will be exposed to factors affecting the quality of urban life not usually covered in other urban planning courses; you will become aware of the larger context within which your work is situated as well as the different approach taken in urban design to the design of places. So all student will benefit from a better understanding of what makes urban places work. Through this course, you will all become more informed and critical 'consumers' of urban environments.

Urban Economics

This course provides students not only with basic knowledge regarding regional economics for the analysis of city and region but also with the opportunity being exposed to general understanding and to the process of diagnosing the urban problems. The contents of the course consist of industrial location, land use theory, urban formation and growth theory, urban development, regional economic analysis, regional growth theory, and urban and regional growth theory.

Environment·Transportation Surveying Technology and Laboratory

This subject studies basic surveying theories related to the topological relationships among natural as well as artificial objects such as urban and transportation facilities on the earth and laboratory techniques to analyse pollution substance in water. Major topics would be some issues such as traverse surveying technology and water quality analysis techniques in terms of organic substances and nutrients.

Numerical Analysis

This course deals with the basic and applied techniques for the efficient numerical solution of problems in science and engineering. Topics of this course include root finding, interpolation, approximation of functions, integration, differential equations and direct and iterative methods in linear algebra.

Urban Planning and Transportation Planning Practice

This course is to practice the urban planning and transportation planning in sample cities based on the knowledge of the existing urban and transportation planning subjects. The practice includes populations estimation, industrial plan, land use plan, transportation plan and park and green plan, is carried out by each group.

Site Planning and Visual Landscape Design

This course will practice the fundamentals of urban design for the rational use of urban spaces as they relate to all scales of the built environment - including population density, building density, building style, facilities and housing layout. Also students will explore its effects on social, cultural and economic aspects of physical form.

Transportation Engineering and Practice

This course introduces traffic theories and highway capacity manuals which are fundamental to traffic and highway engineering, and makes the students learn the knowledges related to theories and practices through solving the practical problems. The contents are as follows: characteristics of traffic flow, traffic flow models, traffic studies, levels of service and highway capacity analyses, traffic signals, intersections, expressway, arterial roads, rural highway, and others.

Environmental Impact Assessment

This course will provide basic knowledge to investigate, analyse, and evaluate the impacts of certain development projects which may have adverse impacts on environment before projects take effects, and with plans to get rid of and/or reduce those impacts.

Urban Housing Planning

Urban Housing Planning intends to analyze housing and human settlement problems and policies at national and local levels. It also focuses on linkages between national and local development strategies, paying special attention to spatial arrangements required for optimal and equitable allocation of resources. In addition, it stresses the role of housing as a productive investment in the development process.

GIS Application to Urban and Environmental Field

This course intends to provide students with fundamental understanding of GIS (Geographic Information System) and with practical application of this knowledge to urban planning, urban management, environmental planning, and environmental management. This course will deal with GIS not related to raster-based but mainly vector-based.

Urban and Transportation Facilities Planning

It primarily focuses on the planning of urban and transportation planning facilities, their sites, and the infrastructure systems which serve them. It examines causes of locational conflicts or problems of urban and transportation planning facilities in Korea and abroad, with a particular focus on the collective dispute resolution procedures among major stake-holders. In addition, it emphasizes analysis of current and emerging policies and programs of public facilities that seek to respond to public issues. Students would be exposed to a

series of lectures on analytical techniques and examples of good facilities planning practice.

Urban Design Studio

In this course we work with five general steps: first is the development of visual and manual acuities - learning how to see and record, primarily through training in observation, drawing, and making things. In particular, we emphasize "materials in process" situations, such as the complementary states of wetness and dryness. Second is the development of spatial, tactile, and temporal sensibilities - learning how to imagine and work with a variety of scalar and spatial configurations as well as temporal effects. Third is the development of approaches toward working with sites and places - learning how to "see" potential and uniqueness of sites; and how to record and transcribe these findings through design. Fourth is the development of imaginative, speculative, and critical capacities - learning how to imagine and create alternative worlds that are critically informed by past and current ideas. And fifth is the development of programmatic, political, social, and technical creativity - learning how to organize utility, efficacy, and cultural program in newly creative ways, studying infrastructure and large-scale organization as well as programming techniques and planning.

Urban Environmental Policy

This course intends to provide students with fundamental refreshment of the relationship between development and environmental conservation, and to help students find alternatives regarding urban planning and design in harmony with environment.

Introduction to Urban Water Infrastructure Engineering and Laboratory

This course provides basic engineering theories covering both fields of water supply and wastewater. Water supplying engineering covers with water resource quality, intake, water conveyance, water treatment facilities, distribution system, and service facilities for the purpose of supplying water. On the other hand, wastewater system includes fundamental knowledge related to the planning and designing of collection sewer networks and treatment plants with final disposal systems. In addition, water quality experiment techniques will be practiced at laboratory.

Highway Engineering

This course introduces main theories and methods related to highway engineering, and makes the students learn the practical knowledge of the above topics. The course deals with the introduction to highway engineering, highway planning process, standards of geometric structure, transportation safety, related

codes, transportation environment and others.

Real Estate Development and Project Management

The objective of this course is to deliver the information, skills, and techniques associated with the creation and management of the physical products of real estate created through the process of real estate development. It is intended to expose students to the general skills, techniques and process associated with each of the functional areas involved in real estate development so that they may organize and lead the development process. In addition, the course also seeks to assess the fundamental characteristics of the real estate development industry, its products, contracts, regulatory and legal context and its markets.

Urban Spatial Structure

To understand a concept of urban spatial structure, and relation a basic structure of urban space and socioeconomic structure of the society. Based on the understanding, to study theories of urban internal structure, urban system and central places.

Transportation Seminar

This course makes the students solve the real problems through seminars based on the various theories which are introduced in the courses of urban transportation planning, transportation engineering and practice, highway engineering, and others. The contents are as follows: space(national, regional and urban) and transportation, transportation improvement plans, green modes, transportation impact analysis, transportation policy, urban transits, public transportation, TSM, TDM, ITS, transportation environment, and etc. In particular, this course gives an opportunity to survey, research, arrange, and present their topics interested to the students.

Decision-making and Negotiation Theories

This course focuses on helping students write and present their ideas in cogent, persuasive arguments and other analytical frameworks. It examines negotiation concepts and also simulates negotiation techniques as an ad hoc or integrated element of a planning process. Case assignments and exercises are used to supplement readings.

Urban Development Studies

This course studies various concepts concept of urban development, systems and cases related to urban development in the insides and outsides of the countries. It deals several cases derived from urban planning projects and new town projects.

Theory of Urban Architecture

The course introduces students to leading developments in the history and theory of architecture and urban design from ancient to present. Innovation and change

in design conception with architectural styles and urban form are examined. Attention is also paid to the way architecture and urban design has historically been shaped by varying combinations of the formal and theoretical intentions of the architect and urban designer, the preferences and needs of the developer, and the particular mix of social, economic, cultural, and technical factors operating to define the specific characteristics of a given time and place.

Eco-city Planning and Design

This course intends to deal with basic meaning of eco-city planning, specific planning methods, eco-city design, and prospects of the theme. Through this course, students will learn the general history of city development, and the meaning of eco-city planning as one of integrated planning methods to pursue sustainable city development satisfying ecological harmony between nature and human.

Introduction to Urban Environment Modeling

This subject introduces the basic theories on the application of modeling skills that can be used to plan and design the urban space as a very commingled system with different attributes and also debates the application of the models to the field problems.

Urban Planning Codes

This course examines the legal framework within which planning takes place in urban areas. It emphasizes the role of law in structuring local government responses to social, economic and physical planning issues and in allocating power among local governments, between local and central governments, and between governments and the private sectors of society. It covers cases, legislation, and materials illustrative of the social, economic, and environmental interrelationships of land-use planning and the dynamic role of law as a system of controlled conflict; traditional and emerging concepts of zoning, subdivision regulation, housing codes, and review procedures.

Space and Environmental Seminar

This course is designed to provide students with the opportunity to capture knowledge to analyze spatial and environmental problems which are often happening in urban areas with theoretical and critical view through interactive team discussion. Students are asked to diagnose urban spatial problems and to propose alternatives toward problems considering diverse factors such as socio-economy, demography, environmental impacts, and industrial structure, etc.

Intelligent Transport System

This course introduces the main theories and methods related to ITS(intelligent transport system), and makes the students learn the practical knowledge of ITS.

The course deals with the introduction to ITS, ITS theories and technologies, ITS planning and design, and others.

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them.

▣ Department of Architecture

Introduction

The Department of Architecture, first established in Dec. 1977, creates the building system in which puts the life of a human being and requires basic knowledge of three elements of Beauty, Structure and Function. Since 2002, The Program of Department of Architecture modified its curriculum to a five-year professional degree system in order to meet the growing demands that the global economy has brought on International Standards in the cultivation of creative architects. The objectives of Design educational system are to develop capability which can create consistent and unified building with a overall of social, environmental, technical, aesthetic consideration.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(30Credits), a major(162Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Elementary Architectural Design I (3)	1-2-R Basic Architectural Design II (3)
1-1-R Architectural Presentation(3)	1-2-E Introduction to Architecture (3)
2-1-R Architectural Design I (6)	2-2-R Architectural Design II (6)
2-1-R Architectural Statics(3)	2-2-R Theory of Architectural Space Design (3)
2-1-R History of Western Architectural (3)	
2-1-R Environmental Technology (3)	2-2-R Building Construction (3)
2-1-E Design Computing (3)	2-2-E Introduction to Chungbuk Architecture (3)
3-1-R Architectural Design III (6)	3-2-R Architectural Design IV (6)
3-1-R Histort of Korean Architecture (3)	3-2-R Structural Systems (3)
3-1-R Materials & Assemblies (3)	3-2-R Sustainable Architecture (3)
3-1-E Theory of Modern Architecture (3)	3-2-R Building Code & Regulation (3)
3-1-E Theory of Housing (3)	3-2-E Digital Architecture (3)
4-1-R Architectural Design V (capstone Design) (6)	4-2-R Architectural Design VI (capstone Design) (6)
4-1-R Mechanical Systems (3)	4-2-R Architecture & Behavior (3)
4-1-R Culture in Chungbuk Architecture (3)	4-2-R Construction Technology (3)
4-1-E Post-modern Architecture (3)	4-2-R Urban Composition (3)
4-1-E Eco-Design Methodology (3)	4-2-E History of Oriental Architecture (3)
	4-2-E Industry-Academic Seminar (3)
5-1-R Architectural Design VII	5-2-R Architectural Design VIII (6)

(Capstone Design) (6)	5-2-E Seminar on Architecture (3)
5-1-R Building Systems (3)	
5-1-R Professional Practices (3)	

● Courses Abstract

Elementary Architectural Design I

Objective: Architectural Expression

The course begin with learning basic expressive techniques and consideration for architectural design. In order to develop skills to express their design, students learn principles of space-form organization and explore ideas with three basic elements of space - a line, surface, volume, and further possibilities of expressing and image inhered in various space and form.

Architectural Presentation

Students develop ability to present and communicate their architectural idea with various two-dimensional and three-dimensional tools including drawings and free-hand sketches.

Elementary Architectural Design II

Objective: Architectural Expression

This course extend explorations using three basic elements of space by adding four ways of space-modifying methods - adding, subtracting, multiplying and dividing. Students explore more refined possibility and image inhered in various space and form through various design exercises.

Introduction to Architecture

Students learn the basic knowledge about various condition and fundamentals that affects architecture and building environment through discussions along its general outline.

Architectural Design I

Objective: Basic Design - The individuality

Architectural Design I addresses understanding the basic principle of the unit space and form which makes foundation of the architectural design. Students learn how to organize, compound, arrange and connect these.

Architectural Statics

Introduction to the structural mechanics; The aim is to provide students with a basic working knowledge of the fundamental concepts and problem-solving methods and techniques associated with equilibrium states, stress, strain, etc, and with solutions to a variety of application problems.

History of Western Architecture

Students understand the development of western architecture unfolding from the ancient times through the period of modernism, examining specific architectural extension such as styles, details and structure, through which these elaborations work in coherence with social, cultural, scientific, and technological aspects of our times.

Environment Technology

This course establishes understanding of architectural and environmental elements required to provide a comfort. Students acquire the principle and process of environmental knowledge and technology applicable to architectural design. Particularly recognizing methodology of energy conservation, daylight, solar radiation, ventilation, insulation, facade deign and etc, students develop the ability to apply these principles into the design process in scientific manner.

Design Computing

This course is to learn the basic techniques of various computer application programs in need for architectural design and to understand the general functions in computer tools, as well as to develop the ability of materializing ideas into architectural design.

Architectural Design Ⅱ

Objective: Basic Design - Basic System

Architectural Design II introduces the basic elements of architecture as system (space, structure, material, movements and etc.) that must work cohesively into space and form. Students learn and explore the possibility of architectural system in relation to site condition and program.

Theory of Architectural Space Design

Students learn ability to analyze and synthesize the architectural works directly related to architectural design. This course is to understand organizational component, basic principle and system through some of the most notable buildings of its time and regions and to expand knowledge in conjunction with design theory.

Building Construction

This course introduces students the principles and various applications of building structure and construction. By understanding relationships among design, structure and construction students develop ability to imply and realize their ideas into design.

Introduction to Chungbuk Architecture

The aim of this course is to understand and consider the outlines of the culture, art, architecture of the city of Chungbuk and its architecture. Through this course, we will develop the ability to understand the present and future potentials

of provincial Chungbuk architecture.

Architectural Design Ⅲ

Objective: General Design - the Community and the Public

Architectural Design III explores the notion of context, public realm in alignment with local identity through designing small multi-programed structure and cultural facilities in downtown district of the city. Both individual and team work will allow students to collect, research, analyze and synthesize programmatic requirements in application of designing space.

History of Korean Architecture

Students understand the general history of Korean architecture by examining and discussing its fundamental theory and methodological basis. Field investigations and site surveys of the traditional architecture will provide students hands-on opportunity to experience the concept and value of Korean architecture.

Materials & Assemblies

Focusing on physical properties, function and role of the building materials, this course establishes an understanding of materiality and application in architectural construction. Through general knowledge of construction and materials students understand and acquire fundamental principles of building configuration.

Theory of Modern Architecture

This course consists of a lecture on a series of architectural movements, isms, architects and works from the late 19th century to the mid-20th century. Various range of seminars covering master architects and their theories will allow students to understand, grow critical views and discuss architecture in the context of modern movements. Examining the modern history, theory as cultural phenomenon and diachronic and synchronic comprehension of the universality and peculiarity of modern architecture runs parallel with the outlines of this course, in order for students to digest as their architectural knowledge in application to design.

Theory of Housing

This course introduces the meaning of housing, reciprocal relationship between housing and culture, diversity of dwelling types and its evolution through times. Students develop the ability to incorporate the knowledge gained from this course into the architectural design.

Architectural Design Ⅳ

Objective: General Design - Building System

Architectural Design IV explores possibilities to accommodate the diverse needs of users, in context of unit and collective housing. Students learn variety of ways to generate residential units, a combination of housing units, and the linkage with

outdoor space. Further, small-scale remodeling of residential and commercial space allows students to develop their ideas of space-form organization into complete system of architecture.

Structural Systems

This course introduces various structural systems, types and configurations of architecture, in order for students to apply them into their design.

Sustainable Architecture

This course introduces various design strategy for sustaining the environment using ecological principles of construction. Students will study how environmental elements like heat, light, sound affect the quality of building atmosphere. For 'Environmentally sound and sustainable development' of new paradigm in 21th century, this course will provide a series of lecture, discussion, and case presentations about the policy and task of environment-friendly materials, recycling construction materials and waste disposal.

Building Code & Regulation

This course covers thorough knowledge of code and regulation affecting architectural practice and legal responsibility. Students understands the Architecture Act and local government ordinance and regulations considering public health, public safety, welfare, property rights, building regulations, accessibility.

Digital Design in Architecture

Understanding the role and potential of computer technology is critical in contemporary design process. This course provides students opportunity to apply creative methods of computer tools in generating architectural space and form, in cohesion with more conventional media and the latest computer technology.

Architectural Design V (Capstone Design)

Objective: Advanced Design - Context of culture and the city

Architectural Design V is an advanced level, typically consists of 4th-year students aiming for the design and understanding of building as complexity within the context of city. Through the analysis of urban areas mixed with commercial, residential and cultural space, students understands that such complexity of relationships come into play as a critical concept and role in developing problem-solving methods in architectural design.

Mechanical Systems

This course aims to understand general scope of the mechanical system in order to improve indoor environment and the efficacy of the building. Students will develop how to integrate application and capacity of mechanical system in various types of buildings.

Culture in Chungbuk Architecture

Local and regional architecture and culture of Chungbuk area are examined in categories of types, region and themes. This course will discuss on potentials for the local architecture to take the role in global context.

Post-modern Architecture

After 1972, post-modern movement resisting modernism has appeared and made people to find the new directions to consider architecture and city. Unlike the modern trying to make something out of nothing with disconnection with the past, post-modern movements seek continuity with the past and the diversity of architecture. The real motive of the post-modern, however, was recovery of the value lost by the modern and eruption of suppressed human desire. This course investigates various streams and meaning behind post-modern architecture through specific case analysis.

Eco-Design Methodology

Students learn a variety of types of building planning theories and approaches that becomes the basis of design phase of architecture.

Architectural Design Ⅵ(Capstone Design)

Objective: Advanced Design - Environmentally Sustainable system

Architectural Design VI aims to guide students to design complete integrated system of architecture that is environmentally sustainable(heat, light, air) and structurally sound(structure, construction). Application of green remodeling methods and regeneration potentials of old buildings will also be explored in this design studio.

Architecture and Behavior

Students recognize the role of building as a 'container' embracing social behavior, and understand the value, custom and interaction within the environment where individual and groups generate in reciprocity. Understanding psychological, physiological and behavioral theory and process is important element of this course that affects the diverse range of relationship between physical environment and human behavior.

Construction Technology

Through the overall understanding of the changing construction technology and construction industry, students find a reasonable and economical method of construction. Further the principles, procedures, management of construction will be covered.

Urban Composition

Since the process of urban composition involves the city giving its formal order, every object in urban is not the form of contingent phenomenon but the form

which can be controlled and understood. The basic principle of Urban and Architectural composition follows the same principles in that they are dealing with the relationship between the whole and the part, however with some fundamental difference in which they have a different temporal rhythm. The life of architecture is shorter than that of city. Therefore, the purpose of urban composition is to reconcile the conflicts among elements by setting up the process which can be accepted as a series of specificity of architectural elements.

History of Oriental Architecture

This course is to understand special quality and character of oriental architecture of the East, Middle East, South and Southeast Asia and its inherited patterns, and to find fundamental meaning embedded within each by looking at the region's social, historical and cultural character, type, form.

Industry-Academic Seminar

The objective of this subject is to learn the state-of-art technology and trends in industry by the invited lecturers from business and government organization and to reduce the distance between academic education and industry. In addition, the information and expectation for the recruit is provided by them

Architectural Design Ⅶ(Capstone Design)

Objective: Integrated Design - Integration of Building, City and Environment

This course is first half stage of graduating design studio for the 5th-year students and is the step to integrate comprehensive knowledge of the various theories and abilities in design that students developed for the past four years. The theme for the graduation project is to find an issues taking place within architectural culture of Korea in the contemporary age(environmental sustainability, Chungbuk identity, Korean identity) and to suggest creative and reasonable resolution.

Building Systems

Students are required to consider in the process of construction materials, equipment, disaster prevention, rescue and environmental systems assessment, selection is to be used in the design. Structure sector, the environmental control sector, construction sector and the integration of subjects belonging to assume that because technology is presented in the final stages of training.

Professional Practices

Students learn theoretical knowledge in order to perform practice in architectural design office, building construction site and etc., and develop the ability to apply building system in integration with structure, material and construction. By understanding the role and responsibility of an architect as professional practitioner, various arbitration process related to the project, office organization,

management methods and financial management, students comprehend the general requirements which are involved in architectural practice.

Architectural Design Ⅷ

Objective: Integrated Design - Graduate thesis and Practice

Architectural Design Ⅷ is a continuation of previous Architectural Design Ⅶ. Together as a design studio for the graduation project, its aim is practical training for students to take part as future-architect - to take control of design into more specific area such as planning, building system, and construction details. From portraying conceptual ideas to detailed design, students learn to adapt and practice the complete process of design.

Seminar on architecture

To reestablish the status of formal concept that was relatively neglected by the modern logic, this course focuses on understanding importance and advantage of open system rather than the closed system, as the expression of way of being and, especially, the transformation as the presentation of coexistence.

◇ School of Electrical Engineering

Introduction

Electrical engineering Department, established in 1974, cultivates talents in the electrical engineering part. This department is equipped with the electrical engineering curriculum including cutting-edge technology. It contains the following parts: electrical materials and high voltage, power electronics, digital signal process, semiconductor devices and integrated circuit, electrical appliances, power system/energy system, plasma application, signal and video process, digital engineering and control engineering, etc.

Electrical engineering Department has built an efficient specialty education operation system through continuous performance of and participation in manpower cultivation projects promoted by the national government as follows: the Government-led Engineering College Supporting Project (5 years from 1995); BK21 Project (5 years from 2000); Basic Manpower Cultivation Project of Korean Electricity Co. (2 years from 2003); New University for Regional Innovation (NURI) Project (5 years from 2004); Electric Power IT Manpower Cultivating Project (4 years from 2007); Smart Grid Basic Manpower Cultivating Project (4 years from 2010); Industry-College Cooperation Project (5 years from 2012); BK21 Plus Project (7 years from 2013). The department was chosen as the best department in chungbuk University in 2010, the fifth best in 2011, the best in 2012 and in 2013, establishing its position as the department representing Chungbuk University. It has various (scholarship and industry-linked) student supporting programs.

Credit System :

Courses	Credits
Liberal education requirements	45
Major	84
Elective Courses	11
Total Credits to Graduate	140

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Creative Engineering Design I (2)	1-2-E Creative Engineering Design II (2)
2-1-E Electromagnetics I (3)	2-2-E Basic Electric Circuit and Digital Lab. II (2)
2-1-E Circuit Theory I (3)	2-2-R Physical Electronics (3)

2-1-E Basic Electric Circuit and Digital Lab. I (2)	2-2-R Numerical Analysis and Application (3)
2-1-E Engineering Mathematics I (3)	2-2-R Electromagnetics II (3)
2-1-R Digital Engineering (3)	2-2-R Circuit Theory II (3)
2-1-R Probability & Statistics (3)	2-2-R Engineering Mathematics II (3)
2-1-R Modern Applied Physics (3)	
3-1-E Electronic Circuit I (3)	3-2-E Electronic Circuit Lab. II (2)
3-1-E Electronic circuit Lab (2)	3-2-R Display Engineering (3)
3-1-R Signals & Systems (3)	3-2-R Microprocessor I (3)
3-1-R Automatic Control (3)	3-2-R Electronic Circuits II (3)
3-1-R Electric Power Engineering (3)	3-2-R Modern Control (3)
3-1-R Electrical Properties of Material (3)	3-2-R Electrical and Electronic Material and Components (3)
3-1-R Network Analysis and Synthesis (3)	3-2-R Power Electronics (3)
3-1-R Plasma Engineering (3)	3-2-R Electric Machines I (3)
	3-2-R ※Design Projects (2)
4-1-R Electric Drives (3)	4-2-E Capstone design (2)
4-1-R Electric Machines II (3)	4-2-R Integrated Circuits (3)
4-1-R Communication Engineering I (3)	4-2-R Digital Signal Processing Application (3)
4-1-R Digital Signal Processing (3)	4-2-R Large Current and Hign Voltage Engineering (3)
4-1-R Renewable Energy System (3)	4-2-R Advanced Computer Programming (3)
4-1-R Industrial-Education Special Seminar I (1)	4-2-R Communication Engineering II (3)
4-1-R Engineering Education Theory (3)	4-2-R Industrial-Education Special Seminar II (1)
4-1-R Internship I (3)	4-2-R Instructional Resources and Method of Engineering Course (3)
4-1-R Internship IV(15)	4-2-R Logic & Essay in Engineering Education (3)
	4-2-R Internship II (15)
	4-2-R Internship III (3)

Courses Abstract

Creative Engineering Design I, II

This course helps students to enhance the basic ability in the engineering design. Through one specific system which will be designed by students, the basically required electrical abilities such as motor driving, sensor operating, and programming will be developed.

Electromagnetics I, II

In this course, students study the physical laws and mathematical techniques to express the basic principles in various electric and magnetic situations such as the electrostatics, magnetostatics and electromagnetics. Also, various theoretical application techniques to detailed electromagnetic situations are studied.

Circuit Theory I, II

This course helps students to understand the analysis and design of electrical circuits. By understanding the characteristics of passive elements such as resistor, inductor, capacitor and utilizing the basic law, the analysis of direct current and alternative current circuit according to the properties of sources and

loads will be conducted. The main contents of this course are the analysis of transient state, frequency, filter, phasor-domain, laplace transformation, fourier transformation, two-port networks, and so on.

Basic Electric Circuit and Digital Lab. I

In this course, students design and fabricate various electric circuits and verify its functions by experiments. By analysing the operation principle of each circuit experimentally, students verify the concerned theories of electric circuit and electromagnetics. Also, students can master the manuals of measuring instruments while the experiments are performed.

Engineering Mathematics I, II

This courses cover topics from engineering mathematics that serve as foundations for descriptions of electrical engineering devices and systems. The topics include : linear differential equations(1st., 2nd. and higher order), Laplace transformation, linear algebra, Fourier series and integral, complex series and integral, fundamental statistics.

Digital Engineering

Digital logic and digital circuit design for the design and analysis of digital system. Boolean algebra, canonical expressions, logic gates and their physical realization Fan-in and fan-out, timing, rise and fall times, delay. Combinational circuits minimization (Karnaugh map, Quine-McCluskey, Tools-Expresso, others). Standard circuits - adders, multiplexers, demultiplexers, etc. Sequential circuits - memory elements, flip-flops, counters.

Probability & Statics

This course helps students to define the uncertain event and solve the required statistical information such as expectation, variance, and standard deviation. Also, various probability density function for many events and systems will be introduced.

Basic Electric Circuit and Digital Lab. II

By constructing and measuring its experimental results of digital logic circuits and digital systems, students understand the theory of digital systems and master the manuals of measuring instruments.

Physical Electronics

This course addresses the physics relevant to current transport in semiconductors and the physical operation of semiconductor devices for the analysis and design of electronic circuits. Following topics are included: basic carrier properties in semiconductors, physical mechanism of transport phenomena in semiconductors, current-voltage characteristics in semiconductor devices such as diode, FET, and BJT, and equivalent circuit models for electronic devices mentioned.

Numerical Analysis and Application

This course provides students with the techniques of handling computer programming, such that students are able to develop computer solutions for various applications in engineering covering business and engineering. The technique of numerical analysis can be applied to those cases that the calculation cannot be accomplished in hand.

Modern Applied Physics

By understanding fundamental physical principles and various concepts in the area of modern applied physics, students can achieve a scientific basis to study a more deepened electrical engineering in a senior class.

Electronic Circuits I, II

This courses address the analysis and design of various analog circuits. Topics include: simple rectifiers, operation of various basic amplifier circuits including differential amplifier using FET and BJT, physical operation of amplifiers with active load, frequency analysis of basic amplifiers, analysis and design of operational amplifiers, method of negative feedback, various analog filters, positive feedback and implementation of oscillatory circuits, and multi-vibrator circuits.

Electronic Circuits Lab. I, II

This courses addresses the experiments and design of basic electrical devices and systems. Topics include : characteristic experiments of diode, BJT and FET, and design and implementations of amplifier, waveform generators, active filters and oscillators, and two or three application systems design and implementation.

Signal and Systems

Signal and systems describes the fundamental concept including classification of signals and systems. Through understanding the concepts of linearity and non-linearity, student can develop a foundation of system engineering, which covers several engineering fields, such as control, communication, and signal processing.

Automatic Control

The main contents of this course are the basic control system design such as mathematical modelling for electrical networks and mechanical systems, and their analysis using block diagram, the analysis of feedback system. Also, the analysis of dynamic system in both time-domain and frequency will be introduced.

Electric Power Engineering

This course helps undergraduate students to analyze and design electric power systems which is composed of generators, substations, transmission lines and distribution lines. The goals of this lecture are to master calculation of line parameters; steady-state and transient analysis of two-port networks; modeling

of generator and transformer; one-line diagram representation by per unit; power flow calculation; generator control and economic dispatch; fault calculation by symmetrical components; insulation coordination and protection coordination; stability analysis.

Electric Properties of Materials

This course helps students to understand the electric properties such as, dielectric, insulation, magnetic, and conduction properties of materials used in electrical engineering, based on atomic interpretation. So those who study in this course can apply the electrical materials to the electrical power apparatus and components.

Display Engineering

In this course, students study the structure, operational principles and methods of fabrication of various display devices which include CRT(Cathode Ray Tube), LCD(Liquid Crystal Display), LED(Light Emitting Diode), FED(Field Emission Display), PDP(Plasma Display Panel), and so on.

Network Analysis and Synthesis

This course helps undergraduate students to basically design linear system under some constrained conditions which are given to inputs and outputs. The goals of this lecture are to understand basic theories related to differential equations, linear algebra, graph and topology, linear system, distributed parameters, controller design and transformation theories such as Laplace transformation, Fourier transformation, z-transformation, dq-transformation.

Modern Control

This course helps students to understand the root-locus analysis, nyquist stability criterion. Also, the design of PID controller in both time-domain and frequency-domain will be conducted. In the state-space domain, the design method of full-state controller/observer, and stability analysis based on Lyapunov second method will be introduced

Electrical and Electronic Material and Components

This course helps students to understand the electrical properties of materials for each function based on electro-physics, and preparation process, structure, and operation principle of electrical components.

Power Electronics

Electrical and thermal characteristics of power semiconductor devices for the design and analysis of powerelectronics system: Characteristics and application of diodes, thyristors, power BJT and power MOSFET, IGBT. Circuit analysis, design and control of powerelectronics converter and PSiM simulation: AC/DC converter, DC/DC converter and DC/AC inverter

Electric Machines I, II

This class deals with the basic principles and design theory of electric machines which include all the machines and actuators operated by electric energy. Based on the electro-magnetics and circuit theory, the students will learn the basic energy conversion process and the design of electric and magnetic circuits. More specifically, the principles on transformer, motor, generators and special machines such as Brushless DC motor and switched reluctance motors. The understanding of electric machine is usually achieved by two ways: design-focus one based on electro-magnetics and driving-focus one based on electric circuit theory. This class will put its focus on understanding of basic principle and the design theory.

Microprocessor

Operating principle and application of microprocessor using AVR (ATmega128). Hardware and software for using AVR. Understanding of a given basic circuit and program. Project design and implementation adding hardware and software.

Plasma Engineering

In this course, students study the material properties of plasma, the operational principles of plasma sources and various plasma applications. Also, the students can design a plasma source or a specific parameter of a plasma based on the fundamental theories.

Design Projects

Design Project course let the students have some knowledge on the methodological experiences on the research in electrical engineering by understanding and practicing the process of research for designing a system including the process of analysis of a research subject.

Capstone design

Participation in an individual or group research project under direction of a faculty member. Team-oriented culminating design project in electrical engineering, incorporating engineering standards and realistic constraints. Requires formal reports and group presentations.

Electric Drives

Elements of drive systems, characterization and understanding of the dynamics of motor-electrical load system. Modeling of electrical machines, design and analysis of controllers and PSiM simulation of electrical drive systems

Communication Systems I, II

In this course, several subjects about communication systems can be reviewed and expanded by covering AM and FM modulations. In the area of digital communication systems, various modern techniques including modulation and

demodulation using digital signals. Also, this course builds a foundation for statistical analysis and its applications on statistical decision theory

Digital Signal Processing

This course addresses the mathematics, implementation, design and application of the digital signal processing algorithms widely used in areas such as multimedia telecommunications and speech and image processing. Topics include discrete-time signals and systems, discrete-time Fourier transforms and Z-transforms, discrete Fourier transforms and fast Fourier transforms, digital filter design and implementation etc.. Classroom lectures are supplemented with implementation exercises using MATLAB

Renewable Energy System

This course helps undergraduate students to basically understand and design renewable energy system like as photovoltaic generation system, wind turbine generation system, fuel cell generation system, energy storage system, which are developed and deployed for stable supply and efficient utilization. The goals of this lecture are to understand the principle and operation characteristic of renewable energy system, and master its design capability.

Industrial-Education Special Seminar I, II

This course helps students to understand the recent technology trends on ET and IT, and the information for future career by invited seminar of CEO or specialist in industry and research institutes.

Integrated Circuits

This course addresses the analysis and design of CMOS digital circuits. The main topics are: basic CMOS digital circuits, transistor level circuit analysis and design, and layout design. Starting with the physical operation of the CMOS inverter circuit the design of a digital system of modest complexity is to be discussed.

Internship Ⅰ, Ⅱ, Ⅲ, Ⅳ

The objective of this course is to provide studensts with field experience of related industries for enhancement of adaptability in fields through working at industries

Digital Signal Processing Application

This course is a continuity lecture of Digital Signal Processing. Topics include discrete Fouriertransforms and fast Fourier transforms, digital filter design and implementation, and multi-ratesignal processing. The course will include introductory discussions of linear prediction and selected application areas. Classroom lectures are supplemented with implementation exercises using MATLAB

Large Current and High Voltage Engineering

This course helps students to understand theories and phenomena under large currents and high voltages. and also study HV insulation design for power apparatus and conduction and interruption mechanism of large currents.

Advanced Computer Programming

Advanced Computer Programming provides the information on programming including ANSI C, C++. and Matlab that is a computer software toolbox built by MathWorks. The programming skill related to C and Matlab requires some amount of time and efforts to set useful program. Not only the computer skills but also ability of problem analysis will be developed through this course.

Engineering Education Theory

The goal of this course is to learn about engineering subject teaching and theories and practices of education. Also this deals with the general issues of engineering education which focus on the historical changes of engineering subject, the purpose of engineering subject teaching, and the curriculum study of middle and high school

Industrial Resources and Method of Enginnering Course

This course provides the skill improvement of engineering subject teaching with learning about the understanding of engineering subject characteristics, analysis of middle and high school′ textbook contents, the forming technique of lesson schedule, and teaching methods. Also the participants of this course learn the overall knowledge about engineering and its application, and study the instructional resources about basic teaching skills and practices

Logic & Essay in Engineering Education

This course deals with logical thinking and analytic method for theories and practices of engineering subject education, and also writing method to express systematically the engineering logic

◇ School of Electronics Engineering

Introduction

Our department trains key personnel in communications, robotics and automation, semiconductor sector will lead to the go-leading automation and information society. For cultivate people of talent, First, professional manpower cultivation that combines theory and practice. Second, dedicated manpower cultivation to serve the country and community. Third, enterprising manpower cultivation to prepare for grobalization. With these educational goals, we educate for improving creativity, customized training to meet industry demand, and we put the emphasis on the activation of the study circle, which is autonomously operated.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(45Credits), a major(81Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E (2)	1-2-E (2)
2-1-R Electromagnetics I (3)	2-2-R (3)
2-1-R (3)	2-2-R (2)
2-1-R (3)	2-2-E (3)
2-1-R (2)	2-2-E (3)
2-1-E (3)	2-2-E (3)
2-1-E (3)	2-2-E (3)
	2-2-E
3-1-R 3)	3-2-R (2)
3-1-R (2)	3-2-R (1)
3-1-E (3)	3-2-E (3)
3-1-E (3)	3-2-E (3)
3-1-E (3)	3-2-E (3)
3-1-E (3)	3-2-E (3)
3-1-E	3-2-E (3)
	3-2-E (3)
	3-2-E
4-1-R (2)	4-2-R (0)
4-1-R (0)	4-2-E (2)
4-1-E (2)	4-2-E
4-1-E (3)	(3)
4-1-E (3)	4-2-E (3)
4-1-E (3)	4-2-E (3)
4-1-E	4-2-E
4-1-E	
4-1-E	4-2-E
	4-2-E
4-1-E	4-2-E

4-1-E	4-2-E
	4-2-E
	4-2-E

● Courses Abstract

Creative Engineering Design Ⅰ, Ⅱ

This course provides a broad overview of the generic concepts of design, design thinking and design research, and within the backdrop of this understanding, focuses specifically on the processes and techniques for carrying out engineering design in a creative manner. The course should be useful for freshman of engineering and design.

Basic Electric Circuits Lab. Ⅰ, Ⅱ

This laboratory course aims to teach how to design and analyse the analog and digital circuits, and then to predict and verify the laboratory results by using simulation tools and instruments. Lab includes 1) Learning the usage of oscilloscopes, multi-meters and other instruments, 2) AC and DC circuits, 3) combinational logic circuits, 4) sequential logic circuits, and 5) term project.

Electromagnetics Ⅰ, Ⅱ

This course examines Maxwell's equations applied to dielectric, conduction, and magnetization boundary value problems. Topics covered include: electromagnetic forces; thermodynamics of electromagnetic fields; applications to synchronous, induction, and commutator machines; microelectromechanical systems; propagation and stability of electromechanical waves.

Circuit Theory Ⅰ, Ⅱ

The course introduces fundamental principles of circuit theory commonly used in engineering research and applications. Techniques and principles of electrical circuit analysis including basic concepts such as voltage, current, resistance, impedance, Ohm's and Kirchoff's law; basic electric circuit analysis techniques, resistive circuits, transient and steady-state responses of RLC circuits; circuits with DC and sinusoidal sources, steady-state power and three-phase balanced systems, including Laplace and Fourier transforms applications for solving circuit problems by using PSPICE simulation tools.

Digital Engineering

This course emphasizes elementary digital electronics and interfaces. Topics include binary number system, gates and Boolean algebra, Karnaugh maps, flip

flops, registers, counters and memories. The design of combinational logic and sequential logic is also included.

Engineering Mathematics Ⅰ, Ⅱ

This course is about the mathematics that is most widely used in the electronics engineering core subjects: It includes 1) Systems of linear differential equations. Normal modes, natural oscillation frequencies. 2) Double integrals, Jacobians. Line integrals, Green's theorem in the plane. 3) Vector calculus: grad,div and curl; directional derivatives. 4) Fourier Series and transformation. 5) Partial Differential Equations (PDEs). 6) Complex function, and 7) Conformal mapping.

Linear Algebra

Topics include systems of linear equations and their solutions, matrices and matrix algebra, inverse matrices; determinants and permutations; real n-dimensional vector spaces, abstract vector spaces and their axioms, linear transformations; inner products, orthogonality, cross products, and their geometric applications; subspaces, linear independence, bases for vector spaces, dimension, matrix rank; eigenvectors, eigenvalues, matrix diagonalization. Some applications of linear algebra will be discussed, such as computer graphics, Kirchoff's laws, linear regression, Fourier series, or differential equations

Advanced Computer Programming

This course teaches advanced skills in computer programming using an object-oriented computer programming language C++ and MFC. There is an emphasis on both the principles and practice of computer programming. The course covers principles of problem solving by computer and requires completion of a number of programming assignments. Lecture meets two hours per week; lab sections meet two hours per week.

Physical Electronics

This course teachs the fundamentals of discrete semiconductor devices and their applications. The chemical, electronic, and physical properties of semiconductors are examined. Basic operating principles and models of semiconductor devices including the p-n junction, the Schottky barrier, the bipolar transistor and the field effect transistor are quantitatively investigate.

Digital System Design

This course provides fundamental understanding and engineering experience in a ubiquitous and critically important ECE discipline: Design and Analysis of Digital Electronic circuits using simulation tools such as VHDL or Verilog. Students will learn the essentials of digital circuit operation, and will design and simulate digital circuits using the simulation tools and development kits.

Probability and Statistics

This course will help students gain an understanding of elementary probability theory and how to apply it to analyze statistical problems. It also provides an opportunity for students to see how various mathematical knowledge and techniques. Learning objective includes: 1) Upon successful completion of the course, students should understand basic concepts of probability theory including the axioms of probability, independence, and conditional probability, 2) the concept of random variables, properties of common types of random variables, how to identify them and use them to solve probabilistic problems, 3) the evaluation and interpretation of descriptive statistics, 4) the idea of constructing statistical models, 5) basic problems of inferential statistics such as finding the maximum likelihood estimator and correlation functions.

Electronic Circuits Ⅰ, Ⅱ

The electronic devices, characteristics of semiconductor, junction diodes, bipolar transistors and field-effect transistors, are introduced and studied based on semiconductor physics models. The study then continues with analysis and design of main digital electronic circuits (NMOS and CMOS inverters and logic gates, MOS memory and storage circuits) and analog electronic circuits such as operational amp, oscillator, amplifier and so on.

Electronic Circuits Lab. Ⅰ, Ⅱ

In this course, the characteristics of circuits consist of passive devices (register, inductor and capacitor) and active devices (diode and transistor) are invested though experiments. Also the usage of basic instruments such as oscilloscope and multi-meters are provided.

Signal and System

This course covers the fundamentals of signal and system analysis, focusing on representations of discrete-time and continuous-time signals (singularity functions, complex exponentials and geometrics, Fourier representations, Laplace and Z transforms, sampling) and representations of linear, time-invariant systems (difference and differential equations, block diagrams, system functions, poles and zeros, convolution, impulse and step responses, frequency responses). Applications are drawn broadly from engineering and physics, including feedback and control, communications, and signal processing.

Data Structure and Algorithm

Achieve an understanding of fundamental data structures and algorithms and the tradeoffs between different implementations of these abstractions. Theoretical analysis, implementation, and application. Lists, stacks, queues, heaps, dictionaries, maps, hashing, trees and balanced trees, sets, and graphs. Searching and sorting algorithms. C/C++ is framework as an example implementation of basic

algorithms. After finishing this course, mid-grade programming techniques are expected to be learnt.

Semiconductor Device

This course introduces the fundamentals of semiconductor physics that will enable subsequent study of semiconductor devices. The topics includes semiconductor physics, energy band, Fermi energy level, drift/diffusion, carrier concentration theory, P/N junction, the diode circuit and applications, diode manufacturing method and the application of the photonic device. For MOSFET, principle, voltage and circuit characteristics, circuit modeling and switching characteristics are compared with those of BJT. The difficulties and the state-of-the-art semiconductor devices are evaluated through a computer simulation.

Automatic Control Ⅰ, Ⅱ

This course introduces the design of feedback control systems as applied to a variety of control systems. Topics include the mathematic back ground of differential equation and Laplace transform. Also it include the properties and advantages of feedback systems, time-domain and frequency-domain performance measures, stability and degree of stability, the Root locus method, Nyquist criterion, frequency-domain design, and state space methods.

Computer Architecture

This course is a study of the evolution of computer architecture and the factors influencing the design of hardware and software elements of computer systems. Topics may include: instruction set design; processor micro-architecture and pipelining; cache and virtual memory organizations; I/O and interrupts; DMA; floating point computation; computer networks; memory models and synchronization; embedded systems; and parallel computers.

Capstone Design Ⅰ

The Capstone Design course provides students the opportunity to work with real-world, open-ended, interdisciplinary challenges proposed by industrial and research project sponsors. They learn and apply the engineering design process: defining functional requirements, conceptualization, analysis, identifying risks and countermeasures, selection, and physical prototyping.

Student teams design and build working, physical prototypes to validate their solutions. By working in teams they develop leadership skills and group dynamics; dealing with scheduling conflicts, meeting weekly deliverables and deadlines; and communication among team members, project sponsors, and course instructors.

Communication Engineering

This course provides: 1) Random signals and noise: probability, random variables, probability density function, autocorrelation, power spectral density. 2) Analog communication systems: amplitude and angle modulation and demodulation systems, spectral analysis of these operations, superheterodyne receivers; elements of hardware, realizations of analog communication systems; signal-to-noise ratio (SNR) calculations for amplitude modulation (AM) and frequency modulation (FM) for low noise conditions. 3) Fundamentals of information theory and channel capacity theorem. 4) Digital communication systems: PAM, PWM and PPM.

Electromagnetic Field

This course provides: 1) Elements of vector calculus: divergence and curl; Gauss' and Stokes' theorems, Maxwell's equations: differential and integral forms. 2) Wave equation, Poynting vector. Plane waves: propagation through various media; reflection and refraction; phase and group velocity; skin depth. 3) Transmission lines: characteristic impedance; impedance transformation; Smith chart; impedance matching; S parameters, pulse excitation. 4) Waveguides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Basics of propagation in dielectric waveguide and optical fibers. 5) Basics of Antennas: Dipole antennas; radiation pattern; antenna gain.

Semiconductor Process

This class is one of convergence process and technology and based on the material science, semiconductor processing and process integration including wafer bonding characteristics, thinning, patterning and supercontact filling process. The roles of bonding, structure and composition in influencing and controlling physical properties are discussed. The course includes: Characteristics of semiconductor materials, Silicon and wafer, semiconductor fabrication, Contamination control in wafer fabs, Metrology and defect inspection, Gas control in process chambers, Oxidation, Deposition, Metallization, Photolithography.

Microprocessor

This course consists of two parts. The first part studies of 8- and 16-bit microprocessor and microcomputer architectures, instruction sets and resources, and how to apply these to real-world design problems. The second part consists of a student project requiring both hardware and software design, solving a practical problem, and incorporating elements from the lecture.

Digital Signal Processing

This course provides: Sampling and Reconstruction of continuous time signals, Characterization and properties of discrete time signals and systems, Computation of the discrete time Fourier transform and its properties, Computation of the

discrete Fourier transform and its properties, Fast Fourier transform algorithms, The Z-transform and its properties, Transform analysis of linear time invariant systems, Implementation of structures for discrete time systems, Digital filter design techniques, Homomorphic filtering, Applications of DSP in signal processing.

Capstone Design Ⅱ

The Capstone Design course provides students the opportunity to work with real-world, open-ended, interdisciplinary challenges proposed by industrial and research project sponsors. They learn and apply the engineering design process: defining functional requirements, conceptualization, analysis, identifying risks and countermeasures, selection, and physical prototyping.

Student teams design and build working, physical prototypes to validate their solutions. By working in teams they develop leadership skills and group dynamics; dealing with scheduling conflicts, meeting weekly deliverables and deadlines; and communication among team members, project sponsors, and course instructors.

Future Design

This course provides practical assistances to employment: writing a personal history, efficient interview methods, how to write a resume.

Electronics Application Lab. Ⅰ, Ⅱ

Various experiments of wide electronics applications are handled. The project based experiments are performed to enhance individual creativity. The course includes electronics circuits, communications and embedded systems.

RF Circuit Design

This course is designed to provide students with the basic principles of radio frequency (RF) circuit design. It concentrates on such topics as fundamental concepts of transmission line theory, high frequency circuit behavior, designing tuning and matching networks and power flow considerations for analog systems as encountered in many applications.

Digital Communication

The purpose of the course is to give students a comprehensive introduction to digital communication principles. The major part of the course is devoted to studying how to translate information into a digital signal to be transmitted, and how to retrieve the information back from the received signal in the presence of noise and intersymbol interference (ISI). Various digital modulation schemes are discussed through the concept of signal space. Analytical and simulation models for digital modulation systems are designed and implemented in the presence of noise and ISI. Optimal receiver models for digital base-band and band-pass

modulation schemes are covered in detail.

Sensor and Instrumentation

The aim of this course is to train students in methods of design, implementation and operation of advanced instrumentation and sensor systems. This includes instrumentation and sensor networks, advanced sensor conditioning methods, smart sensor systems and error analysis. Also reliability, electrical safety and electromagnetic compatibility issues are covered.

Control System Design

This course provides an introduction to the analysis and design of advanced control systems. The design process, from modelling to specification of the control problem and controller design will be emphasized. Fundamental limitations of feedback will be discussed. Advanced PID design techniques will be presented. Throughout the course we will emphasize the implementation techniques including MCU HW/SW, DC motor driver, speed detection, data acquisition, serial communication, simple plant modeling, digital controller design, power amp design and PID controller.

Analog Integrated Circuit Design

This course teaches the design and analysis of transistor integrated circuits including amplifiers, operational amplifiers, and oscillators, and including frequency response, noise, feedback, and stability. Students will develop physical insight into the design and operation of multistage circuits.

Digital Integrated Circuit Design

The course will start with a detailed description and analysis of the core digital design block, the inverter. Implementations in CMOS will be discussed. Next, the design of more complex combinational gates such as NAND, NOR and EXORs will be discussed, looking at optimizing the speed, area, or power. The learned techniques will be applied on more evolved designs such as adders and multipliers. The influence of interconnect parasitics on circuit performance and approaches to cope with them are treated in detail. Substantial attention will then be devoted to sequential circuits, clocking approaches and memories. The course will be concluded with an examination of design methodologies. CAD Tools for layout, extraction, and simulation will be used for assignments, labs and projects.

Industrial-Education Special Seminar Ⅰ, Ⅱ

The-state-of-art IT technologies and trends are introduced by a invited experts or CEO from industry or research institutions.

Engineering Education Theory

History, background and the purpose of technical education is provided. Also,

including analysis of middle and high school curriculum, overall technical education issues are covered.

Internship I, II, III, IV

The primary goals of student internships include 1) acquiring first-hand knowledge about the field of work, 2) exploring new professional activities and relationships, 3) applying classroom knowledge and skills to the work environment, 4) experiencing problems and contributing to solutions in the field, and 5) learning by doing.

Information Communication Engineering

The processing of data and signals digitally together with the communication of such information over fixed and wireless links is of major importance in many aspects of modern engineering. This course will provide you with a good understanding of digital signal processing, radio systems and digital communications together with topics covering real time implementation of the signal processing techniques. This course includes CDMA, IMT-2000, wireless network, satellite communication and OSI-7 layer and ATM.

Antenna Engineering

This course includes: Definition of an antenna. The radiation mechanism. Fundamental parameters of antennas. Friis transmission equation and the radar range equation. Radiation integrals and auxiliary potential functions. Duality theorem. Reciprocity and reaction theorems. Linear wire antennas. Infinitesimal dipole, small dipole and half-wavelength dipole. Linear elements near or on infinite plane conductors. Circular loop antennas. Linear, planar and circular arrays. Self- and mutual impedances of linear elements. Antenna synthesis and integral equations. Matching techniques. Travelling wave and broadband antennas. Field equivalence principle. Rectangular and circular aperture antennas. Microstrip antennas. Antenna measurements

HDL Design

This course provides a systematic introduction to the topic of HDL programming for designing embedded digital system. It emphasizes the basic ideas, and the practical aspects of HDL programming with FPGA devices. In addition, this course presents techniques for modeling hardware components at different levels of abstraction and many concepts including the various forms of expressing computations, sequential and parallel implementations, control-flow and data-flow, control dependency and data dependency, latency and throughput as well as the architecture design space of hardware data paths, finite state machines.

Embedded System

Introduction to microcomputer systems and to the concept of memory.

Fundamentals of micro-controller unit, instructions and assembly programming. Input/Output. Interrupt. Timer and counter. Serial communication. Interfacing. Application to step motor. C programming for MCU.

Semiconductor Packaging & Testing

The objective of this course is to sensitize the undergraduate students to the all-important multidisciplinary area of electronics systems packaging and testing. The course will discuss all the important facets of packaging at three major levels, namely, chip level, board level and system level. The entire spectrum of microelectronic systems packaging from design to fabrication; assembly and test will be covered. Current trends in packaging of electronic systems will be covered. The testing parts includes: basic principles of testing, failure model, and the test generation and the test facilitating design method.

Robotics

This course begins by introducing the subject of robotics, presents a brief history, types, classification and usage, and the science and technology of robots. Some of the useful and related links on robotics are mentioned. Mathematical representations of rigid bodies in 3D space, the concept of a 4 x 4 homogeneous transformations and elementary screw theory, representation of joints, link representation using D-H parameters, different kinds of actuators and sensors are presented.

Intelligent System

Fundamental issues in intelligent systems, search and constraint satisfaction, knowledge representation and reasoning is provided. The vision processing system is emphasized. It includes digital image acquisition, image enhancement, pattern recognition and classification techniques.

Instructional Resources and Methods of Engineering Course

Real experiments about course teaching including course analysis, textbook analysis, writing lesson planning and teaching skills will be provided for engineering teachers in middle and high school.

Logic & Essay in Engineering Education

Logical thinking and writing essay for engineering education as a teacher is emphasized in this course.

Research Projects

In this course, students are assigned to a laboratory. And by doing a joint industry-university research or a project assigned by supervisor, the understanding of major and practical research ability will be enhanced.

◇ School of Information and Communication Engineering

Introduction

The School of Information and Communication Engineering was established in 1985. We strived in engineering education and international research that encompasses the interrelated research fields of information and communication engineering. The primary mission of our school is to offer practical engineering educational programs so that students can adapt themselves to rapidly changing technologies in field of information processing and communication engineering. Furthermore, we aim to help students to become global IT experts and leaders who will contribute their knowledge to human society.

Our school has obtained top rank from the annual evaluation of second phase BK21(Brain Korea 21) programs for 3 consecutive years. By these programs, we are financing a large number of students in terms of scholarship, support for variety of student's academic activities. With this financial support, our school works aggressively to develop a high level of research excellence on a continuous basis. Such efforts recently led to a rapidly growing number of papers being published in SCI/E journals and conference proceedings.

The undergraduate program offers diverse courses in four major fields: information processing, communication system, communication network, and radio engineering. The information processing track offers such courses as C-language, database, Windows programming, multimedia processing, and software engineering; the communications system track offers such courses as communication theory, digital communication, signal processing, and mobile communications; the communication network track offers such courses as data communication, computer network, internet communication, electronic switching, and wireless network; the radio engineering track offers such courses as antennas, microwave engineering, microwave measurements, and microwave devices and circuits.

Graduate school of information and communication engineering pursues research on advanced communication with nationwide infrastructure of the mobile communication networks and radio engineering. In most cases, alumni of our school are working in many fields as researchers at major companies, public enterprises, research institutions, and so on. Moreover, many students go on to graduate school for more in-depth and specialized study. We hope that all the talents will be equipped with a creative mind and personality and will become our new leaders for the future.

Credit requirements for graduation

The school curriculum has four components: Liberal education requirements(42Credits), a major(78Credits), and electives. And it must complete a total of 140Credits.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Introductory Seminar on Information and Communication (2)	1-2-E Creative Engineering Design (2)
2-1-R Electromagnetics I (3)	2-2-R Circuits Lab. II (2)
2-1-R Circuit Theory I (3)	2-2-E Probability and Random Variables (3)
2-1-R Engineering Mathematics I (3)	2-1-E Electromagnetics II (3)
2-1-R Circuits Lab. I (2)	2-2-E Circuit Theory II (3)
2-1-R Future Design Seminar I (1)	2-2-E Embedded Software (3)
2-1-E Digital Engineering (3)	2-2-E Engineering Mathematics II (3)
2-1-E C++ Programming (3)	2-2-E Data Communication Design (3)
3-1-R Electronic Circuit I (3)	3-2-R Electronic Circuit II (3)
3-1-R Communication Engineering (3)	3-2-R Electronic Communication Circuits Lab. (2)
3-1-R Embedded Software Lab. (2)	3-2-R Basic Capstone Design Seminar (2)
3-1-E Operating System (3)	3-2-E Digital Communication (3)
3-1-E Computer Architecture (3)	3-2-E Computer Network (3)
3-1-E Data Structure (3)	3-2-E Database System Design (3)
3-1-E Antenna Theory & Lab. (3)	3-2-E Microwave Engineering II (3)
3-1-E Internet Communication Design (3)	3-2-E Technical Writing and Presentation (3)
3-1-E Microwave Engineering I (3)	3-2-E Mobile Programming & Lab. (3)
3-1-E Discrete Mathematics (3)	
3-1-E Signal and system (3)	
3-1-E Object-Oriented Programming (3)	
4-1-R Capstone Design SeminarI (2)	4-2-E Electromagnetic Wave Environment Engineering (3)
4-1-R Future Design Seminar II (0)	
4-1-E Communication Applications Lab. (2)	4-2-E Wireless Communication Network Engineering (3)
4-1-E Mobile Communication System Lab (2)	
4-1-E Optical Communication (3)	4-2-E Educational-Industrial Special SeminarII (1)
4-1-E Mobile Communication Engineering (3)	4-2-E Wireless Communication System Engineering (3)
4-1-E Multimedia Information Processing & Lab. (3)	
4-1-E Information and Coding Theory (3)	4-2-E Capstone Design Seminar II (3)
4-1-E Educational-Industrial Special Seminar I (1)	4-2-E Instructional Resources and Methods of Engineering Course (3)
4-1-E Fundamentals of High Speed Communication Network (3)	4-2-E Logic&Essay in Engineering Education (3)
4-1-E Digital signal processing Design (3)	
4-1-E Engineering Education Theory (3)	
4-1-E Algorithm (3)	
4-1-E Introduction to Information Protection (3)	

● Courses Abstract

Introductory Seminar on Information and Communication

This course aims to enable students to understand the basic concepts of electrical engineering education and to grow the basic self-studying ability for the

information and communication engineering students.

Creative Engineering Design

This course is offered for all freshman students in the school of ECE and aims at basic design for creative problem solving. The course provides learning opportunities in pursuing design solutions through collaborative team work as well as innovative ideas. The learning activities are mainly experimental projects with some built-in kits.

Electromagnetics I

This is the first of introductory courses in the electromagnetic theory covering vector calculus, coordinate systems, concepts and theorems in static electric and magnetic fields. The course provides students with stepping stones for advanced studies in electronics, sensors, biomedical devices, actuators, radio engineering, semiconductor design, and optical engineering.

Circuit Theory I

This major is based on basic analysis of a electronic circuit, and a resistance theory, circuit network organize, a alternative circuit, a direct circuit, a tuning circuit, analysis of frequency and two terminal networks, laplace transform, and fourier transform.

It deals with how to use the PSPICE analysis of circuit by computer.

Engineering Mathematics I

This course is intended to provide the sophomore student with the mathematics in order for them to develop strong background for various courses including electric circuit and advanced communication theories. In this course, we will handle many physical laws and relations in the form of differential equations and learn how to find a solution on the basis of engineering mathematics. This course will cover linear algebra, differential equations, and Laplace transform.

Circuits Lab. I

This is the first of introductory laboratories in electric circuits. The course covers experiments in instruments usage, basic circuit elements, circuit theorems, circuit simulation, and the first- and second-order circuits. The course may motivate students to have intensified interests in the design and analysis of various practical circuits.

Future Design Seminar I

This course aims to recognize the current world, society and mankind through the investigation of changes in civilization and world history for the future.

Digital Engineering

This course covers design and analysis of combinational and sequential circuits at logic gate level. For this, we start with Boolean algebra and number systems,

and then introduce how to analyze and design combinational circuits. Subsequently, by combining flip-flops with combinational circuits, we learn how to analyze and design the sequential circuits such as counters and sequential detectors.

C++ Programming

This class covers programming for Windows systems using the Microsoft foundation classes. The course emphasizes basic messages handling techniques as well as windows graphics, resource usages, dialog boxes and multimedia dealing techniques. The students will have a chance to perform simple game programming at the end of the semester. The prerequisite is C programming experience.

Circuits Lab. Ⅱ

Combination of gates and arithmetic circuits using digital logic elements and sequential logic circuits such as the test of logic circuits, flip-flops, registers, the applications.

Probability and Random Variables

This course covers the statistical concepts and methods that can be utilized in effective engineering design and applications. Both theory and applications of random variables, probability distribution, parameter estimation, hypotheses, and quality control are explained.

Electromagnetics Ⅱ

This is the second of introductory courses in the electromagnetic theory covering the Maxwell's equation, plane wave, reflection and transmission of plane wave in the material interface, transmission lines, and Smith chart. The course provides students with fundamentals for advanced studies in electronics, sensors, biomedical devices, actuators, radio engineering, semiconductor design, and optical engineering.

Circuit Theory II

A fundamental analysis of the Fourier transform circuit to learn and Z-transform, the performance analysis and design methods of high-speed digital filter calculation using the method of FFT.

Embedded Software

To study various theories and techniques, it's necessary for the design and development of modern embedded systems (mobile phones, PMP, tablets, digital cameras, etc.). This course covers the design SW / application technology due to environmental constraints of technical knowledge-based embedded software developers equipped with an embedded HW. In detail, introduces such basic definition, embedded operating system, CPU for embedded systems (ARM

processor, ATMEGA processor, Z80 processor) architecture and instruction set, the external device / port interface techniques, systems design techniques, device drivers, embedded systems The.

Engineering Mathmatics II

After the differential equation of equations Laplace transform, learning how to analysis using the vectors and matrices. Also, learning about how Fourier analysis and partial differential equations based on orthogonal functions.

Data Communication Design

Learn the most basic information and communications engineering data communications content. Dealig with the basic concepts, basic concepts of the basic information, the packet communication, mobile communication is communication from the Internet based on the concept of the existing communication network such as different communication layers. In addition, we design a communication protocol related to understanding the basic concept of the communication for the study of the design information.

Electronic Circuit I

Learning for diode, BJT, the basic operating characteristics of the active element such as the MOSFET, and the method of analysis and design of electrical circuits including active elements. Learning how to use the HSPICE, simulating the elements and the circuits with the HSPICE and understanding the operation of the circuits.

Communication Engineering

This class will introduce basic communication systems and techniques. We begin with a brief review of signal analysis and linear systems. We will then describe basic analog communication systems with emphasis on modulation and detection in AM and FM systems. Signal processing for digital communication, sampling theorem and signal recovery, will then be covered. Basic digital communication systems, including MPSK, MQAM, and FSK, will be introduced.

Embedded Software Lab.

The actual embedded system development skills learned through theoretical lectures embedded software Utilizing a variety of digital circuit / processor devices on ATMega128 experiments.

Operating System

This course covers the fundamental notions of the processor including parallel operation setup, multiprogramming, time-sharing system and asynchronism as well as signal modeling and the spectrum prediction.

Computer Architecture

This class focuses on the understanding and design of the computer architecture

including the instruction set architectures, processor organizations, memory hierarchies, and I/O devices.

At the end of this class, each student should be able to:

1. describe the basic instruction sets for a simple computer system.
2. design a simple data path and a control path using micro instructions.
3. understand the computer arithmetics of the integer and floating point number systems.
4. understand the basic concepts of pipeline architectures and the performance analysis of a computer system.
5. understand the architecture of memory systems.

Data Structure

The primary objective of the course is to give basic programming knowledge and skills to the students and introduce to them the area of data storage, organization, and manipulation.

Antenna Theory & Lab.

The course covers basic concepts and theories for antenna design. It also deals with the structure, operating principle, and design of various antenna types such as dipoles, monopoles, loops, wire antennas, line sources, horns and reflectors. Students will learn how to design some important types of antennas using commercial software. Students will also make and test antennas of their design. In this course students will acquires practical knowledge and skills for antenna developments required in electronics, communication, biomedical, aerospace, automotive and defense industries.

Internet Communication Design

This course introduces the Internet communication contents to students. The infrastructure of IP communication is composed of routers, which uses IPv4 or IPv6 protocol generally. The objectives of this course is to give concept and theoretical background for IP communication to students, which includes TCP/IP. For design concept, some technical issues will be experienced, which are broad view of data network including TCP/IP protocol, TCP/IP programming including Socket Programming, and practical or applicable program.

Microwave Engineering I

This is the first of introductory courses on high-frequency circuits and devices. The course covers basic concepts and theories for passive high-frequency devices such as transmission line structures, multi-port networks, impedance matching, power dividers, couplers, resonators, and filters. Students will design and test some passive devices to gain hands-on knowledge on high-frequency devices. This course will provide students with an opportunity to gain practical knowledge

and skills for passive high-frequency device developments required in electronics, communication, biomedical, aerospace, automotive and defense industries.

Discrete Mathmatics

This course helps students to understand the basic mathematical structures that are fundamentally discrete rather than continuous. It contains logic, function, set including relations, algorithm, mathematical iteration and its proofs, graph, tree, boolean, etc.

Signal and System

The analysis method of analog and discrete time signal using Fourier Transform is studied and the transform process of analog signal into discrete time signal is handled through sampling Theorem.

Object-Oriented Programming

Java is the programming language independent to any platforms. The students learn basic grammar rules and programming some java applications such as GUI interface, graphic, networking and database.

Electronic Circuit II

Diode learned in the electronic circuit IC, BJT, the frequency characteristic of the active element based on the basic understanding of active elements such as FET, a differential amplifier, the feedback information in depth than for the active circuit through the study for an internal circuit of the OP Amp deals.

Electronic Communication Circuits Lab.

This course offers design topics for the course of electronic and communication circuits. In this course, principles and properties of the circuit components such as diode, transistor and amplifiers are introduced in the first semester. The major topics in second semester are designs of filters, oscillators, modulators and demodulators. This course is to help the students obtain a better understanding of the operation of microelectronic circuits and to provide an experience in design and analysis of microelectronic circuit using PSPICE.

Basic Capstone Design Seminar

This course aims to explore ways to experience and scientific process.
Engineering topics Below, it performs the derivation of the output specification, design and analysis, literature surveys. The combination also trained to organize the requirements resulting from the applicable market. In addition to investigating the issue of technical and socio-political aspects of the market segmentation, the environment, ethics and so on. Through the regular presentation and evaluation to complete the final report.

Digital Communication

This class will provide an introduction to basic digital communication systems

and techniques. We begin with digital communication systems, including MPSK, MQAM, and FSK. Error performance in additive Gaussian noise and bandwidth limited channel will be addressed. Spread spectrum, and source and channel coding will be introduced.

Computer Network

The course will present data communications fundamentals and computer networking methods, using the ISO 7-layer reference model to organize the study. Attention will be focused on the protocols of the physical data link control, network, and transport layers, for local and wide area networks. Upon completion of the course, you will have an understanding of the layered network architecture, the fundamental design issues in each layer, and the solution approaches towards addressing these issues

Database System Design

Understand the basic concept and design of the database, and learning about logical, physical database design and database.

Microwave Engineering Ⅱ

This is the second of introductory courses on high-frequency circuits and devices. The course covers basic concepts and theories for mixers, amplifiers, oscillators, transmitters and receivers. Students will design and test some active devices to gain hands-on knowledge on high-frequency devices. Students will gain practical knowledge and skills for active high-frequency device developments required in electronics, communication, biomedical, aerospace, automotive and defense industries.

Technical Writing and Presentation

This course aims to improve writing and presentation ability. As the ability of presenting and writing is related to thinking power, this subject is helpful in enlarging interlectural ability and facilitating students' entry into society, and aims to increase their skills of writing reports and theses, in particular.

Mobile Programming & Lab.

Understand the structure and function of the mobile device, and write an application using the various kinds of accessory devices. To this end, learning the history, development environment installed, UI design, event processing, such as through the layout of mobile operating systems, and practical hands-on techniques such as resource and map widgets, multimedia phones, sensors and more.

Capstone Design Seminar Ⅰ·Ⅱ

Based on the theories learned throughout the course of study, practical results obtained through literature research, design, production, testing, performance

analysis, and the process to clean and cook them in a paper.

Future Design Seminar II

Cooperating CEO lectures, information and communications-related industries and exhibitions / fairs majors through visits Understand the latest technologies and explore a variety of types of applied market. Also invited to the company's HR managers and employment specialists to listen to lectures such as corporate recruitment trends, employment type, employment preparation strategies to be successful.

Communication Applications Lab.

Students will be given a chance to develop an application software using Java and database system. Experiments on security systems are also provided.

Mobile Communication System Lab.

Using hardware kit, the students will have a chance to design and test their mobile communication systems.

Optical Communication

This course is an introduction to the outline of high-speed optical communication system using the light, principle of the components for the system configuration and their application methods. And the principles and characteristics of optical fiber, the light source(LED & LD), the optical detector(PIN and APD), optical coupler and are also discussed including an optical information processing applications(optical memory, holography, 3D display, optical computing).

At the end of this class, each student should be able to:

1. understand the properties and the propagation characteristics of light
2. applied the principles and characteristics of the optical fiber to Communication
3. understand the optical communication system and the information society
4. understand the principles and characteristics of the optical element
5. understand the principle and optical concept of display
6. understand the concept of optical information processing, and can be applied to applications

Mobile Communication Engineering

This course considers CDMA system, focusing on its standard IS-95. A few lab. sessions will be provided including base-station signal quality measurement using a cell phone.

Multimedia Information Processing & Lab.

This class covers the method of visualization, transformation and store of various digital multimedia information. Audio processing including audio generation, filtering, and transformation and image processing including generation, deformation, enhancement, filtering, transformation, and coding are covered.

Information and Coding Theory

This course introduces the principle and the theories on channel coding and source coding. The coding is the way to give a code to a symbol and retrieve the symbol from the code. Usually, the coding is classified into two classes of channel coding and source coding. The channel coding is a coding scheme where the codes are designed to be able to detect and correct errors occurred during transmission and store. The source coding is a coding scheme where the shortest codes are assigned to the symbols without information loss. Specially, information theory, error correction and detection coding, Sannon's theorems, etc, are touched.

Educational-Industrial Special Seminal I

Management philosophy and management methods of the latest IT technology trends and industry through the exchange of industry and schools

Fundamentals of High Speed Communication Network

Networks for high-speed transmission is introduced in this course.

Digital Signal Processing Design

The major theory(LTI, Z-tranform, Convolution, Sampling) is studied and DFT and FFT , analysis method are handled The transform process of analog signal into discrete time signal in digital signal processing field is handled. The DSP algorithm is designed using MATLAB Program and applied in audio and image processing.

Engineering Education Theory

This course helps students to understand the overview of engineering education. So those who study in this course research historical background of engineering education and analysis of junior/senior school education courses.

Algorithm

Students learn methods for the development of algorithms such as greedy methods, dynamic programming and random algorithm, etc.

Introduction to Information Protection

This course first review, in some technical detail, the nature of the "threats." These include viruses and worms (their history and how they "evolved,") backdoor exploits, Trojan horses, buffer overflows, and the extent to which they imperil the information in computers. Then students discuss the use and limitations of firewalls in protecting computer networks.

Internship Ⅰ·Ⅲ

Incubate with the major skills learned in school and the ability to adapt industrial technology combining field and establishing an organic relationship between the school and the local co-op industry.

Internship Ⅱ·Ⅳ

Incubate with the major skills learned in school and the ability to adapt industrial technology combining field and establishing an organic relationship between the school and the local co-op industry.

Electromagnetic Wave Environment Engineering

This is a senior-level class dealing with various aspects of the electromagnetic wave environments. The course covers regulations on radio frequency usages, electromagnetic interference (EMI), susceptibility (EMS), compatibility (EMC) and compliance, instruments and test methods for EMC compliance. Students will carry out measurement tasks to gain practical knowledge on EMC compliance tests. This course will provide students with an opportunity to gain practical knowledge and skills for EMC solutions required in electronics, communication, biomedical, aerospace, automotive and defense industries.

Wireless Communication Network Engineering

The scope of this course includes wireless communication network, and mobile network. The wireless communication network is classified into two types. One is based on circuit-based network and the other is packet-based network. Typical circuit-based wireless communication network is CDMA or GSM infrastructure. WLAN and WiBro network is for packet-based communication. For understanding each mechanism, this course deals with network configuration, procedures for communication, and characteristics of each functional architecture.

Educational-Industrial Special Seminar Ⅱ

The acquisition of management philosophy, management methods of the latest IT technology trends, industry through the exchange of industry and schools.

Wireless Communication System Engineering

This course introduces LTE system, Wi-fi wireless LAN and the wireless sensor network system. By the river for the introduction and utilization methods for the basic tool for analyzing the performance of these wireless communication systems.

Instructional Resources and Methods of Engineering Course

This course helps students to experience the instruction technic. So those who study in this course understand the characteristics of engineering course and analysis textbooks of junior/senior school education, make teaching notes, instruction methods, etc.

Logic & Essay in Engineering Education

This course helps students to improve the logical thinking power for engineering course. So those who study in this course understand the fundamental laws and statement of logical thinking. Also those report essays for their engineering statements and discuss.

▣ Department of Computer Engineering

Introduction

Computer engineering Department, established in 1981, cultivates talents in the Computer engineering part. In 2000, Change to Electrical, Electronic and Computer Engineering Division. Engineering Education conducted a certification program . In 2011, Department had changed Computer Engineering of Electronic Information University. And It has obtained the enrichment program in computer engineering that graduates are being grown and studied the basic knowledge - based skills and can qualify as an international certification engineer

Also, It has various scholarship and industry-linked student supporting programs.

Credit System :

Courses	Credits
Liberal education requirements	42
Major	74
Elective Courses	12
Total Credits to Graduate	140

Curriculum

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Creative Engineering Design(1) 1-1-R Design Portfolio I(0) 2-1-E Information Processing Lab(2) 2-1-E Digital Engineering(3) 2-1-E Discrete Mathematics(3) 2-1-R Electronic Circui(3) 2-1-E C/C++ Programming(3) 2-1-R Engineering Mathematics(3) 2-1-R Patents and awards(3) 2-1-E Design Portfolio III(1) 3-1-E Computer Architecture(3) 3-1-E Operating System(3) 3-1-R Applied Programming Lab(2) 3-1-R Programming Language(3) 3-1-R System Design Engineering(3) 3-1-R Computer Network(3) 3-1-R Probability and Statistics(3)	1-2-E Design Portfolio II (0) 1-2-R Computer Engineering Concepts (3) 2-2-E Electronic and Digital Circuit Design Lab (2) 2-2-E Data Structures (3) 2-2-R Data Communication (3) 2-2-R Formal Language and Automata Theory (3) 2-2-R Linear Algebra (3) 2-2-R Industry regulations and entrepreneurship (3) 2-2-E Design Portfolio IV (0) 3-2-E Micro Processor (3) 3-2-E Digital Signal Processing (3) 3-2-E Computer Engineering Research Project (3) 3-2-R Software Engineering (3) 3-2-R Database System (3) 3-2-R Numerical Analysis (3) 3-2-R Algorithm (3)

3-1-E Design Portfolio V(1) 4-1-E Capstone Design I (2) 4-1-R Educational-Industrial Lecture Special Seminar I(1) 4-1-R Embedded System(3) 4-1-R Computer Vision(3) 4-1-R Neuro-computer(3) 4-1-R Computer Instructional Resources and Methods(3) 4-1-E Design Portfolio VII(1)	3-2-E Design Portfolio VI (0) 4-2-R Capstone Design II (2) 4-2-R Distributed Computing Systems (3) 4-2-R Educational-Industrial Lecture Special Seminar I (1) 4-2-R Entertainment Convergence (3) 4-2-R Computer Logic and Discourse (3) 4-2-R Compiler (3)

Courses Abstract

Design Portfolio I~VII

From the whole university life cycle of view, it is to develop the ability to establish career path from the lower grades.

Creative Engineering Design

The purpose of "Creative Engineering Design" is understanding principle of real system and acquiring application technique from design and product experience of various engineering subjects based on individual creativity and training the team-based project.

Computer Engineering Concepts

In this class, we study overall computer engineering concepts and basic knowledge with easy understanding. We also deals with various basic subjects about computer engineering such as computer hardware and software, computer network.

Information Processing Lab.

In this lecture, you will study how to use UNIX or LINUX operating system, shell programming, gcc, gdb and make. You also will take web-programming skills, such as HTML, javascript, PHP and MySQL in this lecture.

Digital Engineering

Learn basic digital elements and various digital circuits to understand the digital hardware.

Discrete Mathematics

The purpose of "Discrete Mathematics" is learning mathematical bases that are logic, relationship, function, tree, graph theory, boolean algebra and algorithm of computer engineering.

Electronic Circuit

This is a basic course in classical circuit theory. It covers the analytic properties of circuit functions and the synthesis of impedance and transfer functions of

linear, passive circuits. There are three parts: 1. Analysis: gain and phase relations, group delay, sensitivity functions, necessary and sufficient conditions of an impedance function, scattering matrix, necessary and sufficient conditions of a transfer function. 2. Synthesis of impedance and transfer functions. 3. Circuit design by optimization.

C/C++ Programming

The aim of this lecture is to learn C and C++ language. You will get to know grammars, program design skills and how to develop some algorithms in the lecture. So, you will be able to develop high-level program.

Engineering Mathematics

The purpose of "Engineering Mathematics" is learning system modeling, analysis and interpretation of computer engineering. Differential equation, Laplace transforms, Fourier series and Fourier transforms are learned.

Electronic and Digital Circuit Design Lab.

Implement logic circuit on bread board using various logic elements for learning the ability to design logic circuit.

Data Structures

In this class, we first learn basic concept about data processing in computer and we also learn data structure to process data efficiently in computer such as array, stack, queue and linked list. we also study tree manipulation, graph theory, data sorting and searching.

Data Communication

This course deals with the concepts of the Internet utilization, communication models, types and characteristics of transmission media, network equipment, transmission methods, transmission technology, error control, encoding, information compression, and security.

Formal Language and Automata Theory

The aim of this lecture is to learn theory of computation that is the basis of computer engineering, such as formal grammar and language, automata, and so on. To learn, you get skills of advanced programming, and develop skills of solving problem.

Linear Algebra

The purpose of "Linear Algebra" is learning matrix, equations, determinant, vector space, linear change and eigenvalue vector, which are applied in computer engineering area.

Applied Programming Lab

In this course, students would learn the skills for Development of Software and Database such as GUI design, SQL and C# programming based on the real programming training. After this class, students will understand the environment of programming and get some knowledge for storage procedure

Computer Architecture

This course is an introduction to computer architecture. In this class, we will focus on microprocessor design, including CPU and memory, the interface between hardware and software, and an introduction to multiprocessors.

Operating System

This lecture carries the concept of multi programming, time-division system, asynchronous parallel processer. In addition, scheduling, memory management concepts such as exchange of information and protection will be acquire.

Programming Language

In this lecture, you learn a process of development, concepts, program design and writing skills for each programming languages. So, you can well use programming languages, and design and write new programming languages.

System Design Engineering

This course introduces the concepts of object-oriented system analysis and design. Students will learn useful reusable solutions and systematic approaches in software design based on the unified modeling language which is used for specifying, visualizing, constructing and documenting software systems.

Computer Network

This course introduces the concepts of functional model of communication protocols, OSI reference model, TCP/IP protocol, Internet security, socket interface, the next-generation Internet, LAN, and high speed networks.

Probability and Statistics

We study about probability distribution, sampling distribution theory, Poisson process, Markov chains, queuing theory, and learn estimate of probability event and statistical estimation with these method.

Micro Processor Lab.

This course deals with the fundamental concepts associated with practical microprocessors. With the interface to memory (RAM and EPROM) and I/O peripherals, you can learn the micro processor programming and design technique.

MicroProcessor Design

This course covers the architecture, organization and instruction set of microprocessors. The interface to memory (RAM and EPROM) and I/O peripherals is described with reference to bus cycles, bus timing, and address decoding. Emphasis is placed on the design, programming and implementation of interfaces to microprocessor systems using a mixture of C and assembly language.

Digital Signal Processing

The goal of this lecture is to learn basic theory, which deals with digital signal processing, and filter design to process the signal.

Computer Engineering Research Project

The aim of this lecture is to understand the engineering methods and processes for successful research projects. Students will learn how to survey technologies and markets, how to propose the solutions, how to write reports and make presentations in order to make effective collaboration and efficient communication among team members.

Software Engineering

This course is an introduction to general software engineering issues in specifying, designing, building, testing, and delivering high-quality software systems in cost-effective way. Students will study fundamental concepts in software engineering such as software reuse, architectural design, dependability and security as well.

Database System

In class, we first learn schema and sub-schema, relational database, hierarchical database and network model. We study data structure about database software and some critical points about database construction. We also study database modeling and database design, construction, management and tuning.

Numerical Analysis

We are learned about algorithm and error of numerical calculation of equations, polynomials, differential/integral equations for various mathematical models using computer.

Algorithm

This course provides a comprehensive introduction to the modern study of computer algorithms. Students will learn basic concepts, efficient algorithms, performance measures and analysis techniques for various problems. Engineering issues in the algorithm design will be covered as well.

Internbship Ⅰ, Ⅱ, Ⅲ, Ⅳ

This course improves students' field adaptation capability of theory by solving the problems occurred in the filed through the study at the industry or research organization for a certain period. This course will be operated in forms of seasonal session or semester program depending on the hopes of students and the industry.

Capstone Design I

This course will contain project milestone of engineering design and problem solving technique.

Educational-Industrial Lecture Special Seminar Ⅰ, Ⅱ

In this course, students study business philosophy and skills of industry and state-of-the-art IT technology through the exchange of the industries and university. Through the fusion of the major technique leaned from university and industrial technique, field adaptation capability will be improved and organic industry-university cooperation will be established.

Embedded Systems

In this course, students can be to develop the ability for system s/w programming capability under real-time o/s with VxWorks and for s/w programming capability under embedded Linux based on the basic understanding of the embedded system and s/w development environment. Students can be design and implement for serial USB, Ehternet, LCD, LED such as a device of driver.

Computer Engineering Application Lab.

In this course, student will learn setting on the target board, such as embedded linux kernel porting, bootloader uploading, root file system configuration, device driver configuration. And student will practice for variety of applications running on the target board. In addition, practice of Android porting on the target board by expanding previous practice.

Computer Vision

Computer vision is one of state-of-art technologies and it aim to grant vision to computer system. For this, this lecture include contents of image processing, object recognition and detection.

Neuro-computer

In this course, students will study structure of human brain, artificial neural network model, activation functions, and structures and learning methods of various neural networks such as perceptron, associative memory, Hopfield model, bidirectional associative memory, self organizing neural networks, competitive

neural networks, and BP algorithm.

Computer Instructional Resources and Methods

In this course, students' capability which is needed to subject teaching such as teaching method, lesson planning, teaching material analysis for middle & high school and characteristics of computer subject will be improved, and they will g such road and general knowledge for computer and related applications, and teaching materials for practical basic programming.

Capstone Design Ⅱ

Students of this course will select random research subject in computer engineering field based on various knowledge acquiring from the curriculum of major, and acquire practical experience through perform a project with writing research plan, experiment, writing a report, and presentation.

Distributed Computing Systems

In this class, we study recent new technology about distributed computing connected to wired or wireless network regardless of position to do on-stop job processing and mobile job processing based on palm pc, smart phone and laptop computer which is applied boardly to many mobile computing jobs.

Entertainment Convergence

This course deals with entertainment industrial technology which can be sustainable by combining IT convergence technology appropriate for green growth, creative contents development, and scientific analysis of the entertainment industry.

Computer Subject Teaching

In this course, students will study the theory and practice of computer-related and computer-assisted teaching. This course covers a wide range of information & computer education such as historical background of computer subject, goals of computer education, middle & high school curriculum analysis.

Computer Logic and Discourse

In this course, students will study the ways of logical thinking, analysis, and description for the theoretical and practical computer education.

Compiler

This course treats automata theory, computability theory, and complexity theory which are mathematical backgrounds for computer hardware and software. We lecture formal languages and automata, models of computation and computability, time/space complexity and NP problems, and so on.

Creative Engineering Design I, II

This course helps students to enhance the basic ability in the engineering design. Through one specific system which will be designed by students, the basically required electrical abilities such as motor driving, sensor operating, and programming will be developed.

Electromagnetics I, II

In this course, students study the physical laws and mathematical techniques to express the basic principles in various electric and magnetic situations such as the electrostatics, magnetostatics and electromagnetics. Also, various theoretical application techniques to detailed electromagnetic situations are studied.

Circuit Theory I, II

This course helps students to understand the analysis and design of electrical circuits. By understanding the characteristics of passive elements such as resistor, inductor, capacitor and utilizing the basic law, the analysis of direct current and alternative current circuit according to the properties of sources and loads will be conducted. The main contents of this course are the analysis of transient state, frequency, filter, phasor-domain, laplace transformation, fourier transformation, two-port networks, and so on.

Basic Electric Circuit and Digital Lab. I

In this course, students design and fabricate various electric circuits and verify its functions by experiments. By analysing the operation principle of each circuit experimentally, students verify the concerned theories of electric circuit and electromagnetics. Also, students can master the manuals of measuring instruments while the experiments are performed.

Engineering Mathematics I, II

This courses cover topics from engineering mathematics that serve as foundations for descriptions of electrical engineering devices and systems. The topics include : linear differential equations(1st., 2nd. and higher order), Laplace transformation, linear algebra, Fourier series and integral, complex series and integral, fundamental statistics.

Digital Engineering

Digital logic and digital circuit design for the design and analysis of digital system. Boolean algebra, canonical expressions, logic gates and their physical realization Fan-in and fan-out, timing, rise and fall times, delay. Combinational circuits minimization (Karnaugh map, Quine-McCluskey, Tools-Expresso, others). Standard circuits - adders, multiplexers, demultiplexers, etc. Sequential circuits - memory elements, flip-flops, counters.

Probability & Statics

This course helps students to define the uncertain event and solve the required statistical information such as expectation, variance, and standard deviation. Also, various probability density function for many events and systems will be introduced.

Basic Electric Circuit and Digital Lab. II

By constructing and measuring its experimental results of digital logic circuits and digital systems, students understand the theory of digital systems and master the manuals of measuring instruments.

Physical Electronics

This course addresses the physics relevant to current transport in semiconductors and the physical operation of semiconductor devices for the analysis and design of electronic circuits. Following topics are included: basic carrier properties in semiconductors, physical mechanism of transport phenomena in semiconductors, current-voltage characteristics in semiconductor devices such as diode, FET, and BJT, and equivalent circuit models for electronic devices mentioned.

Numerical Analysis and Application

This course provides students with the techniques of handling computer programming, such that students are able to develop computer solutions for various applications in engineering covering business and engineering. The technique of numerical analysis can be applied to those cases that the calculation cannot be accomplished in hand.

Modern Applied Physics

By understanding fundamental physical principles and various concepts in the area of modern applied physics, students can achieve a scientific basis to study a more deepened electrical engineering in a senior class.

Electronic Circuits I, II

This courses address the analysis and design of various analog circuits. Topics include: simple rectifiers, operation of various basic amplifier circuits including differential amplifier using FET and BJT, physical operation of amplifiers with active load, frequency analysis of basic amplifiers, analysis and design of operational amplifiers, method of negative feedback, various analog filters, positive feedback and implementation of oscillatory circuits, and multi-vibrator circuits.

Electronic Circuits Lab. I, II

This courses addresses the experiments and design of basic electrical devices and systems. Topics include : characteristic experiments of diode, BJT and FET, and design and implementations of amplifier, waveform generators, active filters and oscillators, and two or three application systems design and implementation.

Signal and Systems

Signal and systems describes the fundamental concept including classification of signals and systems. Through understanding the concepts of linearity and non-linearity, student can develop a foundation of system engineering, which covers several engineering fields, such as control, communication, and signal processing.

Automatic Control

The main contents of this course are the basic control system design such as mathematical modelling for electrical networks and mechanical systems, and their analysis using block diagram, the analysis of feedback system. Also, the analysis of dynamic system in both time-domain and frequency will be introduced.

Electric Power Engineering

This course helps undergraduate students to analyze and design electric power systems which is composed of generators, substations, transmission lines and distribution lines. The goals of this lecture are to master calculation of line parameters; steady-state and transient analysis of two-port networks; modeling of generator and transformer; one-line diagram representation by per unit; power flow calculation; generator control and economic dispatch; fault calculation by symmetrical components; insulation coordination and protection coordination; stability analysis.

Electric Properties of Materials

This course helps students to understand the electric properties such as, dielectric, insulation, magnetic, and conduction properties of materials used in electrical engineering, based on atomic interpretation. So those who study in this course can apply the electrical materials to the electrical power apparatus and components.

Display Engineering

In this course, students study the structure, operational principles and methods of fabrication of various display devices which include CRT(Cathode Ray Tube), LCD(Liquid Crystal Display), LED(Light Emitting Diode), FED(Field Emission Display), PDP(Plasma Display Panel), and so on.

Network Analysis and Synthesis

This course helps undergraduate students to basically design linear system under some constrained conditions which are given to inputs and outputs. The goals of this lecture are to understand basic theories related to differential equations, linear algebra, graph and topology, linear system, distributed parameters, controller design and transformation theories such as Laplace transformation, Fourier transformation, z-transformation, dq-transformation.

Modern Control

This course helps students to understand the root-locus analysis, nyquist stability criterion. Also, the design of PID controller in both time-domain and frequency-domain will be conducted. In the state-space domain, the design method of full-state controller/observer, and stability analysis based on Lyapunov second method will be introduced

Electrical and Electronic Material and Components

This course helps students to understand the electrical properties of materials for each function based on electro-physics, and preparation process, structure, and operation principle of electrical components.

Power Electronics

Electrical and thermal characteristics of power semiconductor devices for the design and analysis of powerelectronics system: Characteristics and application of diodes, thyristors, power BJT and power MOSFET, IGBT. Circuit analysis, design and control of powerelectronics converter and PSiM simulation: AC/DC converter, DC/DC converter and DC/AC inverter

Electric Machines I, II

This class deals with the basic principles and design theory of electric machines which include all the machines and actuators operated by electric energy. Based on the electro-magnetics and circuit theory, the students will learn the basic energy conversion process and the design of electric and magnetic circuits. More specifically, the principles on transformer, motor, generators and special machines such as Brushless DC motor and switched reluctance motors. The understanding of electric machine is usually achieved by two ways: design-focus one based on electro-magnetics and driving-focus one based on electric circuit theory. This class will put its focus on understanding of basic principle and the design theory.

Microprocessor

Operating principle and application of microprocessor using AVR (ATmega128). Hardware and software for using AVR. Understanding of a given basic circuit and program. Project design and implementation adding hardware and software.

Plasma Engineering

In this course, students study the material properties of plasma, the operational principles of plasma sources and various plasma applications. Also, the students can design a plasma source or a specific parameter of a plasma based on the fundamental theories.

Design Projects

Design Project course let the students have some knowledge on the methodological experiences on the research in electrical engineering by

understanding and practicing the process of research for designing a system including the process of analysis of a research subject.

Capstone design

Participation in an individual or group research project under direction of a faculty member. Team-oriented culminating design project in electrical engineering, incorporating engineering standards and realistic constraints. Requires formal reports and group presentations.

Electric Drives)

Elements of drive systems, characterization and understanding of the dynamics of motor-electrical load system. Modeling of electrical machines, design and analysis of controllers and PSiM simulation of electrical drive systems

Communication Systems I, II

In this course, several subjects about communication systems can be reviewed and expanded by covering AM and FM modulations. In the area of digital communication systems, various modern techniques including modulation and demodulation using digital signals. Also, this course builds a foundation for statistical analysis and its applications on statistical decision theory

Digital Signal Processing

This course addresses the mathematics, implementation, design and application of the digital signal processing algorithms widely used in areas such as multimedia telecommunications and speech and image processing. Topics include discrete-time signals and systems, discrete-time Fourier transforms and Z-transforms, discrete Fourier transforms and fast Fourier transforms, digital filter design and implementation etc.. Classroom lectures are supplemented with implementation exercises using MATLAB

Renewable Energy System

This course helps undergraduate students to basically understand and design renewable energy system like as photovoltaic generation system, wind turbine generation system, fuel cell generation system, energy storage system, which are developed and deployed for stable supply and efficient utilization. The goals of this lecture are to understand the principle and operation characteristic of renewable energy system, and master its design capability.

Industrial-Education Special Seminar I, II

This course helps students to understand the recent technology trends on ET and IT, and the information for future career by invited seminar of CEO or specialist in industry and research institutes.

Integrated Circuits

This course addresses the analysis and design of CMOS digital circuits. The

main topics are: basic CMOS digital circuits, transistor level circuit analysis and design, and layout design. Starting with the physical operation of the CMOS inverter circuit the design of a digital system of modest complexity is to be discussed.

Internship Ⅰ, Ⅱ, Ⅲ, Ⅳ

The objective of this course is to provide students with field experience of related industries for enhancement of adaptability in fields through working at industries

Digital Signal Processing Application

This course is a continuity lecture of Digital Signal Processing. Topics include discrete Fouriertransforms and fast Fourier transforms, digital filter design and implementation, and multi-ratesignal processing. The course will include introductory discussions of linear prediction and selected application areas. Classroom lectures are supplemented with implementation exercises using MATLAB

Large Current and High Voltage Engineering

This course helps students to understand theories and phenomena under large currents and high voltages. and also study HV insulation design for power apparatus and conduction and interruption mechanism of large currents.

Advanced Computer Programming

Advanced Computer Programming provides the information on programming including ANSI C, C++. and Matlab that is a computer software toolbox built by MathWorks. The programming skill related to C and Matlab requires some amount of time and efforts to set useful program. Not only the computer skills but also ability of problem analysis will be developed through this course.

Engineering Education Theory

The goal of this course is to learn about engineering subject teaching and theories and practices of education. Also this deals with the general issues of engineering education which focus on the historical changes of engineering subject, the purpose of engineering subject teaching, and the curriculum study of middle and high school

Industrial Resources and Method of Enginnering Course

This course provides the skill improvement of engineering subject teaching with learning about the understanding of engineering subject characteristics, analysis of middle and high school′ textbook contents, the forming technique of lesson schedule, and teaching methods. Also the participants of this course learn the overall knowledge about engineering and its application, and study the instructional resources about basic teaching skills and practices

Logic & Essay in Engineering Education

This course deals with logical thinking and analytic method for theories and practices of engineering subject education, and also writing method to express systematically the engineering logic

▣ Department of Computer Science

Introduction

Even if the hardware part of IT industry has developed enormously, the part has reached its limits.

On the other hand, software companies like Google and Apple, etc. have kept growing, leading IT industry.

That is, recently IT industry has changed rapidly into a pattern where software dominates hardware, and Korea also tries to respond swiftly to such a change of business model.

In the country-level, we need to strengthen our software capacity.

According to a 2009 report of a national policy institute, it is expected that personnel demand in software industry will increase 9.4% on average every year, and that there will be shortage of more than 56 thousand software workers for coming four years. And, as part of the government policy for balanced development of the nation, software-related public organizations (Korea IT Industry Promotion Agency (KIPA), Korea Internet & Security Agency (KISA), etc.) will be moved to Chungbuk province.

In broader perspective, it is expected that demands for software specialists will increase rapidly for the establishment and operation of the knowledge-based society represented by 'smart' and 'mobile'. Thus, the prospect of the Software Department is very bright, and it will play a great role.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(46Credits), a major(93Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Discrete Mathematics(3)	1-2-R Introduction to Computer Systems(3)
1-1-E Creative Engineering Design(2)	1-2-E Lab of Fundamental Software Tools(2)
1-1-E Exploration of Future Design I (1)	1-2-E Exploration of Future Design II (1)
2-1-R Logic Circuit and Lab(3)	2-2-R Computer Architecture(3)
2-1-R Data Structures(3)	2-2-R Principles of Programming Languages(3)
2-1-E Object-Oriented Programming(3)	2-2-R Algorithms(3)
2-1-E Linear Algebra(3)	2-2-E Systems Programming(3)
2-1-E Automata(3)	2-2-E HCI Programming(3)
2-1-E Preparations of Future Design I (1)	2-2-E Preparations of Future Design II (1)

2-1-E Fundamental Project Practice(2)	2-2-E Development Project Practice(2)
3-1-R Operation Systems(3) 3-1-R Object-Oriented Design(3) 3-1-E Web-based Software Development(3) 3-1-E Firmware Programming(3) 3-1-E Data Communication(3) 3-1-E Implementation of Future Design I (1) 3-1-E Project Application Practice(2)	3-2-R Software Engineering(3) 3-2-R Interlink Project Practice, Comprehensive Design (2) 3-2-E Probability and Statistics(3) 3-2-E Compiler(3) 3-2-E Computer Networks(3) 3-2-E Database System(3) 3-2-E Computer Graphics(3) 3-2-E Implementation of Future Design Ⅱ(1)
4-1-R Capstone Design I (2) 4-1-E Embedded Systems(3) 4-1-E Image Processing(3) 4-1-E Artificial Intelligence(3) 4-1-E Educational-Industrial Special Seminar I (1) 4-1-E Computer Instructional Resources and Methods)(3) 4-1-E Database Design(3)	4-2-R Capstone Design Ⅱ(2) 4-2-E Graph Theory(3) 4-2-E Information Security(3) 4-2-E Information Retrieval(3) 4-2-E Educational-Industrial Special Seminar Ⅱ (1) 4-2-E Logic and Essay Writing in Computer Education(3) 4-2-E Computer Subject Teaching(3)

● Courses Abstract

Discrete Mathematics

This course covers mathematical concepts that are frequently employed in computer science: sets, relations, propositional logic, predicative logic, algorithm, graphs, trees, recurrences and boolean algebra.

Exploration of Future Design I

In this course, students take vocational aptitude tests and have weekly supervision. So those who study in this course can have greatly increased their own self-awareness and grasp a better understanding of who they are.

Creative Engineering Design

This course aims at improving students' creative competence through various problem solving activities. In addition, the course allows students to develop a number of key skills including teamwork and communication skills.

Introduction to Computer Systems

This course is designed to help you understand the core topics in computer science. In this course, we briefly study several core areas such as algorithm, programming language, software engineering, data structure, database system, artificial intelligence and theory of computation. We want to help you understand main areas in computer science broadly and guide student to select his specific area in his future study.

Lab of Fundamental Software Tools

This course covers several LINUX based software tools for convenient uses of computing resources.

Exploration of Future Design Ⅱ

This course helps students to find various jobs in their field of study. All students graduate from this course can understand various kinds of occupations.

Logic Circuit and Lab

Students will learn the analysis and design principles of the combinational and the sequential logic circuits that are basis of computer system hardware, and the simulation techniques using hardware simulation language.

Data Structures

In Data Structures, we study basic concept of abstract data type to represent Data Structures as well as algorithm representation and analysis of it based on time and space concepts. The main topics are linear structure such as array and linked list and its application to STACK and QUEUE. We also study non-linear structure such as tree and graph and its application to real computer problem. Finally, we study Sorting, Searching and Symbol Table.

Preparations of Future Design I

In this course, students attend a special lecture series on leadership and latest trends of business world. So this course helps students to grow leadership and help discovering career interests.

Fundamental Project Practice

In order to pursue the broad understanding of information technology and software, this course aims at pre-understanding of the advent of new technology by doing analysis and investigation of relevant field and predicting the development tendency.

Object-Oriented Programming

In this course, students learn Object-Oriented Programming using C++. Emphasis is on algorithm development and problem solving. The class will include a quick overview of the fundamentals of C++, and then progress on to cover more advanced C++ concepts.

Linear Algebra

This course covers fundamental theories of linear algebra such as matrix, linear equation system, determinant, vector space, linear transformation, eigvenvector and eigenvalue, and singular value decompositon.

Automata

This course study theory of computation, deals with the relationship between the various language and grammar. Student will learn about finite automata, pushdown automata and turing machines.

Computer Architecture

This course presents how the computer hardware operates. Students will lean the

three major components of computer system (central processing unit, memory unit, and input/output devices), and how they cooperate to execute the instructions.

Programming Language

This course introduces the basic concepts of computer programming languages, and outlines the features of the latest programming languages. Through this, students will learn the ability to choose and utilize an appropriate language for their needs, and further to design new programming languages.

Preparations of Future Design Ⅱ

In this course, students experience various technologies related to specialties by participating in various exhibitions in their field of study.

Development Project Practice

This course covers developing software which can be applied for the real life using the programming language C and C, and also aims at understanding the role of program and the importance of systematic development of the program code in such a developing process.

System Programming

This course is designed to study machine language, assembly language and translator. In this course, we introduce translation mechanism and help student write assembler. Student will have experience of writing a translator. We also briefly introduce compiler mechanism. Student must have at least one computer language skill to take this course.

Probability and Statistics

This course aims at developing students' ability to apply statistical concepts and statistical way of thinking to computer systems.

HCI Programming

This course covers some methodologies for human-computer interaction and helps students to foster GUI-based programming skills.

Operating System

An Operating System course provides a convenient higher-level abstraction of the underlying hardware to the user programs and multiplexes the hardware resources between these programs. Topics to be covered in this course will be process management (creation, synchronization, and communication); CPU scheduling; deadlock prevention, avoidance, and recovery; main memory management; virtual memory management (swapping, paging, segmentation and page-replacement algorithms); control of disks and other input/output devices; file-system structure and implementation; and protection and security.

Object-Oriented Design

This course probes into object-oriented software development, focusing on widely-used techniques for analyzing and designing of software systems. The goals of this course are understanding UML(Unified Modeling Language), learning how to apply UML to model software, and exercising the modeling with real-world systems.

Implementation of Future Design I

In this course, students can experience the job-aptitude test used in applying large corporations such that they can analyze their current capacity to adapt themselves to the industrial environment. This activity will provide students to prepare the necessary skills for employment.

Project Application Practice

This course covers developing software which can be applied for the real life using the programming language C and C, and also aims at understanding the role of program and the importance of systematic development of the program code in such a developing process.

Web-based Software Development

We will study technology, methodology and universal design concept necessary to develop a web-based software. Also, we will learn the techniques for developing Web-based software through a real project.

Firmware Programming

Students can experience to write programs to control the hardware devices such as GPIO, timer, serial communication, motors, and AD and DA converters in bare micro computer system without operating system.

Data Communication

This course covers the concept of the general data communication such as properties and type of transmission media, transmission technology, error control and link control protocol and coding technique which are the basic method of the computer network.

Algorithm

In Computer Algorithm class, we study basic concepts of algorithm and skills to find a solution for a problem using iterative and recursive method as well as how to analyze it. Then, we study Divide and Conquer, Dynamic programming and Greedy method to solve some problem as well as analyze it. Network problem and Search are also important topics in algorithm class.

Software Engineering

This course covers the issues regarding software development approach in engineering views. Specific topics to be covered in this course are software project planning, software development process, software quality, software testing,

and software configuration management. This course also includes practical exercise to applying those topics in the form of team-based project.

Implementation of Future Design Ⅱ

This course gives the student several opportunities that helps their successful employment such as discussion meeting with HR managers in companies, special lectures for the employing trend and interview strategy, and other activities.

Interlink Project Practice, Comprehensive Design

By interlinking learners with the mentor or alumnus of the industry, this course aims at understanding the actual field by understanding the projects industry is working on and by solving the concomitant problem related to the projects with the mentors.

Compiler

This course will give you the opportunity to learn relation between programming language and compiler, and the relation between auto meta and compiler. The primary focus is on understanding the computer operation principle and design methods.

Computer Networks

This course covers the basic concept and the structure of the network, TCP/IP protocol structure ,technology and the principle related to the transmission and the application layer protocol the with the internet centered

Database System

This course aims to learn the concepts of database and data model, database design using entity-relationship diagram, relational data model and how to use SQL, database security as well as an architecture of DBMS and algorithms to implement it, plus how to develop a database application system and connect with the web.

Computer Graphics

This course introduces the basic concepts and algorithms of computer graphics with OpenGL. It covers the basic methods needed to model and render 3D objects, including much of the following: graphics displays, affine and perspective transformations, windows and viewports, clipping, visibility, illumination and reflectance models, texture mapping, graphics hardware, graphics toolkits, and animation systems.

Internship Ⅰ , Internship Ⅳ

Students work at a company or an organization for the semester to build experience in the field and to plan the further study and career.

Practical Software Project Ⅰ , Practical Software Project Ⅱ

With the learner taking the leading role, this course focuses on the more

practical and actual project execution perspective based on the design project experience, hence it will perform tasks such as analyzing the latest ability of using IT technology and requests from the actual industry, various application of software design methodology and developing the project managing ability.

Capstone Design I

Based on the basic principle of the computer science, we will organize the team , choose the topic, plan the project and enable learners to experience project based on team work by systemically following the process until obtaining the final product.

Embedded Systems

The Embedded Systems course offers students a broad and deep understanding of embedded systems and, in particular, how to system software interacts with low-level hardware. This course builds on the basic skills of embedded system design and programming through the hands-on experiences with Embedded Boards. Students will perform several prototyping projects such as LED management and servo motor control together with professor in class, and by the end of the course, they will be given a project that should be designed and developed for themselves.

Image Processing

This course introduces basic image processing theory and its applications. It covers the basic methods needed to develop image processing system, including image spaces and image representation, image enhancement, edge detection, edge and region based segmentation, and feature extraction and object recognition. Spatial domain approaches will be emphasized.

Artificial Intelligence

This course first introduces the goals and successful application domains of artificial intelligence, and then addresses some typical problem-solving methods, knowledge representation and inference, knowledge-based system, natural language processing, computer vision, and intelligent robots.

Educational-Industrial Special Seminar I

This course focuses on understanding the principles of educational-industrial cooperation. The course discusses the latest IT technologies and various industrial methods of management.

Computer Instructional Resources and Methods

This course is designed to improve students' abilities to understand computer instructional resources and methods. The course also describes how to effectively use the manual for computer instructional resources to teach students in middle and high schools.

Database Design

This course covers database design and the use of database management systems for developing real world applications. Specifically, the students will learn how to collect user' requirements, model them, normalize the model, and change that model into a fully normalized database design. The course focuses on practical design of databases and developing real world database applications using modern software tools.

Internship Ⅱ, Internship Ⅲ

Students work at a company or an organization for the semester to build experience in the field and to plan the further study and career.

Capstone Design Ⅱ

Based on the knowledge learned from undergraduate course, research topic related to computer science will be chosen. This course aims at obtaining the research experience by performing the activities such as writing out research plan and reporting until final research announcement is done.

Graph Theory

In Graph theory, we study graph representation and its application to optimal path problem, connectivity problem and graph application to Network Problem. Matching, Hamiltonian Cycle, Maximum flow and Minimum cut are covered. Finally, we study how to apply graph theory to theory of computation.

Information Security

This course covers the basic information security principle and understanding the network security and system security, methods to establish the stable information system and provide the safe network service.

Information Retrieval

This course introduces the basic concepts of information retrieval systems for unstructured data. which includes the theories and implementation methods for inverted indexing, posting, compression, system evaluation, user relevance feedback, document ranking, information retrieval models and web searching.

Educational-Industrial Special Seminar Ⅱ

This course focuses on understanding the principles of educational-industrial cooperation. The course discusses the latest IT technologies and various industrial methods of management.

Logic and Essay Writing in Computer Education

This course aims to learn the ability of expressing the students' creative ideas for computer science and deploying the validity and legitimacy of their ideas systematically. In addition, it focuses on enforcing demand driven education in the

middle and high school fields with searching data for computer science and then presenting and debating their summarized results. In result, it aims to develop the problem-solving ability for a computer science teacher and to improve the ability of logical thinking which needs in the knowledge society.

Computer Subject Teaching

This course covers the teaching related to computers and principle and the reality of the teaching computers. It also covers the computer teaching at the middle school level such as historical background of computer teaching, the goals of computer teaching, analysis of the course of the computer study of middle and high school.

◇ School of Crop Science and Agricultural Chemistry

Introduction

Sustainable food production and supply through the sound use of plant natural resource depends on the environment in which it grows. There is the growing demand of society in experts on multiple disciplines. The two departments of Crop Science and Agricultural Chemistry are well aware of the trends. Now we are being operated in one as the School of Crop Science and Agricultural Chemistry to offer students the opportunity to widen their knowledge across the two disciplines. Students will learn common background subjects of the two disciplines in the first two years of their study and will proceed to choose their major in either Crop Science or Agricultural Chemistry later to become specialized in each discipline. Please refer to introduction of each major for aims, principles and details of the principle.

Credit requirements for graduation

Crop Science department curriculum has three components: Liberal education requirements(37Credits), a major(82Credits), and electives. Environmental & Biological Chemistry department curriculum has three components: Liberal education requirements(37Credits), a major(78Credits), and electives.

Curriculum

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
2-1-R Organic Chemistry (3)	2-2-R Soil Science (3)
2-1-R Experimental Statistics (3)	2-2-R Biochemistry (3)
2-1-R Principle of Cultivation (3)	2-2-R Crop Physiology (3)
2-1-E Molecular Biology (3)	2-2-E Microbial Ecology (3)
2-1-E Application of Computer and Agricultural Infromation(3)	2-2-E Organic Synthesis Chemistry (3)
2-1-E Analytical Chemistry(3)	2-2-E Environment and Agriculture (3)
2-1-E Physical Chemistry3)	2-2-E Gene Manipulation (3)

● Courses Abstract

Organic Chemistry

Lectures focus on the basic theory of structure, classification, nomenclature, properties and reactivity of organic compounds

Experimental Statistics

This course is designed to teach basic statistical principles, methods of design and analysis and interpretation of experimental results for the students majoring biology and agricultural science.

Principle of Cultivation

Basics for kinds of crop cultivation is explained, and cultural practices and environments of crops are introduced generally. Especially, cultural practices for yield-increase and the application of cultivation technology, environmental condition and genetics on breeding for resonable cultural practices are emphasized. The application of plant nutrients is covered, too

Molecular Biology

Comprehensive course in molecular biology that covers the structure and properties of DNA, DNA replication and repair, synthesis and processing of RNA and proteins, the regulation of gene expression, and the principles and applications of gene cloning and recombinant DNA technology.

Application of Computer and Agricultural Information

It covers the composition and operation system of personal computer(PC) which is essential element in the modern world. Also, it includes the practice of word processor, spread sheet database, powere point, and computer communication.

Analytical Chemistry

Lecture of theory and principle in the nature of analytical chemistry such as sampling, standardization and calibration, aqueous solutions and chemical equilibria, solving equilibrium problems for complex system, gravimetric methods of analysis, titrimetric methods, titration curves for complex acid/base system, applications of neutralization titrations, complexation reactions, and introduction to electrochemistry

Physical Chemistry

Lectures focus on the thermodynamics, physicochemical equilibrium, chemical kinetics, gas dynamics, and photochemistry, with emphasis on basic principles to biological applications.

Soil Science

Basic knowledge for beginners of soil science; soil genesis and classification, soil physical, chemical and biological properties, soil structure, soil water and air, soil organic matter and microorganism, soil conservation, soil pollution.

Biochemistry

Lectures focus on the structure and characteristics of amino acid, protein, and

carbohydrate, the functions of enzyme, with emphasis on from the basic life chemistry to metabolism, such as glycolysis, TCA cycle, electron transport and oxidative phosphorylation, and photosynthesis, and on the understanding of fundamental mechanisms of life science.

Crop Physiology

This class covers on the basic principle and theory of crop growth and energy metabolism, based upon the knowledges of organic chemistry and biochemistry. This study is focussed on cell, water, nutrient, and environmental physiology, including the water use, photosynthesis, carbon and nitrogen assimilation, and responses to environmental stresses and the roles of growth regulators.

Microbial Ecology

It is learning about the mutualism of bacteria depend on nature and human work ecology and bacterial population, organism amount depend on inhabitancy and distribution of bacteria in atmosphere, hydrosphere, lithosphere and biochemistry of elemental circulation in soil ecosystem etc.

Organic Synthesis Chemistry

Lectures focus on the synthetic methods based on the reaction of organic chemistry, reaction mechanism, and spectrometric confirmation of organic compounds

Environment and Agriculture

This lecture provides physiological and ecological information for sustainable agriculture on crops. This deals with necessity, present state, trends and future cultivation. Through this lecture, students will find a new meaning about interaction of agriculture and environment.

Gene Manipulation

This class learn isolation of genes, purified, cloned, Basic genetic engineering techniques

Major in Crop Science

Introduction

The Department of Plant Resources provides well-balanced educational programs to increase the productivity and the quality of crops through improving cultural and breeding techniques. The crop cultivation is the application of basic biological and ecological concepts both to elevate the production and quality of crops in an effort to protect the environment, while crop breeding and molecular biology are the application of basic genetic theories to improve new varieties of crops. Diverse career opportunities have been given to the graduates in plant science research and teaching, extension education, agribusiness, farm management, and governmental and commercial agencies. The graduate programs also provide fundamentals for students taking further degrees and specialization. Since the department was established in 1950,more than 2,000 graduates are playing leading roles in various areas. Currently, 6 faculty members teach and research in the department. One hundred fifty students are studying for B.S., M.S., and Ph.D. degrees.

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Paddy Field Crop and Practice (4)	3-2-R Plant Breeding and Practice (3)
3-1-R Upland Crops and Practice (4)	3-2-R Industrial Crops and Practice (3)
3-1-R Genetics (3)	3-2-E Medicinal Crops and Practice (4)
3-1-E International Agriculture (3)	3-2-E Principles of Weed Control and Practice (4)
3-1-E Plant Genetic Resources (3)	3-2-E Seed Production(4)
3-1-E Field Practice I (1)	3-2-E Plant, Genes & Crop Production(3)
3-1-E Crop Protection (3)	3-2-E Agronomy Seminar I (1)
	3-2-E Field Practice II(1)
	3-2-E Agricultural Chemicals (3)
4-1-R Crop Genetic Engineering and Lab. (4)	4-2-E Quality Control of Agricultural Products(3)
4-1-E Forage Crops and Practice (4)	4-2-E Industrialization of Plant Resources and
4-1-E Plant Ecology (3)	Graduation Thesis (Capstone Design) (3)
4-1-E Plant Tissue Culture and Lab. (4)	4-2-E Farm Management
4-1-E Six primary Agricultural industrialization (3)	
4-1-E Agronomy Seminar II (1)	

● Courses Abstract

Paddy Field Crop and Practice

This lecture provides morphological, physiological and ecological characterization information for application agriculture on rice. Especially, cultural practices for yield-increase and the application of cultivation technology and research on rice

for resonable cultural practices are emphasized.

Upland Crops and Practice

This lecture provides morphological, physiological and ecological characterization information for application agriculture on main upland crops . Especially, cultural practices for yield-increase and the application of cultivation technology, genetics and breeding are emphasized.

Genetics

In this class, we study the development procedure, from conventional genetics to modern genetics, to understand the life phenomenon. All students will understand the genetic theory for future study in molecular biology, transmission genetics, cytogenetics, and molecular breeding of crops. Especially, we study the mechanism of heredity, variation and genetic materials for plant breeding.

International Agriculture

This class introduces the overview of international agricultural patterns, productivity and quality, food problems, and regulations of trade to agricultural products among nations. This class also provides some useful information on agricultural products and current international trade issues.

Plant Genetic Resources

Specifically the course aims to provide students with an understanding of an importance of genetic resources and the genetic variation within the germplasm diversity of crops and wild species. The ability and confidence to formulate effective conservation management policies. The skills to implement and integrate ex situ, in situ and in vitro conservation strategies. The competence required to manage ex situ (genebank) and in situ (reserve) collections. An understanding of breeding and biotechnology, and how genetic resources may be utilized for the benefit of humankind will be emphasized.

Field Practice I, II

In this class, students make themselves familiar with techniques and works related to all crop fields through explanation and practices in detail. By discussion of Korean crop in future, students will pledge their readiness and mission as crop students.

Crop Protection

Study the principles on plant pathology and entomology and plant pathogen control methods with case studies.

Plant Breeding and practice

This lecture provides theory and practice of plant breeding using principle of genetic and related science.

Industrial Crops and Practice

This class covers on the kinds of industrial crops, focussing on the functional and pharmacological chemicals of the industrial and economical values of industrial plants. The integrated knowledges of cultivation processes, cultivars, production and consumption are introduced.

Medicinal Crops and Practice

This class covers on the kinds of medicinal crops, focussing on the functional and pharmacological chemicals of medicinal plants and economical values of industrial plants. The integrated knowledges of cultivation processes, cultivars, production and consumption are introduced.

Principles of Weed Control and Practice

Study the characteristics physiological and ecological of weeds in the fields, diagnose the injuries of crops by these weeds, and practice effective weed control system through understanding of herbicides chemistry.

Seed Production

This course is designed to provide a basic knowledge of seed production and technology. Principles followed reproduction physiology, environments, production technology, system, seed testing and certification will be presented. The content of this course will be helpful for effective seed production, certification for seed specialists and successful management.

Plant, Genes & Crop Production

Introduces plant breeding; offers a sense of the historical and social importance of the field, tracing its evolution from the pre-scientific days of crop domestication to modern applications of biotechnology. Offers specific examples of how breeding objectives are realized and raises questions about the environmental, social, and economic consequences of intensive food production systems

Agronomy Seminar I, II

This course provides the student with information on current technologies as applied to agronomic practices, to get some knowledge in general information on agronomy, crop science, genetics, plant breeding, and molecular genetics and to present their literature review to improve presentation skills.

Agricultural Chemicals

Lectures focus on the chemical structure, physiochemical properties, chemical reaction, and biochemical mechanism of pesticides.

Crop Genetic Engineering and Lab.

This course introduces students to the modern science of Biotechnology and its applications in promoting modern agriculture. The course covers the general theme, gene cloning, gene manipulation, vector construction, transformation

technology, and gene expression. Emphasis will be placed both on descriptions of plant genetic engineering theory and practice.

Forage Crops and Practice

Forages, such as pasture and whole crop rice, barley, rye, oat which are produced in Korea have been far from the demand for the ruminant animals. Therefore, forage crops which are cultivated in the rice paddy field and a dry field can be replenished. Thus, the purpose of the lecture is to learn the characteristics of morphology and systematics, cultivation, grassland ecosystems, nitrogen fixation, cropping system, sustainable agriculture, and breeding of the forage legumes and grasses, such as corn, oats, sudan, italian ryegrass, alfalfa and barley and to practice the crops in use them for the animals.

Plant Ecology

This class covers on regional and global ecosystems and agro-ecosystems, including diverse environmental factors such as soil, plants, and gases of atmosphere. The relationships among crops, cultivation methods, dynamics of agro-ecosystems, nutrient cycling, ecological characteristics of paddy and upland fields, and global environmental problems are introduced.

Plant Tissue Culture and Lab.

In this class, we study all branches related to plant tissue culture from basic tissue culture techniques to genetic engineering. By theological and experimental lecture, students will improve their ability to perform practical work.

Six primary Agricultural industrialization

Six primary industrialization is a very important issue in the field of agricultural development. However, the goals of the six primary agricultural industrialization are as follows: 1)To increase agricultural production, 2)To process agricultural foods for the enhancement of agro-based industry, 3) To increase sales of agricultural products and develop a potential marketing chain, 4) To establish the integration of exchanges and Finally, to make a platform of new business values

Quality control of Agricultural products

Quality Control of Agricultural Products offered by Dept. of Crop Science will focus on post-harvest management of main crops such as rice, corn, wheat and barley. This class WILL NOT cover quality control of horticultural crops. Quality Control of agricultural products mainly emphasis on how to manage agricultural products once they are harvested. Lots of fresh products are getting unsellable due to improper post-harvest management. This class will cover physiology of main crop produts after harvest, proper handling and storage techniques etc.

Industrialization of Plant Resources and Graduation Thesis

Industrialization of plant resources is a very important issue in the field of agricultural development. However, the goals of the industrialization of plant resources increase agricultural production, agricultural foods processing for the enhancement of agro-based industry and to increase sales of agricultural products and develop a potential marketing chain, and finally, induces an active and potential entrepreneurship mindset of the students graduate thesis.

Farm Management

This studies a decision-making process whereby limited resources are allocated to a number of production alternatives in order to attain some management goals.

Major in Agricultural Chemistry

Introduction

The major goal of the programs offered by the department educate the students and produce the excellent agricultural scientists well qualified mainly in the fields of agriculture and life sciences, based on the background of chemistry and biology. The department includes the diverse academic fields, such as soil sciences (physics and chemistry), biochemistry(membrane biophysics and molecular biology), plant nutrition and fertilizer(soil microbial ecology), environmental chemistry and microbiology in agriculture, and pesticide science, based on the advanced academic science and technology as well as the basic physics, chemistry and biology.

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Agricultural Environmetal Chemistry(3)	3-2-R Soil Chemistry (3)
3-1-R Biochmistry Lab. (1)	3-2-R Fretilizer (3)
3-1-R Soil Science Lab. (1)	3-2-R Agricultural Chemicals Lab. (1)
3-1-R Soil Microbiology (3)	3-2-R Soil Physics (3)
3-1-R Agricultural Chemicals (3)	3-2-R Analytical Chemistry Lab. (1)
3-1-E Instrumental Chemical Analysis (3)	3-2-R Fertilizers/Plant Nutrition Lab. (1)
3-1-E Genetic Chemistry (3)	3-2-E Environmental Toxicology (3)
	3-2-E Inorganic Chemistry (3)
	3-2-E Physiological Biochemistry (3)
4-1-R Environmental Microbiology Lab. (1)	4-2-E Soil Environment (3)
4-1-E Pesticide Chemistry (3)	4-2-E Soil Environmental Analysis Practice (3)
4-1-E Plant Nutrition (3)	4-2-E Plant Nutrition and Physiology
4-1-E Water Environmet Science (3)	4-2-E Radiochemistry in Agriculture
4-1-E Ecological Atomospheric Environment (3)	4-2-E Water Environmental Analysis practice
4-1-E Soil Fertility (3)	4-2-E Environmental Biophysics
4-1-E Environmetal Biophysics (3)	4-2-E Pesticide Residue Analysis Practice
4-1-E Pesticide Residue Analysis Practice (3)	4-2-E Environmental & Biological Research Project, Capstone Design

● Courses Abstract

Agricultural Environmental Chemistry

This class includes the composition of the atmosphere, water, and soil environments in terms of the agriculture and industry. It teaches the principles and applications of BOD, COD, SS, TN, and TP, and total coliforms measurements used as important indicators in the estimation of water pollution. Also, it covers the physical, chemical, and biological treatments of the inorganic and organic pollutants in the respective environments.

Biochemistry Lab.

Biochemistry laboratory covers the purification of amino acids and proteins, the measurements of enzyme and cellular activities, with emphasis on the basic principles of various chromatographies. Most experiments are designed to be helpful to understand the classes of Biochemistry.

Soil Science Lab.

Basic laboratory work for soil science; soil survey practice in field, determination of soil particle size and texture, bulk density, water and air conductivity of soil, determination of soil moisture retention, chemical analysis for nitrogen, phosphate, potassium, calcium, magnesium, and sodium in soil.

Soil Microbiology

They are concerned with bacteria, soil fertility, and plant growth in soil. And understanding the basic knowledge of their activity and action in agriculture science, microbiology, biology, biochemistry

Agricultural Chemicals

Lectures focus on the chemical structure, physiochemical properties, chemical reaction, and biochemical mechanism of pesticides.

Instrumental Chemical Analysis

Fundamental analytical methods by instruments for mainly plant and soil; understanding of spectroscopy, absorption spectroscopy methods(UV-Vis Spect., AAS), emission spectroscopy methods(Spectrography, ICP), gas chromatography, liquid chromatography(HPLC, IC), electrochemistry method.

Genetic Chemistry

Lectures focus on the biosynthesis and primary structure of DNA, structure and function of RNA, restriction enzymes, expression and regulation of genes, and genetic code and protein synthesis.

Soil Chemistry

Facilitate a basic understanding of soil chemical reactions and how the soil relates chemically with the environment. Provide an appreciation for the historical role of soil as a medium of plant growth and extrapolate the accumulated information to a more general understanding of chemical properties of soils such as chemical composition od soils, soil minerals and organic matter, soil solution, mineral solubility, electrochemical phenomena, soil particle surface, exchangeable ions, soil acidity and so on.

Fertilizers

It is discussing about the kind of nutrient, nutrient and their requirement and action for plant growth.It is discussing about exchange of nutrients between plant and environment.

It is discussing about the kind of fertilizer, fertilizer characteristics and the eco methods of fertilizer application.

Analytical Chemistry Lab.

Practical laboratory techniques in detailed treatment of sampling procedures, sample decomposition, gravimetric and titrimetric methods as applied to the analysis of real samples.

Fertilizers/Plant Nutrition Lab.

It is understanding that elemental characteristics of fertilize and their disassemble in soil, absorption process in plant. And understanding about effect of fertilizer on crop yield, fertilize application method, time of fertilize application.

Soil Physics

Fundamental knowledge for soil physical characteristics; relation to physical properties of soil to plant growth, particle size distribution, soil bulk density, soil structure, water retention and movement in soil, air permeability of soil.

Agricultural Chemicals Lab.

This course covers the analytical methods of pesticides in the commercial products and agricultural environment such as agricultural products, water and soil and evaluation of its toxicity.

Environmental Toxicology

It covers the kinds, structures, physical and chemical properties, properties, chemodynamics, and transformation of toxic inorganic and organic chemicals in the environment. Also it includes the mechanism of toxicity to the living cells.

Inorganic Chemistry

It covers physical and chemical properties of the elements in the periodic table, concept and structure of elements, molecules, and compounds, atomic and molecular orbital theory, the kinds and theory of chemical bonding, chemistry of acids and bases, chemistry of oxidation and reduction, and the chemistry of chelated complexes.

Physiological Biochemistry

Lectures focus on the biochemical basis of cell physiology including membrane structure, ionic transport, and cellular activity. Particularly, this course covers the details of structural and functional aspects of ion channels and ion pump proteins, membrane potential changes, and action potentials to understand regulation mechanisms of cell physiology.

Environmental Microbiology Lab.

This class is intended for the students to practice the basic experimental procedure about the environmental microbiology related to the environmental chemistry in agriculture.

Pesticide Chemistry

Lectures focus on more concrete mechanism, degradation and metabolism of pesticides based on the chemical and biological theory.

Plant Nutrition

It is understanding about this lecture that plant nutrition and the physiological characteristics of macro element, micro element

Environmental Biophysics

This course aims to understand the fundamental physical principles underlying energy and matter exchange between ecosystems and the environment.

Soil Environmental Analysis Practice

In order to train and educate high skilled analyst, Practical analysis of chemical components such as nutrients and pollutants for soils sampled from farmland, and contamination site of industry area.

Pesticide residue analysis practice

In order to educate the analytical methods of pesticide residues in agricultural commodities, processed foods and environmental samples such as soil and water for their safety assessment to be able to apply in related areas.

Water Environmental Analysis practice

Practical training to use of water analysis business for water resources, including the drinking water.

Water Environment Science

Water conservation and management, emphasizing the importance of the environment and water quality of the physical, chemical and biological analysis of the principles to understand, drinking water, wastewater, agricultural water, groundwater analysis, the basic principles and practices, such as the source of the water environment through the life of the lectures importance.

Soil Fertility

This course is offered to discuss the relationship of the inorganic nutrients, organic matter, soil water, and air to the growth of plants in soil and to understand the evaluation methods of soil fertility based on the physical, chemical, and biological properties of soil.

Soil Environment

The ecology in earth contains the four major compartments, such as atmosphere, hydrosphere, lithosphere(soil), and biosphere in which they interact with each other in order to continuously exchange their matter and energy. However, the pollutants derived from the atmosphere and hydrosphere due to the human activities can deteriorate the soil environment. Therefore, this lecture teach the transport and transformation of the pollutants and the environmental factors

affecting them for the their eventual remediation in the soil environment.

Plant Nutrition and Physiology

It is discuss about absorption mechanism, movement style, metabolism and essential of plant nutrition. And discuss about Photosynthesis, symbiosis nitrogen fixation through this can get information to help join company or enter a school of higher grade.

Radiochemistry in Agriculture

Lectures focus on the basic theory of radiology and radiochemical techniques in agriculture

Ecological Atomospheric Environment

This course aims to provide elementary principles on various atmospheric variables that influence growth of ground vegetation and energy/matter exchange between the ecosystem and the atmosphere. Students need to understand those priciples and basic applications in both natural and agricultural ecosystems

Environmental Biophysics

This course aims to understand the fundamental physical principles underlying energy and matter exchange between ecosystems and the environment.

Environmental & Biological Research Project, Capstone Design

Designed for the undergraduate students how to practice their knowledge learned during undergraduate program by planning the research project, doing research, making report, and presenting the results. Topics will be chosen by the student and help sessions will be provided by the department faculties.

◇ School of Food and Animal Science

Introduction

Program in School of Food and Animal Science focuses on the research and education related to biomaterials and animal production for development and application. The undergraduate program emphasizes both basic principles and key technologies necessary for food and animal science industry. Graduates have a wide variety of employment opportunities in related industry and distribution, government agencies, faculty positions and private enterprises.

Credit requirements for graduation

Animal Sciencedepartment curriculum has three components: Liberal education requirements(36Credits), a major(78Credits), and electives. Total 145.

Food Science and Biotechnology department curriculum has three components: Liberal education requirements(36Credits), a major(78Credits), and electives. Total 140.

Curriculum

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Introdiction to Food and Animal Science(3)	1-2-E Introduction of Animal Biotechnology(2)
2-1-R Food Microbiology(3)	2-2-R Applied Biochemistry (3)
2-1-E Organic Chemistry(3)	2-2-E Food Microbiology Management(3)
2-1-E Experimental Statistics (3)	2-1-E Bio Database and Computation (3)
2-1-E Food Physics and Properties(3)	2-2-E Genetics in Animal Production (3)
2-1-E Bee Science and Practice(3)	2-2-E Animal welfare and environment(3)
2-1-E Animal Physiology(3)	2-2-E Animal Products Hygiene(3)

● Courses Abstract

Introduction to Food and Animal Science

This class offers understanding for a wide range of disciplines including virology, physiology, nutrition, microbiology, immunology, molecular biology, engineering, and genomics. It also addresses contemporary and future scientific challenges by using cutting edge technologies with the goal of assisting stockholders in the poultry, livestock, and food industries.

Introduction of Animal Biotechnology

Biotechnology has been used in an undeveloped form since ancient brewers

began using yeast cultures to make beer. The breakthrough that laid the groundwork for modern biotechnology came when the structure of DNA was discovered in the early 1950s. Later, it has become possible to transform microorganisms, plants, and animals (genetically modify organisms) that are important for food production. Genes introduced into plant or animals may make the organism more resistant to disease, may influence the rate of fruit ripening, or may increase productivity. The potential of modern biotechnology in developing valuable medicines for patients is also increasing lately, and have made a significant difference to the lives of patients with serious illnesses, as for example, cancer, auto-immune and neurological disorders. The students will gain basic understanding in DNA technologies and modern biotechnology.

Student Learning Outcomes include:

- To gain basic understanding in DNA technologies and modern biotechnology
- Introduction to the basic research in biotechnology of animal

Food Microbiology

Important groups of microorganisms associated with the quality and safety of foods are discussed in this class. Intrinsic and extrinsic factors of microbial growth in foods and the control of microorganisms during food processing are included.

Organic Chemistry

Organic chemistry covers elementary aspects of nomenclature, structures, and common reactions of organic compounds.

Experimental Statistics

A statistics approach for students in the health, biological and social sciences covering descriptive statistics, probability distributions, estimation, hypothesis testing, regression, analysis of variance, experimental design and non-parametric methods are discussed.

Food Physics and Properties

This course will introduce a fundamental understanding of physical properties of foods. Basic definitions and principles of physics for food properties are discussed as well as the importance of physical properties in the food industry and measurement methods. This course will be helpful for students to understand the relationship between physical and functional properties of raw, semi-finished, and processed food in order to obtain products with desired shelf-life and quality.

Bee Science and Practice

This subject will be teaching and practice on the honeybee genetics and breeding, physiology and anatomy, honey flower plants, development of the colony, usefulness of the honeybee products and honeybee diseases for the

honeybee keeping.

Animal Physiology

We will use a comparative approach to examine the physiology of animals including major physiological systems. Topics to be covered include metabolic, temperature, osmotic and ionic regulation; respiration and circulatory transport, digestive, muscle, nervous, and locomotor systems; endocrine regulation and biological rhythms. We will further examine how physiological systems are integrated and thus allow animals to respond, physiologically, in different environments.

Applied Biochemistry

Applied biochemistry introduces the chemical structures and functions of basic biological components including proteins, carbohydrates, and lipids. The principles of enzymology, bioenergetics, energy storage and utilization are widely studied to understand the various metabolic pathways inside cells. It can give the students the fundamentals of all the advanced life sciences and biotechnology.

Food Microbiology Management

Physiology and biochemistry of food-borne microorganisms, microbial control in food systems and advanced analytical techniques in food microbiology are discussed.

Bio Database and Computation

This course is ideal for students looking to gain a good understanding of the Microsoft Office Suite of desktop applications for food science. You will learn how to operate the suite of Office applications such as Word, Excel, Powerpoint, Outlook and Access efficiently. Furthermore, you will learn how to search, write, or use the food-related information such as papers and patents to be used for your term projects, thesis, reports, and future research.

Genetics in Animal Production

The study of genetics has proved to be a powerful approach to understanding biological system. Because the genetics has been important not only hereditary mechanisms, but all biological mechanisms. This class will cover genetic analysis of the mutations affecting the biological process, progeny mating between mutants and wild-type individuals or other discontinuous variants, and cell's biochemical processes.

Animal welfare and environment

Management (welfare environment) techniques to maximize utlization, performance and minimize nutrient excretion in pigs under welfare condition. The factors that limit disease, carbohydrate, protein, and fat utilization in pigs and poultry.

Animal Products Hygiene

It understand the hygiene management and store system until the circulation step after slaughter from animal feeding step to improve quality of livestock food, in addition to HACCP system.

Major in Animal Science

Introduction

It is focusing on the increased livestock production (i.e. meat, milk, egg etc.) and improved processed livestock products (i.e. ham, cheese, butter, ice-cream etc.) as the increment of national income that has changed hugely in last few decades due to the fast industrial growth and time factors. Livestock is being important part of the living society now; therefore, it demands one's diligence, patience and enthusiasm to be a superb and complete agriculturist. About 1800 students graduated from our Animal Science Department, Chungbuk National University who are taking part of the society in this regards. Our department is not only educating potential students who will lead livestock as well as agriculture sector but also training professionals in biotechnology (i.e. genetic engineering, gene expression, molecular genetics etc.) who will join in company, laboratory research institute, different government and non-government organizations.

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Animal Breeding and Practice(3)	3-2-R Forage Science (3)
3-1-R Feed Manufacturing and Experiment (3)	3-2-R Meat Science and Lab. (3)
3-1-R Animal Reproductive Physiology (3)	3-2-R Poultry Production and Practice (3)
3-1-R Animal nutrition and Practice (3)	3-2-E Nutrient Metabolism of Large Livestock (3)
3-1-E Milk Science and Lab.(3)	3-2-E Animal Genomics (3)
3-1-E Animal Molecular Biology and lab(3)	3-2-E Animal Developmental Biotechnology and Lab. (3)
	3-2-E Companion Animal Science (3)
4-1-R Swine Production (3)	4-2-E Medicinal Animal Science (3)
4-1-R Feeding Management of Large Livestock and Practice (3)	4-2-E Techniques for Research and Thesis writing(Capstone Design) (3)
4-1-E Livestock Business and Marketing (3)	4-2-E Livestock Selection Theory (3)
4-1-E Experimental Animal Science (3)	4-2-E Stem Cell Biology(3)
4-1-E Special Lectures for career development (3)	4-2-E Study of Teaching Materials & Teaching Methods in Agriculture (3)
4-1-E Biotechnology Industry Seminar (3)	4-2-E Study of Logic & Discourse in Agriculture (3)
4-1-E Hygiene of Livestock Animal (3)	

● Courses Abstract

Animal Breeding and Practice

Selection of animals with superior trait performance has been a hot topic to incorporate new source of information in breeding programs. This class will discuss the scientific theories on methods associated with animal breeding.

Feed Manufacturing and Experiment

Chemical composition of feedstuffs, requirements of domestic animals, utilization of nutrients, formulating and balancing rations. This course gives an overview and insight in animal feed ingredients, in feed additives and thus this course is giving preconditions in feed formulation. The course covers linear programming techniques and discusses conflicts of interest between persons involved in formulation such as purchasers, nutritionists, production directors, quality managers and sales directors.

Animal reproductive physiology

The primary objective of this course is to promote an understanding of reproductive processes in domestic animals. The course will emphasize basic and comparative aspects of reproductive physiology to meet the needs of students in agricultural sciences, animal sciences, biology, preveterinary medicine, and related fields. Lecture material will provide a fundamental understanding of reproductive mechanisms, from the control of ovulation to the initiation of parturition. Laboratory sessions will include “hands-on” exercises that emphasize theory received in lecture.

Animal nutrition and Practice

Adequate supply of nutrients, metabolism of nutrients in the doby, and the knowledge needed for animal feeding acquire for the efficient production of livestock products.

Milk Science and Lab.

It understand composition, nutritive components, Microorganisms and physiochemical property of milk. Based on the lecture, it is able to master characteristic, processing technique of milk.

Animal Molecular Biology and lab

This class will try to attmpt to understand biological phenomena of animals using gene structure and functions in molecular levels.

Forage Crops Science

This course focuses on major aspects of forage crop production and biology, for example, cultural practices, adaptation, sustainable agriculture use, seed production, harvest, livestock utilization, and storage of forages. The course especially emphasizes characteristics of important grasses and legumes.

Course Objectives and Outcomes:

1. To understand the role of forages in sustainable food production.
2. To know the most commonly grown forages and recognize their suitability in terms of climate, soil, and livestock use.
3. To learn how forage management relates to forage production and nutritive

value.

4. To realize how forages are evaluated for their value to livestock.
5. Be able to utilize the above information to solve real problems facing livestock producers.

Meat Science and Lab.

It can be to study composition, biochemical characterization, physiochemical property and nutritive value of meat. Also, through the lecture understand production process, storage system, hygiene control practices of livestock processed product.

Poultry Production and Practice

This subject will be teaching and practice on the genetics and breeding, the incubation and blooding, the feeding and nutrition for favorite mixing feeds, housing and facilities, diseases on effective management of the chicken and duck.

Nutrient Metabolism of Large Livestock

Critically appraise livestock feeding practices in the context of relevant production systems. Proficiently calculate energy, protein and mineral requirements of ruminant animals in various productive states, and formulate appropriate diets with regard to the economic value of feed resources. Understand the pathogenesis, prevention and treatment (where relevant) of metabolic diseases (including health and reproduction) of ruminants. Evaluate the use and effects of production modifiers in ruminants

Animal Genomics

The general contents of this class include genome-scale sequencing, analysis of variation, gene expression profiling, proteomics, and metabolomics in animals. This class endeavor to combine the basic bioinformatic principles behind gene ontology, coalescent theory, statistics for microarray analysis, and interaction networks.

Animal Developmental biotechnology and lab

Animal biotechnology is the use of science and engineering to medify living organisms. The latest in reproductive technologies (i.e., artificial insemination, estrous synchronization, embryo transfer, embryo sexing, and cloning) will be discussed as they impact animal agriculture - pros and cons. Biotechnology can improve an animal's impact on the environment and biotechnology enhances ability to detect, treat and prevent diseases. Animal Biotechnologist will also possess analytical and synthesis skills for the management and dissemination of experimental data in the scientific field; they will understand the political economic framework, legislation and bioethical problems linked to the application of biotechnologies, animal experimentation and animal production; they will be

familiar with legislation on patents and intellectual property rights in the biotechnology field and will be able to work antonomously in the execution of experimental protocols.

Companion Animal Science

In order to provide a general knowledge of basic professional training pets to train professionals in related fields and businesses.

Swine Production

pig management and working can be used in the field after graduation by aquiring theories about pig reproduction, breeding, nutrition, disease, facilities, products and management

Feeding Management of Large Livestock and Practice

An overview of the World, Korea beef and dairy products production systems. Industry segmentation (consumer, packer, retailer, feedlot, stocker, cow-calf and livestock producer). Application of the principles of genetics, nutrition, meat science, reproduction, health and range management to current beef cattle production systems. The course will also entail a discussion of current issues and the status of a rapidly changing, diverse industry. This course covers the application of general livestock management principles in the production and management of major domestic animals. It emphasizes the importance of livestock farming and the principles of sustainable livestock management (feeds/feeding, breeds/breeding, animal health and livestock economics): Dairy cattle management including importance of dairy farming; calf management; heifer management; cow management and milk production, sampling and testing; Beef cattle production and management including traction animals; pig management, sheep and goat management, rabbit management. Management of hides and skins.

Laboratory

Labs are designed for both hands-on experience, as well as problem solving sessions, and will include a minimum of two field trips. Attendance at laboratory sessions is required. Lab reports will be assigned for selected labs.

Livestock Management

This subject will be teaching and seminar on the operating factors, the specification of the goods and land, the tissue and scale and budget et al for successful livestock manager on the enhance profit.

Experimental Animal Science

The course focus on the following topics: Legislation, Ethics and views in society; the course of events in animal experiments; biology of lab animals; the choice of species; genetical and environmental factors influencing animal

experiments; health hazards; principles concerning the handling of animals, anesthesia, analgesia and humane killing of lab animals; evaluation and quality control of animal experiments; reporting; alternatives to animals experiments; literature search.

Special Lectures for career development

Introducing companies related animal science, and progressing special lectures for students by inviting professionals in industry or research institute related animal science about their job and interview for giving them opportunity to understand the industrial field and support to design their future.

Biotechnology industry seminar

Biotechnology is the technical application that uses biological systems, living organisms or derivations thereof to make or modify products or process for specific use. Biotechnology combines disciplines like genetics, molecular biology, biochemistry & cell biology which are in turn linked to practical disciplines like Chemical Engineering, Information Technology & Robotics. Some of the very many applications of biotechnology include gene therapy, drug designing, cloning, pharmacogenomics, agriculture etc.

This course is intended to prepare students for careers in Biotechnology. Topics include resume writing, interview skills, and discussion and presentation of scientific data

Hygiene of Livestock Animal

It helps understanding of animal hygiene by learning cause of major diseases in livestock, outbreak status, epidemiology and clinical sign.

Medicinal Animal Science

This subject will be teaching and practice on the reproduction, the feeding and nutrition, genetics and breeding, the favorite feeds, housing and facilities, usefulness of the products and diseases for the deer, goat and rabbit on effective management.

Techniques for Research and Thesis writing (Capstone Design)

This lecture is about Researching for animal science, writing thesis and announced by learning necessary to thesis writing such as thesis topic selection, data reserching and analyzing and how to write references.

Livestock Selection Theory

This class studies and practice the principles of animal selection. The selection program used in the livestock industry will be discussed.

Stem Cell Biology

Animal cell culture is a core laboratory technique in many molecular biology, developmental biology, and biotechnology laboratories. Cell culture is a relatively

old technique that has been sparingly taught at the undergraduate level. The traditional methodology for acquiring cell culture training has been through trial and error, instruction when undertaking the first graduate student position, or instruction when hired for a specific industrial cell culture position. However, cell culture is an important candidate course for any biotechnology-related training program because it is a technique that must be performed by investigators before they perform many molecular procedures, and vertebrate cell culture is becoming increasingly important for biomanufacturing of therapeutic proteins. Therefore, a cell culture techniques course is an important offering for undergraduate students who aspire to graduate training, and also undergraduate students who will seek employment with biotechnology companies immediately after graduation.

Study of Teaching Materials & Teaching Methods in Agriculture

To Study the development of agriculture, agricultural research and teaching & Provide The teaching process to middle school students.

Study of Logic & Discourse in Agriculture

Provide the logical thinking and methods such as essays, writing and planning, performing, and presentation skills.

Internship I, II, Ⅲ

The internship program will practice and connect students to industry. Students will practice for 4 to 15 weeks at industry.

Major in Food Science and Biotechnology

Introduction

Food industry is one of the largest manufacturing industry in the world and is growing steadily, In addition, the interests of food science and technology have been expanded to the area of biotechnology, which makes it more promising in the future, While food science is a knowledge and understanding of the nature and behavior of food materials, food technology is the application of food science to the practical food processing, improvement of its quality and stability, and development of the new food materials so as to meet the needs of consumers safe, wholesome, nutritious and functional foods. The department aims to harmonize both of them. Therefore, the students are required to study both basic and applied courses related to food science and technology including mathematics, microbiology, molecular biology, enzyme chemistry, physical chemistry, instrumental analysis, food chemistry, nutritional chemistry, food microbiology, food hygienics, food processing and engineering, food preservation, and fermentation technology. After graduation, job areas include company, government, national research center. In addition, teacher in high school will be available after taking special classes.

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Food Processing I (3) 3-1-R Food Processing Laboratory(3) 3-1-R Food Engineering I(3) 3-1-R Food Microbiology Laborator) (3) 3-1-E Food Molecular Biology(3) 3-1-E Food Enzyme Technology(3)	3-2-R Food Chemistry(3) 3-2-R Food and Analytical Chemistry Laboratory(3) 3-2-R Food Engineering Laboratory(3) 3-2-R Food Fermentation(3) 3-2-E Food Sanitation(3) 3-2-E Food Biotechnology(3) 3-2-E Food Engineering II(3) 3-2-E Food Processing II(3)
4-1-R Fermentation Engineering Laboratory(3) 4-1-R Food Biotechnology Laboratory(3) 4-1-E Functional Foods(3) 4-1-E Food Industry Management(3) 4-1-E Practice in Food Research and Development(3) 4-1-E Introduction to Food Production and Management(3)	4-2-E Graduation Research Project & Capstone Design(2) 4-2-E Industrial Invitation Lecture(1) 4-2-E Food Preservation(2) 4-2-E Introduction to Food Regulation and Quality Management(3) 4-2-E Food Additive(1) 4-2-E Food Immunochemistry(3)

● Courses Abstract

Food Processing I

Introduces the basic principles and methods of food processing to improve the

preference, nutrient, and shelf-life.

Food Processing Laboratory

Application of principles and methods for food characteristics, quality, manufacture process learned in Food Processing.

Food Engineering I

This course is deal with mass and energy balance, fluid flow, heat transfer, and refrigeration in food plant operations are discussed. The theory, calculations and design practices, and equipment used in these operations, as well as the physical, chemical, and microbial changes that can occur in foods in processes employing these operations are also discussed.

Food Microbiology Laboratory

Food microbiology laboratory teaches basic microbiological techniques - media preparation, aseptic techniques, dilution, plating, etc. - followed by analytical methods and advanced techniques for the detection of food-borne pathogens.

Food Molecular biology

Molecular biology is an essential subject to understand the mechanisms of life sciences. The main themes of food molecular biology include the fundamentals of DNA replication, transcription, translation, gene expression and regulation, mutations and repair systems, and the recent recombinant DNA technologies to be utilized for the various fields of modern food science and biotechnology.

Food Enzyme Technology

This couse provides basic information to understand enzyme for food industry such as protein structure, actvity, mechanism, purification, immobilization, new enzyme development, and application examples. Furthermore, via term projects you will experience how to develop a novel enzymatic process to produce functional food substances.

Food Chemistry

The goal of this class is to enable students to understand foods as mechanistic, chemical systems. All the phenomena observed in preparing food can, in principle, be understood in classically chemical terms.

Food and Analytical Chemistry Laboratory

Spectrophotometric, colorimetric, chromatographic, and potentiometric methods of analysis as applied to food are discussed. Emphasis will be placed upon correlation and interpretation of results.

Food Engineering Laboratory

This class learn the experimental methods on basic engineering principles. Dehydration, evaporation, distillation, milling, high pressure sterillation and concentration methods for food processing practics as well as color, density and

viscosity measurement methods will learn..

Food Fermentation

This class provides backgound information to understand fermented foods such as microorganisms, enzymes, substrates, metabolic pathways, fermenters, Also, this class gives detailed information for fermentation of kimchi/yogurt (lactic acid synthesis), soybean paste/soy source (amino acid synthesis), and wine/beer/ethanol liquor (ethanol synthesis).

Food Sanitation

This course is intended to improve student's fundamental comprehension about food sanitation. Wide range of topics will be dealt; control of microorganisms in food environment, food additives, food poisoning, relationship between transmissible diseases and food sanitation, relationships between pollution and food, and food sanitation at manufacturing stages.

Food Biotechnology

Based on the fundamentals of biochemistry and molecular biology, recently developed high-technologies in genetic engineering and biotechnology are studied in detail. Especially, it includes the practical applications of versatile biotechnology tools to the fields in food research and industries. The students can understand the promising future of food biotechnology.

Food Engineering II

This course is deal with unit operations for food processing industry such as freezing, dehydration, evaporation, distillation, membrane separations, extrusion, and process control. The basic principles and characteristics of machine and apparatus used in food industry are discussed. .

Food Processing II

Introduces the basic principles and methods for dairy and meat science. Dairy science focusing on the milk industry, milk characteristics, manufacture process for dairy products, milk safety and quality control. Meat science focusing on the meat industry, role of muscle foods in the human diet, factors influencing meat quality, meat processing, and meat safety and quality control.

Fermentation Engineering Laboratory

This class provides detailed-microbial techniques for the fermentation of kimchi/yogurt (lactic acid synthesis), soybean paste/soy source (amino acid synthesis), and wine/beer/ethanol liquor (ethanol synthesis). Moreover, it gives a chance to experience enzyme production using microorganism and to synthesize food supplements using the immobilized enzyme reactor.

Food Biotechnology Laboratory

This lecture gives the students better understanding on biochemistry, molecular

biology, and biotechnology by way of the experimental practice. It covers the basic recombinant DNA technology and biochemical experiments such as DNA cloning, gene transformation, protein expression and purification, and enzyme activity assay, and so on.

Functional Foods

Biochemistry and physiological effects of functional food components and their roles as beneficial dietary components, sources for innovative foods and regulatory problems are discussed.

Food Industry Management

Marketing principles and practices, their relationship to the agriculture-food system, and the economic impact on all segments of this system are discussed.

Practice in Food Research and Development

This class train specialists who can join multidisciplinary teams working in research, development and innovation, both in the food industry and in other professional areas (universities and other research centres, etc.). It also provides research skills for students who wish to work in scientific research in universities or technology and research centres in food industry.

Introduction to Food Production and Management

Designing and implementing food production and management process control programs. Monitoring and controlling process specifications and capabilities. Developing food attribute and variable control charts. Also, examining food sampling plans and verifying HACCP food safety plans

Internship Ⅰ,Ⅱ,Ⅲ,Ⅳ

Students participate in their internship for 4 weeks on eacy vacation . During this project, students have the opportunity to work with industry members, gaining experience in real-industry.

Graduation Research Project & Capstone Design

The culmination of student's undergraduate academic career is the Senior Design Capstone Project. All that classroom learning gets put to real-industry use as small groups work under one of our distinguished faculty members to design and build a device to accomplish a preset list of goals. Many of these projects can lead to new technologies or other innovations outside of academia and they help our students transition to industry after graduation. .

Industry Invitation Lecture

This course gives the student the opportunity to integrate both communication skills and technical knowledge in Food Science acquired in earlier courses through participation in an independent experiential learning project. The topic of the project may be in any area of Food Science, but an emphasis on

communication to a non-scientific audience is required. The project may be conducted in teams of up to four students. Students are required to present a concise report in a written paper and in a seminar.

Food Preservation

Introduce the principles for various methods to maintain the shelf life and the preference until ready-to-eat food from food processing.

Introduction to Food Regulation and Quality Management

This class is enable students to understand and discuss food regulation, food safety regulatory system, and quality management, not just in the Korea but worldwide

Food Additive

This class provides a review of traditional and non-traditional food preservation approaches and ingredients used as food additives. It also provides detailed knowledge for the evaluation of the agro-industrial wastes based on their great potential for the production of industrially relevant food additives. Furthermore the assessment of potential reproductive and developmental toxicity perspectives of some newly synthesized food additives on market has been covered.

Food Immunochemistry

This class introduces a basic concept of immunology for food scientists such as introduction of immunology, cells and tissues of the immune system, antigen, antibody and B cell, immunoglobulin genetics, MHC, T cells, cytokines, complements, cell mediated innunity, inflamation and cell adhesion molecules, and hypersensitivity.

◇ School of Applied Plant Science & Biotechology

Introduction

In this school, it makes studies about physiology, ecology, genetics and breeding of crops as a fundamental field, and furthermore the detection of a novel function from plant composition and the management for pest and disaster of crops as applied field, to cultivate professionals to be active in the field of architecture and applications of the plant, which seeks to develop academic and industry based on plants.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(78Credits), and electives.

Curriculum

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
	1-2-R Organic Chemistry(3)
1-1-E Introduction to Bio-Science & Technology(1)	1-2-R Microbiology (3)
	1-2-E Plant Morphology & Taxomony
2-1-R Principles of Cultivation(3)	2-2-R Agricultural Statics(3)
2-1-R Biochemistry(3)	2-2-R Molecular Biology (3)
2-1-E Introduction to Industrial Crop(2)	2-2-E Natural Products Chemistry(3)
2-1-E Introduction to Horticulture Science(2)	2-2-E Plant Physiology(3)
2-1-E Introduction to Plant Medicine(2)	2-2-E Plant Pathology(3)
2-1-E Well-being Resources(3)	2-2-E Soil and Fertilizer(3)
2-1-E General Entomology Science(3)	

● Courses Abstract

Introduction to the Applied Plant Science & Biotechology

This lecture provides information regarding the specificity and potential of the faculty to undergraduate students through the overall introduction and the association of each major as crop science, horticulture science and plant medicine

Organic Chemistry

The basic theory on the structure, classification and nomenclature of organic compounds are discussed and the characteristics and reactivity of each compound are explained.

Microbiology

This course makes a general lecture of microorganisms such as the scientific development and the introduction of technology for isolation, culture and

identification of microorganism, and microbe-environment mutual interaction.

Plant Morphology & Taxomony

This lecture is designed to impart a fundamental understanding of the structure of higher plant body, and to illustrate how plant organs are adaptive to the environment in which plants live. This course also provides an introduction to the principles and practice of biological systematics and classification (taxonomy).

Principles of Cultivation

Basic knowledge is taught about cultivations of plants and related studies cultivated environment, techniques.

Biochemistry

Biochemistry is the field of science that investigates the chemical and molecular reactions that sustain life. The goal of this course is to study these reactions in connection to their role in biological systems. The course will begin with a discussion of the structure and function of the biomolecules involved in those important reactions. Students will then study bioenergetic principles that rule the synthesis and degradation of biological macromolecules.

Introduction to Industrial Crop

Introduction to the curriculum of the major of Industrial Plant Science and Technology. All faculty members will introduce the subjects they teach.

Introduction to Horticulture Science

This course deals with the definition and importance of horticultural science. The principles of growth and development, the responses to environment, cultural practices will be discussed in various horticultural crops classified with several standards. In addition, recent research fields in horticulture will be introduced.

Introduction to Plant Medicine

Plant medicine, including applied entomology and plant pathology, is an introductory course to introduce physiology, ecology, genetics and plant medicine dealing with the prevention of the agricultural sector, including disease and insect pests, weeds in various crops. In this lecture it provides each method for diagnosing the cause of plant damage such as a pathogen and an insect and controlling it.

Well-being Resources

Plants, which are useful for well-being life, are defined as well-being plants. This course will introduce the morphology, bioactive compounds, pharmacological properties and application of well-being plants.

General Entomology Science

Basic principles of general entomology including morphology, taxonomy, embryology, physiology, and ecology are covered and students are expected to

gain fundamentals for a study of insect pests.

Agricultural Statics

Students learn inferential statistical methods including confidence interval estimation and hypothesis testing for one and two population means and proportions; one-way analysis of variance; simple linear regression and correlation; analysis of categorical data; crop experimental design apply.

Molecular Biology

For the understanding of principles in modern molecular biology, structure and chemistry of genetic materials, delivery of genetic information from the parents to the next generation, expression and regulation of genes, mutations and repair systems in cells, and basic recombinant DNA technology are dealt in this lecture.

Natural Products Chemistry

Natural products are relatively small molecules, produced mainly by plants and microorganisms, that have a long history of uses (and misuses) by people, e. g. poisons, antibiotics, perfumes, malodorants, cosmetics, dietary supplements, etc. This course will focus on the medical applications of natural products and be organized on the basis of the biosynthetic pathways that lead to these natural organic compounds. This is an introductory course designed to introduce and also to give an overview on the subject of natural product chemistry.

Plant Physiology

Structure of plant, hormones, metabolism are taught about horticultural plants, including germination, vegetation, flowering, fruition of plants.

Plant Pathology

Definition of plant diseases, history of plant pathology up to the present, classification and symptomatology of fungi, bacteria, and viruses as plant pathogens, establishment of plant diseases, pathogenicity, host, resistance, effect of environment, and control of plant diseases are emphasized and discussed throughout the semester.

Soil and Fertilizer

To increase the potential to manage soil reasonably and to develop fertilizing methods for each crops, uptake and translocation of nutrients are examined and characteristics and formation principles of soil, the foundation of crop cultivation are explained.

Major in Industrial Plant Science & Technology

Introduction

Industrial plant science and technology deals with theories, techniques and researches for the development of new beneficial materials using industrial plants including tobacco, ginseng and medicinal plants.

Established in 1968, the department has been re-organized in 2005 to better respond to the market's demand for new functional food or substances. Starting in the academic year of 2014, a systematic study, research and development on medicinal plant resources traditionally used became the focus as well as the education of experts in the area. Based on basic theory, students are taught both theory and practice of functional plants, its farming, processing, categorization, analysis, experimentation and physiological effects. Research institutes or organizations closely related to the department allow us to implement joint programs between academia and industry to deliver to students a curriculum that reflects the market's needs

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Genetics and Breeding(3)	3-2-R Pharmacological Effect of Industrial Crop(3)
3-1-R Industrial Crop Quality(3)	3-2-R Oriental Medicine Quality Assessment (3)
3-1-E Tobaco Science(3)	3-2-E Instrumental Analysis(3)
3-1-E Industrial Crop Cultivation and Practice(3)	3-2-E Medicinal Plant Processing (3)
3-1-E Pharmaceutical Botany(3)	3-2-E Herbal Medicine(3)
3-1-E Plant Chemical Analysis(3)	3-2-E Fermentation of Industrial Crops(3)
4-1-R Industrial-Plants Research and Development(3)	
4-1-R Ginseng Science(3)	
4-1-E Plant Genetic Engineering and Lab.(3)	4-2-E Eco-friendly Agriculture(3)
4-1-E human physiology(3)	4-2-E Biomaterial Engineering Technology(3)
4-1-E Capstone Design(2)	4-2-E Industrial Crop Resources(3)
4-1-E Crops(3)	4-2-E Functional Foods(3)

● Courses Abstract

Genetics and Breeding

Students learn the basic theories of genetics and the principles of various breeding techniques which can be applied for plant.

Industrial Crop Quality

This lecture is focus on quality control strategies for maintaining high quality from cultivation to post harvest technology with industrial crops.

Tobaco Science

This lecture provides a basic introduction about common process of tobacco from cultivation to processing. It also covers tobacco drying methods for high quality tobacco leaf production.

Industrial Crop Cultivation and Practice

Study the principles of Industrial Crop production and practice for application in the field.

Pharmaceutical Botany

Use of medicinal plants by mankind has taken at least three separate paths. The first is historical usage that continues into current times. An example is ancient Chinese medicine using herbs and other methods practiced as always along side of treatments with highly refined pharmaceuticals. The second is the extraction of active principles from medicinal plants in order to optimize a single chemical compound for treatment of diseases. The third and intermediate approach maintains the complexity of a whole herb but subjects it to rigorous testing with double blind placebo controlled clinical trials. This course will explore all three of these approaches in the use of plants for medicine.

Plant Chemical Analysis

This subject is designed to an introductory basic course essential for the chemical analysis of active compounds existing in plant, for the quality evaluation of agricultural harvests and for the understanding of various functions of plant constituents.

Pharmacological Effect of Industrial Crop

In this course, we explore the pharmacological properties of industrial crops as well as the underlying molecular mechanisms of actions.

Oriental Medicine Quality Assessment

This lecture is focus on methods used for quality evaluation of medicinal plants. It covers sensory test for finding herbal quality, standard operation protocol (SOP) for pollutant and residual detection, methods for finding microbial contamination and detection of fungal toxin, etc.

Instrumental Analysis

This subject is focused on students who majors in agriculture science, and put emphasis on understanding a basic theory and concepts about a large variety of chromatography, the laboratory techniques for the separation of mixtures extracted from animal and plant, and the instrumental application technique using the electromagnetic radiation. We also deal with a basic theory and methods combining the information obtained from nuclear magnetic resonance, infrared, and ultraviolet-visible spectroscopy and mass spectroscopy.

Medicinal Plant Processing

Understand the Medicinal processing mechanism and the changes during the drying.

Herbal Medicine

Worldwide, modern healthcare systems increasingly spotlight integrative healthcare modalities that incorporate ancient wisdom. Chinese Herbal Medicine is integrative as it has been used by Western physicians in addition to conventional medicine. This course provides students with the uniqueness of Chinese herbal medicine. This includes Chinese herbal medicine's history, philosophy, herbs and herbal formulas. Additionally, this course illustrates key aspects of Chinese herbal medicine's mechanisms of action.

Fermentation of Industrial Crops

In this course, we explore the various application of industrial crops through the understanding about fermentation and producing process of Korean traditional alcohol, fermented vinegar, wine and so on.

Industrial-Plants Research and Development

This course provides students with a basic understanding and knowledge of dietary supplements often used by patients to self-treat a health condition or to maintain a healthy body and mind. Herbal & dietary supplements, although sold over the counter, may present with beneficial effects, but counseling, proper dosing, and important drug interactions need to be considered which are the main areas addressed in this course.

Ginseng Science

This lecture provides a basic introduction about common process of Ginseng from cultivation to processing

Plant Genetic Engineering and Lab.

Students learn the basic genetic engineering principles and practise the basic skills to apply the knowledge on molecular biology to agriculture. Opportunities exist for training both in laboratory and field practices important to modern genetic engineering research.

Human physiology

This subject is focused on students who majors in agriculture science, and put emphasis on understanding a basic knowledge about the mechanical, physical, and biochemical functions of humans in good health, about human cells and organs of which are composed. We deal with the homeostasis maintenance and control mechanism, detailed blood composition and functions, the clinical pathology and laboratory medicine. We also handle with the symptom and diagnosis, the prophylaxis and therapy of chronical degenerative diseases such as hypertension, diabetes, atherosclerosis, osteoporosis, senile dementia and Parkinson's disease.

Crops

This course will introduce the basic theory of crop cultivation.

Eco-friendly Agriculture

This class will be introduced for eco-friendly agricultural techniques for making sustainable agricultural product with eco-friendly organic pesticides, synthetic pesticide-free farming for environmental safety and organic agriculture with integrated pest management (IPM) strategies.

Industrial Crop Resources

Understand the Resources, production, and consumption of industrial plant.

Functional Foods

This course will introduce the application of medicinal herbs as functional food and the marketability of medicinal herb based functional foods.

Major in Horticultural Science

Introduction

The department is a leader in the research, teaching and delivery of all aspects of Horticultural Science, from lab to field, farm and beyond. Our department established in 1974 to provide quality higher education and address the needs of society. The department addresses the Korean and world's agricultural, horticultural and environmental needs through cutting-edge science, dynamic undergraduate and graduate education.

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Vegetable Science and Practice(3)	3-2-R Floricultural Science and Practice(3)
3-1-R Introduction to Landscape Architecture(3)	3-2-R Breeding of Horticultural Crops (3)
Yr-Sem-R/E Course (Credit)	**Yr-Sem-R/E Course (Credit)**
3-1-E Research & Practices in Horticulture I (3)	3-2-E Research & Practices in Horticulture II (3)
3-1-E Plant Propagation & Practices(3)	3-2-E Controlled Environment Horticulture (3)
3-1-E Landscape Construction & Management(3)	3-2-E Environmental Horticulture(3)
3-1-E Genetics(3)	3-2-E Landscape and Human Health(3)
4-1-R Pomology and Practice(3)	
4-1-R Garden Design(3)	
4-1-E Hydroponics and Plant Factory(3)	4-2-E Ecological Restoration(3)
4-1-E Resources Botany(3)	4-2-E Paper Preparation and Practice(2)
4-1-E Plant Biotechnology(3)	4-2-E Postharvest Physiology and Storage of Horticultural Products(3)

● Courses Abstract

Vegetable Science and Practice

This course overall deals with basic and fundamental theory and technology for growing vegetable crops including the definition and importance of vegetable and vegetable science. In addition, the cultural process from germination to harvest of major vegetable crops will be discussed and subsequently nutritions of vegetable and aerial and soil environments based on environmental control will be introduced.

Introduction to Landscape Architecture

This course aims to provides an introduction to the theories, techniques, materials, methods, and history of ecological planning, site planning, and landscape design.

Research & Practices in Horticulture I

This course provides fundamental abilities for horticultural researches including

writing research papers with design, conducting, analysis, and reporting, and research practices with plant and field treatment.

Plant Propagation & Practices

The lecture introduces basic principles of seed and vegetative propagation. This deals with propagation not only seed development, germination, dormancy and techniques of seed production but also vegetative propagation such as cutting, grafting and layering.

Landscape Construction & Management

This course is designed to enhance students' understanding on landscape construction materials, construction planning and methods, management of diverse landscaping plants and facilities.

Genetics

This course provides development of genetics, from classical to modern genetics, to understand the life phenomenon. Genetic theory will be helpful to understand future study not only breeding or molecular biology but also physiological variation. Lecture will be focused on mechanism of heredity and variation in plants.

Floricultural Science and Practice

This course helps students to understand the classification, cultivation, and breeding in ornamental plants. For this, those who study in this course learn the basic concepts of Floricultural Science and practice how to cultivate flowering plants.

Breeding of Horticultural Crops

Theory and practice of plant breeding will be lectured through the genetical principle and related sciences. This course provides standard procedure of plant breeding and breeding theories including practical breeding methods. It will be helpful to understand seed industry or to work for seed company.

Research & Practices in Horticulture Ⅱ

This course provides higher abilities for horticultural researches including writing research papers with design, conducting, analysis, and reporting, and research practices with plant and field treatment.

Controlled Environment Horticulture

Year-round production of vegetables, fruits and ornamental plants in greenhouse are highly specialized production system and need artificial environment control and intensive management. Principles and advanced technologies on greenhouse horticulture will be discussed.

Environmental Horticulture

This lecture provides physiological and biochemical information for sustainable

agriculture on horticultural crops. This deals with necessity, present state, trends and future cultivation. Through this lecture, students will find a new meaning about agriculture and environment.

Landscape and Human Health

Students will learn healing effects of landscape and fundamental knowledge of landscape planning and design for healthy life.

Pomology and Practice

The lecture introduces diverse information for fruit crops based on physiological and genetical backgrounds. This deals with principles and practices concerned about classification, characteristics, environment, propagation, orchard management, fruit harvest, and utilization.

Garden Design

Students will learn concept, history, design principles, aesthetic elements of space, plants of garden design and improve their practical design skill.

Hydroponics and Plant Factory

This course deals with the definition and principles of hydroponics and will introduce various types of hydroponic systems and essential parts of the systems. In addition, plant factory will be defined and recent trends of research and technology related to plant factory will be introduced.

Resource Botany

We study the kinds, characteristics, taxonomy, ecology, physiology, cultivation, breeding and utilization of promising plant resources, especially Korean native plants. We also analyze the international research situation and grope the development methods of promising plant resources in Korea.

Plants Biotechnology

In this class, we study theories and technologies related to biotechnology. Student will learn biotechnology by studying several subjects related to biotechnology. In the end of this class, students will be ready to perform the research by understanding the application and industrial fields related to biotechnology.

Ecological Restoration

This course is an introduction to the concepts of ecological restoration and the connection to conservation biology and sustainable development. The objective is to provide the student with an overview of the history, science, ethics, and current practice of ecological restoration.

Paper Preparation and Practice

This course will provide theoretical information about experimental process, data analysis, and the preparation of posters and papers and subsequently make students write posters and papers for their graduation.

Postharvest Physiology and Storage of Horticultural Products

The process from farmer to consumer of harvested horticultural products is getting important depending on improvement of standard of living. The lecture provides the proper management methods to store and distribute the fresh and safe horticultural crop through the understanding of physiological mechanism after harvest.

Major in Plant Medicine

Introduction

The Department of Plant Medicine offers outstanding academic programs for undergraduate and graduate students preparing for careers in research, extension, business, or industry. Undergraduate program curriculum consists of courses mainly in plant pathology and applied entomology. It includes plant diseases, insect pests, pathogen biology, environmental stress, and biotechnology of plant, insect and microbial resources etc. Graduate program offers MS and Ph.D. in two majors, plant pathology and applied entomology. The department is continually looking for new opportunities and adjusting current programs to enhance our ability to meet the changing needs of society. The mission of the department is to provide educational, scientific and technological advances through teaching, research, and extension and regulatory. Graduates may find employment in the extension services, plant quarantine services, industry, research laboratories, departments of agriculture and environmental protection, and other state and federal agencies.

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Insect Taxonomy & Lab (3)	3-2-R Insect Ecology (3)
3-1-R Fungal Pant Pathology & Lab (3)	3-2-R Insect Pathology & Lab (3)
3-1-E Plant Insect Pests & Lab (3)	3-2-R Bacterial Plant Pathology Lab (3)
3-1-E Insect Physiology & Lab (3)	3-2-E Environment Toxicology Of Insect Pests & Lab (3)
3-1-E Tree Pathology & Lab (3)	3-2-E Insect Biotechnology & Lab (3)
	3-2-E Resources Entomology (3)
4-1-R Abnormal Environment & Plant Disorders (3)	4-2-E Plant Virology (3)
4-1-R Immature Taxonomy & Lab (3)	4-2-E Principles of Weed Control & Practice (3)
4-1-E Cell Biology (3)	4-2-E Apiculture (3)
4-1-E Plant Disease Diagnosis and Management (3)	4-2-E Insect Behavior (3)
4-1-E Insect Pest Control (3)	4-2-E Evolutionary Systematics of Insects (3)
4-1-E Medical Entomology & Lab (3)	4-2-E Gene Manipulation
4-1-E Plant Medicine Seminar (1)	4-2-E Biological control

● Courses Abstract

Insect Taxonomy & Lab

This includes how to decide insect's group and name, and the relationship with other taxa. Students will learn the importance of insect taxonomy, characteristics of insect orders and families, especially of major pest groups. Basic principles of taxonomic study and keys are covered with both lectures and laboratory work.

Fungal Pant Pathology & Lab

In this lecture, it makes studies about the identification and life cycle of plant pathogen, management of plant disease, and the recent trend of phytopathological research. Through the lecture, also, it is cultivated isolation and identification of plant pathogen, and experimental capacity for detecting control agents.

Plant Insect Pests & Lab

For the stable production in the field of agriculture, forestry, and marine, the insect pests' distribution, morphology, life cycle, inflicting pattern, and control strategy are lectured.

Insect Physiology & Lab

This course is a detailed study of the physiology and biochemistry of insect organ systems. Topics include: circulation, digestion, respiration, excretion, hormonal regulation, pheromones, intermediary metabolism, and nerve and muscle physiology. The laboratory exercises will provide exposure to instrumentation, and principles of insect physiological research.

Tree Pathology & Lab

This class guides the students who are majoring plant pathology to prepare for qualified tree doctors and researchers through the lectures on the cause and control of abnormalities of shade trees and forests on the basis of tree characteristics.

Insect Ecology

The environment where the insects inhabit is analyzed physically, chemically, and biologically. The population and evolution of the insects related to their environment are lectured.

Insect Pathology & Lab

Examines the general principles of pathology as they apply to insects; includes infectious diseases caused by viruses, bacteria, fungi, and nematodes. Studies the epizootiology of naturally occurring insect disease and the use of insect pathogens as microbial control agents and biotechnology applications.

Bacterial Plant Pathology Lab

This class consists of lectures and basic labs for plant pathogenic bacteriology and bacterial plant pathology covering the topics of characteristics, taxonomy, and pathogenicity of plant pathogenic bacteria, and disease incidence process, environmental conditions, management of bacterial plant diseases.

Environment Toxicology Of Insect Pests & Lab

The general characteristics, insecticidal mode of action, bio-essay, developing process, and environmental effect of pesticides are lectured.

Insect Biotechnology & Lab

This course provides a basic principles of genetic engineering and DNA

manipulation methods for insect biotechnology. This will be achieved through lectures and laboratory exercises. The goal of this course will be to provide the principles and application fields of insect biotechnology including genetic engineering techniques.

Resources Entomology

This course presents basic elements of entomology, then builds on this background to provide you with the usefulness of insect to industry. Topics include: general entomology, natural enemy, pollinators, produce products, medicinal insects, cultural insects, and insect mass production.

Abnormal Environment & Plant Disorders

For wider knowledge on plant disease, abnormalities of plants by non-parasitic pathogens, especially abnormalities by environmental pollutants and physiological disorders are examined by the kinds of causal agents and the control strategies for each kind of abnormalities are discussed.

Immature Taxonomy & Lab

Immature insects are, like adult insects, so various in morphology and usually show taxonomic characteristics. As they are so important as a pest especially in their immature stage, studying their morphology-based identification and taxonomy is the basics in pest management. This course will let the students understand the morphological, taxonomic, and ecological characters of the immatures of major insect groups.

Cell Biology

Cell biology is the study of the structure and function of the cells that are the fundamental units of all living organism. Many areas of cell biology including structure and function of membrane and organelles, cellular communication, cytoskeleton, and cell cycle will be covered in this course.

Plant Disease Diagnosis and Management

The purpose of this lecture is to cultivate the ability to accurately diagnose the cause of plant diseases in the field on the basis of the learned theory. With them, it will be made a lecture as a legal, cultural, biological, chemical and physical methods that can be applied to manage plant disease.

Insect Pest Control

For the reduction of insect pest damages in the economic crops, the fundamentals and application of the efficient control theory are lectured.

Medical Entomology & Lab

This course provides an introduction to the roles of insects and other arthropods in the direct causation of disease in animals and humans, and to their role as vectors in the transmission of disease organisms. The epidemiology and

replication cycles of vector-borne pathogens with major medical and veterinary importance will be examined. The laboratory sessions will emphasize the recognition and identification of medical and veterinary pests.

Plant Medicine Seminar

In this seminar, all the participators directly present the review paper to understand the scientific experiment and cultivate the potential for organizing and presenting experimental results.

Plant Virology

Taxonomy and insect transmission of plant viruses, cycle of viral disease, symptomatology and serology for disease detection and diagnosis, and control strategy for plant viral diseases are discussed in this class.

Principles of Weed Control & Practice

Study the characteristics of weeds in the fields, diagnose the injuries of crops by these weeds, and practice effective weed control system through understanding of herbicides chemistry.

Apiculture

The characteristic, nutrition, bee-keeping, management, pests and disease, and apicultural products of honeybee colony are lectured.

Insect Behavior

The main contents of this lectures is the movement, communication, feeding, reproduction, defending, and basic principles of social behavior in insects. In addition, this lecture focuses on the application of a substance for intraspecific and interspecific chemical communication in insects.

Evolutionary Systematics of Insects

With the most successful group of animals on earth in biodiversity, namely insects, it covers mechanism of evolution, how insects evolve with such evolutionary characteristics and diversify, and ways of systematics based on morphology and molecules.

Gene Manipulation

This class covers gene manipulation techniques which can apply to the plant medicine field.

Biological control

It is lectured how to control a variety of plant diseases with a metabolite of a living organism and the organisms. Through the lecture, it should be thought the needs, the advantages, various methods for biological control and the prospects for its future.

▣ Department of Forest Science

Introduction

Forests have the important role in air pollution, providing water resources, preserving soil, and offering a place for rest and healing, as well as providing the habitat for wildlife. Also the wood produced in forests are used as raw materials for industry. By making and managing forests, carbon emission rights can be secured and the biomass can be used as an energy source. Therefore with most of the nation's land covered with forests and mountains, Korea needs to reconsider the economic value and environmental effects of its forests. The department of forest science at Chungbuk National University aims at producing experts in forestry through a broad coverage of the field. The subjects are dendrology, silviculture, landscape architecture, forest ecology, forest management, mountain erosion control, mushroom science, forest recreatiom, forest economics and forest politics.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(81Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Introduction to Forest Science(3)	1-2-E Forest Ecology & Lab(3)
2-1-R Dendrology & Practice(3)	2-2-R Forest Therapy(3)
2-1-E Computer Practical Use & CAD(3)	2-2-R Forest Protection·Restoration Science & Pratice(3)
2-1-E Forest Soil Science (3)	2-2-E Dendroanatomy & Lab (3)
2-1-E Forest Statistics & Practice (3)	2-2-E Environmental Forestry (3)
2-1-E Forest Pathology Entomology & Lab (3)	2-2-E Forest Hydrology AND Practice(4)
2-1-E Forest Survey & GIS(3)	2-2-E Tree Physiology & Molecular Genetics(3)
3-1-R Silviculture & Practice(3)	3-2-R Tree Breeding & Tissue Culture & Lab (3)
3-1-R Forest Economics (3)	3-2-R Erosion Control & Practice (3)
3-1-R Forest Measurement & Management (3)	3-2-R Forest Policy (3)
3-1-R Forest Engineering & Forest Machinery Practice (3)	3-2-R Forest Policy (3)
3-1-R Forestry Professional English and Practice(3)	3-2-E Landscape Architecture(3)
3-1-E Wildlife Management(3)	3-2-E Forest Recreation & Park Management (3)
	3-2-E Well-Bing Mushroom Science and Practice(3)
	3-2-E Wood Based Materials & Lab (3)
	3-2-E Internship
4-1-R Forest Seminar (1)	4-2-R Forest Seminar (1)
4-1-R Forest Field Practice (1)	4-2-E Special Tree Cultivation & Practice (3)
4-1-E Logic Statement of Forest Science (3)	4-2-E International Forestry (3)
4-1-E Forest Tree Biotechnology & Lab (3)	4-2-E Forest Botany & Practice (3)

4-1-E Landscape Design (3)
4-1-E Internship (3)

● Courses Abstract

Introduction to Forest Science

Forests provide economic and environmental benefits. The subject includes the fields of silviculture, forest management, forest use and forest protection, leading to understanding forest science in general. Also it is possible to grasp the value and sustainability of forest.

Forest Ecology & Lab

To understand the growth, reproduction and adaptation to environment of forests and trees as the structure and function of forest ecosystems; to apply this knowledge to sustainable forest management.

Dendrology & Practice

Dendrology is the scientific study of trees. This subject is to teach the ability to identify and classify the trees of the forest growing in Korea. This is the fundamental skill to study forest and other area.

Computer Practical use & CAD

Computer Practical use & CAD' will be learned how to plan and analysis and evaluation of various problems with the forestry by using a computer.

Forest Soil Science

Physical properties of soil, their quantitative measurement, and relation to plant growth. Interrelationships of forest site and the growth of trees. properties, classification, inventory, productivity and management of forest soils. Effects of silvicultural and forest management practices on the soil.

Forest Statistics & Practice

This lecture is aimed at the sample and normal distribution curve, also representative value and scatter diagram, chi-square test, correlation test, regression test, analysis of variance, experimental design, random sampling, randomized block design, factorial experiment and split-plot experiment.

Forest Pathology · Entomology & Lab

To integrate forest insects and diseases into one lecture because recent serious diseases are the combination of the two kinds of organisms.

Forest Survey & GIS

Determination of forest boundary, ground and aerial surveying techniques using transit and GPS instrument.

Forest Therapy

This lecture is aimed to the theory and business about composition and management on healing forests and to understand the health function of forest.

Forest Protection·Restoration Science & Practice

To obtain the knowledge and experiences through lecture and practices about forest damages due to humans, climates and animals; To diagnosis depending on cause and symptoms of forest pests; learns prevention and control measures of the pests.

Dendroanatomy & Lab

The course focuses on understanding the macro and micro structures of wood cells and their physiological and morphological properties for the effective utilization of wood material.

Environment Forestry

Based on the climate change and clean development mechanism, the methodology of selecting tree species and managing forest is studied in terms of economy. And the subject analyzes the impact of forest on environment.

Forest Hydrology & Practice

Hydrological cycle with emphasis on soil, water and groundwater regimes; rainfall-runoff relations; instrumentation and measurement of the various components. Effects of forest management on watersheds and water yield.

Tree Physiology & Molecular Genetics

Tree physiology deals with the structures and functions of trees. Basic molecular genetics is also taught.

Silviculture & Practice

'Silviculture & Practice' will be learned the importance on the handling of seeds, sowing, seedling, lush breeding, natural regeneration, theory and practice of breeding by dividing plantations or natural afforestation.

Forest Economics

Understanding the fundamentals of economics, and applying it to the area of forestry. Also the subject analyzes forestry investment and forest products market.

Forest Measurement & Management

This lecture is aimed the theory and techniques required to forest management and how to quantify the value of forests.

Forest Engineering & Forest Machinery Practice

Construction of forest road. Felling, bucking and transport to trees to mill site. Capabilities and limitations of mechanical devices, vehicles and logging systems related to timber size and terrain.

Forest Professional English and Practice

To study forestry related english, improve capacity to understand international forestry information; to practice to improve internation communication abilities.

Wildlife Management

Forests provide the habitat for wildlife, and the wildlife is valuable resources. And the subject analyzes the ecology and management methodology of wildlife.

Tree Breeding & Tissue Culture & Lab

The purpose of tree breeding is to establish superior trees which can show good growth performance in the city as well as in mountain area. Tissue culture of trees is also taught. It is the technique for in vitro propagation, improving by culturing, and genetic manipulation.

Erosion Control & Practice

Design of erosion control works, using various plants and embankment, earth dams, natural and cut slopes, stability of circular and composite slip surface.

Forest Policy

Understanding the fundamentals of policy, and applying it to the area of forestry. Also the subject analyzes forest policy and administration.

Landscape Architecture

'Landscape architecture' raise landscape artistic ability to help relaxation and emotional life of the people by learning the theory of landscape aesthetics and planting landscaping trees.

Well-Being Mushroom & Practice

To study forest mushrooms, i.e. research findings, taxonomy, morphology, nutrition, reproduction, and biological environment; to learn cultivation methods of major forestry mushrooms; to practice mushroom identification, isolation and culturing mushroom hyphae, spawn production and cultivation.

Wood Based Materials & Lab

Wood-based composites are used for a number of nonstructural and structural applications in product lines ranging from panels for interior covering purposes to panels for exterior uses and in furniture and support structures in buildings. Wood-Based Composites & Lab is the subject concerning the manufacture and the use of new wood-based composites.

Forest Field Practice

Acquiring the knowledge and experience through field practice as well as lecture and experiment. The subject make students competent forester.

Forest Tree Biotechnology & Lab

Biotechnology for trees can improve the graduate students' ability to apply the subject. The theory and practice of tree biotechnology are both important for students.

Logic & Statement of Forest Science

Learn logical thought, research methodology and writing; the lecture includes planning thesis, implementation, writing and presentation.

Landscape Design

'Landscape design' will be learned design method of garden and raise landscape artistic ability to help relaxation and emotional life of the people by learning the theory of landscape and planting landscaping trees.

Special Tree Cultivation & Practice

'Special Tree Cultivation & Practice' will be learned how to breed and growth physiology, production and germination of seed on the special tree.

International Forestry

Understanding the situation and methodology of abroad forestry. And the subject analyzes the investment environment and profitability of abroad forestry.

Forest Botany & Practice

Forest Botany deals wild medicinal plants and edible plants for useful purpose. Identification and classification of plants is main purpose of class. Cultivation practice and uses of each species are also important.

▣ Department of Agricultural & Rural Engineering

Introduction

Department of Agricultural & Rural Engineering is concerned with all aspects of water and rural environmental management, including irrigation, water conservation, drainage, water control and structures, soil erosion, agriculture-related products and systems, water quality, ecosystems preservation and environmental quality. The RE program provides a combination of courses in engineering theory and application for students seeking careers in agricultural production and efficiency, improve agriculture-related products and systems, environmental protection, and product utilization. A career in Rural engineering gives you the opportunity to find engineering solutions to issues dealing with agriculture-related products and systems, water, soil, and environmental systems.

Graduates of the Rural engineering program are sought by a wide variety of employers including public corporations (such as KARICO, KOWACO etc.), public officials, construction industries, construction work utility companies, engineering work design and environmental consulting firms, and governmental agenciesin the future.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(27Credits), a major(88Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1	1-2-R Seminar for Introduction to Agricultural & Rural Engineering(3)
2-1-E Surveying & Practice(3)	2-2-E Fluid Mechanics(3)
2-1-E Statics & Practice(3)	2-2-E Mechanics of Materials & Practice(3)
2-1-R Capstone Design Introduction(3)	2-1-E Soil Mechanics & Lab (3)
2-1-R Computer Aided Drafting(3)	2-2-E Experimental Statistics(3)
2-1-R Engineering Mathematics(3)	2-2-E Seminar in Topographical Information Engineering(3)
2-1-R Construction Geology(3)	2-2-E Computer Programming & Practice(3)
3-1-E Irrigation & Drainage Engineering and Practice(3)	3-2-E Rural Planning Seminar(3)
	3-2-E Regional Environmental Engineering

3-1-E Hydraulics & Lab(3)	& Lab(3)
3-1-E Agricultural & Environmental Hydrology and Practice(3)	3-2-E Agricultural Facility Environment Seminar(3)
3-1-E Statically Indeterminated Structures & Design(3)	3-2-R RC Structural Engineering & Design (3)
3-1-R Agricultural Geography Seminar(3)	3-2-R Construction Engineering & Practice (3)
3-1-R Geotechnical Engineering & Lab(3)	3-2-R Agricultural Hydraulics Structures & Design (3)
3-1-R Materials for Construction & Lab	
Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
4-1-R Facility Environmental Control Seminar(3)	4-2-E Design of Agricultural Engineering (Capstone Design)(3)
4-1-R Preventive Disaster of Agricultural & Rural Engineering(3)	4-2-E Agricultural Land Environmental Engineering & Design(3)
4-1-R Principles of Cultivation(3)	4-2-R Design of Rural Development(3)
4-1-R Rural Road Engineering & Design(3)	4-2-R Farm Building Seminar(3)
4-1-R Design of Rural Environment (Capstone Design)(3)	4-2-R Agricultural Ecology (3)
4-1-R River Ecosystem & Water Resources Engineering(3)	

● Courses Abstract

Seminar for Introduction to Agricultural & Rural Engineering

Introduction of the overall condition and essence of the agricultural and rural engineering, suggesting and summarizing the historical development and academic system, understanding the contents through the presentations and discussions for each field.

Surveying & Practice

Basic theory and methods for measurement include the following: ① Practice for the operation of the survey ② Evaluation system of measurement results ③ Measurement methods and work in the field ④ Study on the error

Statics & Practice

A two-dimensional basis to deal with the dynamics of the equilibrium and balance of the three-dimensional objects and the basic principles of structural mechanics, by addressing the distribution of power focuses on the analysis and application of mechanical design of various structures.

Capstone Design Introduction

The purpose of 'Capstone Design, Introduction' is to contribute to the abilities of systematical and engineering thinking by studies, experiences and practices. A participant learn and understands the information technologies, green design and creative design concept and techniques of engineering tools.

Fluid Mechanics

Fluid mechanics is a basic engineering science that should be considered

as fundamental for civil, environmental, and mechanical engineers. It is essential to understanding phenomena related to the movement and forces established by fluids such as air and water, for designing systems that employ these fluids, and for predicting the transport of pollutants in fluid streams, e.g., rivers, oceans, buildings, the outdoor atmosphere.

Computer Aided Drafting

Students learn through using the CAD for understanding graphical language, schematic drawings and cartographic measurement.

Engineering Mathematics

Calculus indispensable application in the design of a variety of structures for agriculture-based composition, differential equations, conversion operations, the solutions and matrix by dealing with water.

Construction Geology

Study of creating the concept of geology, soil and rock needed for constructions.

Mechanics of Materials & Practice

Learning the role of various materials through each practice and theories, calculation used for the agricultural structures acquire the properties and methods of using such material.

Soil Mechanics & Lab.

Civil engineering and building structures is an important above all to grasp the physical mechanical properties of the soil, usually by those based on the soil. As he foundation of the basic engineering to identify the issues related to civil engineering and building construction allows for economical and safe construction.

Experimental Statistics

Understanding the basic theory and experimental design and statistical analysis of this application statistics.

Seminar in Topographical Information Engineering

Cultivate culture field measurement of the basic skills, and understanding through practice and the production process and photogrammetry GPS, GIS measurement, the theory of the map.

Computer Programming & Practice

Using the computer to acquire the planning, analysis problems for the overall evaluation of agricultural.

Agricultural Geography Seminar

The Agricultural Geography is understanding the element to organize rural space, and examine the relation of the geographical feature closely with rural and agriculture. So, learn the principle of the rural planning.

Irrigation & Drainage Engineering and Practice

This course is concerned with evapotranspiration, soil moisture and water movement related to irrigation and drainage systems of paddy fields and uplands, design of components of irrigation and drainage systems including reservoir, irrigation organizations, and others.

Hydraulics & Lab.

Hydraulics & Lab. deals with the application of fluid mechanics in the analysis or design of hydraulic structures and water resources systems. The course is important in that it provides the technical background in the planning and design of water resources projects.

Agricultural & Environmental Hydrology and Practice

This subject is concerned with the circulation of water and its constituents through the hydrologic cycle. It deals with precipitation, evaporation, infiltration, groundwater flow, runoff, streamflow, and the transport of substances dissolved or suspended in flowing water. It is primarily concerned with water on or near the land surface.

Statically Indeterminated Structures & Design

This subject study with Statically Indeterminated Structures that is not to analyzed as statics, and learn principles of analysis and design of Statically Indeterminated Structures.

Geotechnical Engineering & Lab

A in-depth study of soil properties and rock mass is made with objective of developing an understanding of soil and rock behaviour. The methods of subsurface investigation, compaction, slope stability, earth pressure and shear strength are introduced. Settlement analysis is also presents.

Materials for Construction & Lab.

It is study that the characteristics of practical materials by literature and laboratory works.

Rural Planning Seminar

This course includes basic concepts of pollutant transport through soils and with overland flow, eutrophication of surface waters, soil pollution, rural water supply, wastewater treatment in rural areas, compost, and others.

Regional Environmental Engineering & Lab.

This course includes basic concepts of pollutant transport through soils and with overland flow, eutrophication of surface waters, soil pollution, rural water supply, wastewater treatment in rural areas, compost, and others.

RC Structural Engineering & Design)

This course of study lectures on the design methods with fundamental analysis

theory of reinforced concrete, understands the principle of the design, and practices the design.

Construction Engineering & Practice

This course provides an understanding the method of construction and machine, cost estimate, CPM analysis, PERT system of civil structures.

Foundation Engineering & Design

A study of design method for foundations and earth structures. Site investigation, selection of foundation types and basic design, allowable loads, permissible settlements of shallow and deep foundation. Computations of earth pressure and design of retaining walls are introduced.

Agricultural Hydraulics Structures & Design

The main aim of this course 1) to develop a deep understanding of the application of hydraulic fundamentals; 2) to the design of common hydraulic structures like; dams, locks/sluices, weirs, gates, artificial islands, (caisson)breakwaters, retaining structures, quays & jetties, storm surge barriers, immersed and bored tunnels, etc; 3) to understand when additional design tools, such as physical and/or numerical modeling, should be considered; 4) to develop general engineering design skills following standard procedures and improvising for project-specific conditions;

Facility Environmental Control Seminar

We learn the environment of the plant in this subject, understand the control methods of the plant of the production environment, and consider agricultural product environment of the future

Agricultural Facility Environment Seminar

This subject learn the design methods for the agriculture farm buildings. And learn actual storage method that keeps the freshness of agricultural production by traditional method and newly equipments.

Preventire Engineering of Disaster

This subject is concerned with the engineering theory to natural disaster prevention.

Principles of Cultivation

Genetics, cultivation environment, and crop culture techniques are the main subjects for the study of basic principles for crop cultivation.

Rural Road Engineering & Design

Rural road design based on a study of traffic distribution, volume and speed with consideration for the predictable future. Analysis of elements of at-grade intersections, interchange, the geometrics of rural road design, intersection layout with advanced curve work including compound and transition curves.

Rural Resources Seminar

It is the subject which creates the maintenance of the basic living condition and the comfortable living environment of the rural community offered by the balanced development policy of the country. Students learn the theory and the practice about conurbation of the activity scope related with the city, the structural change and the advanced aging of the rural community. In addition, they implement the design of the rural development plan and the visit of fields through this subject.

Design of Rural Environment (Capstone Design)

It inspires people with the missional responsibility for the efficient rural construction and the succession through the practical experience about the environmental friendly rural construction, the wide understanding of the legal enforcement ordinance and the concept of the rural development methods based on the national balanced development.

River Ecosystem & Water Resources Engineering

This course is designed to review the fundamentals and practices of river ecosystem and water resources engineering within the Rural, Civil and Environmental Engineering curriculum.

Design of Agricultural Engineering (Capstone Design)

This subject is study practical design methods of structures, using the computer program.

Agricultural Land Environmental Engineering & Design

This course provides an understanding the method of land use, land reclamation, soil and water conservation and rearrangement of land. Agricultural drainage, farm land consolidation, land-reclamation, farm land erosion, conservation paddy field are introduced.

Farm Building & Design

we learn fundamental truth and practices for structural design methods of Rural houses and farm buildings. This subject is focused on timber and soil.

Agricultural Ecology

This course covers agroecological components, processes, and dynamics, nutrient cycling, ecological characteristics of paddy farming and irrigation agriculture, and global environmental problems.

▣ Department of Biosystems Engineering

Introduction

It is our objective to : Provide the comprehensive education necessary to prepare students for successful, productive, and rewarding careers in engineering for agricultural, food, and biological systems.

We expect that graduates of our program will :

- Be able to apply the mathematical, physical, engineering, and biological principles needed to understand, analyze, and solve problems in food, agricultural, environmental, and biological systems.
- Be effective in oral, written, and visual communication.
- Be self-motivated in accomplishing tasks, both ad an individual, and as a contributor to multi-disciplinary teams
- Be able to understand the social, environmental, safety, and economic impacts of their work in local and global contexts, and to perform in a professional and ethical manner.

-Be committed to enhancing knowledge and skills through continuing education.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(35Credits), a major(76Credits), and electives(34Credits).

Curriculum

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
2-1-R Bio-thermodynamics(3)	2-2-R Numerical Analysis(3)
2-1-R Fluid Mechanics(3)	2-2-R Material Engineering for Biological
2-1-R Computer Programming and Practice (3)	Application I (3)
2-1-R Engineering Mechanics I(3)	2-1-E Engineering Mechanics II(4)
2-1-R Applied Mathematics I(3)	2-2-E Biosystems Material Engineering (3)
2-1-E Computer Aided Drawing(3)	2-2-E Applied Mathematics II(3)
	2-2-E Electrical/Electronics Engineering Experiments(3)
3-1-R Design of Agricultural Machinery I(3)	3-2-R Agricultural Process Machinery and
3-1-R Field Machinery and Practice(3)	Practice(3)
3-1-R Farm Shop and Practice (3)	3-2-R Transport Phenomena in
3-1-E Korean Oral Literature (3)	Bioproducts(3)

3-1-E Seminar on Modern Literature(3) 3-1-E Classical Korean Essays(3) 3-1-E Theory of Literary Education	3-2-E Biosystems Engineering seminar I-Capstone Design(3) 3-2-E Internal Combustion Engines(3) 3-2-E Design of Agricultural Machinery II(3) 3-2-E Bioenvironment System Engineering(3) 3-2-E Biosystems Control(3)
Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
4-1-R Tractor Engineering and Practice 4-1-R Protected Facilities Environment Control Engineering 4-1-R Biosystems Engineering seminar II-Capstone Design 4-1-E Precision agriculture system engineering	4-2-E Bio-energy Engineering(3) 4-2-E Bio-instrumentation and Experiments(3) 4-2-E Farm Machinery Management(3)

● Courses Abstract

Bio-thermodynamics

The purpose of this subject is to provide a mature approach to the basic principles of thermodynamic based on the relation between that and work and to encourage a understanding of detailed bio-engineering applications. involving descriptions of equipment and design technique.

Fluid Mechanics

This subject course the fundament mechanics of fluids, specially water and air' Covering equations deal with the derivation of the basic conservation laws, flow kinematics and some basic theorem of fluid mechanics by the development and the application of control volume forms of basic equations . It provides the basic knowledge for the applicate of fluid-flow problems such as fluid machinery and computational fluid mechanics etc.

Computer Programming and Practice

This course introduces Matlab/Cemtool syntax and various programming techniques such as decisions, loops, arrays, functions, and file processing. Students are required to complete lab assignments using a personal computer

Engineering Mechanics I

This course introduces vector algebra, study of the forces on bodies at rest, study of force systems, equivalent force systems, distributed forces, internal forces, principles of equilibrium, application to trusses, frames and beams, and

friction.

Applied Mathematics I

Learning applied mathematics as a fundamental engineering subject develops the capability of resolving scholastic design problem and effortlessly understanding mechanics and analytical problems.

CAD(Computer Aided Drawing)

Mechanical drawing is standard drawing language to design and fabricate a mechanical part and module between designer and manufacturer. Computer drawing course, CAD (Computer aided drawing), covers the expression method of a mechanical part and module in a drawing. The course uses AutoCAD to learn design technique due to its easiness of drawing, editing and changing.

Numerical Analysis

This subject provide for students the fundamental numerical methods which are capable of handling large systems of equations, non-linearities, and complicated geometries that are not uncommon in engineering practice and that are often impossible to solve analytically. Because numerical methods are for the most part designed for implementation on computers, the background for computer programming is essential for the students

Material Engineering for Biological Application I

This course develops the ability of analyzing stress and distortion of a mechanical module and structure by applied weight, torque, moment and temperature and determining economical material for a mechanical module and structure. Additionally, this course builds up the basic ability of design mechanical parts and structures using pre-described course materials

Engineering Mechanics II

Dynamics of machines treats with the force action on the parts of a machine and motions resulting from these forces, A dynamic analysis is necessary to ensure that balance is provided for rotating and reciprocating parts and that all members are adequate from the standpoint of strength

Biosystems Material Engineering

Until recently, we have seen the automation of industrial machinery, energy saving techniques, and advances in information processing technology. Requirements for these things include an improvement in machinery material, the development of new materials, and efficient technology education to make the best use of such new material. We therefore need enough recognition of the importance of machinery material, and knowledge about how to make efficient responses to the machinery material field, which has a great variety of excellent and new functions that are being researched and developed rapidly.

To design and manufacturing a machine, we should first determine strength security based on engineering knowledge and at the same time, choose the best material equipped with the processing and economics of the material. Also we should have rich basic knowledge about machinery material and actual experience.

This course deals with; the introduction to machine material, the heat treatment of steel material, material testing and inspections, metal material, non-metal material, and further aims to provide basic knowledge and indirect experience in machine material.

Applied Mathematics Ⅱ

Learning additional applied mathematics within fundamental engineering problems builds understanding capability of scholastic mechanicsand analytical problems, and theoretical analytic ability for scholastic design and research problems

Electrical/Electronics Engineering Experiments

This course introduces circuit analysis, study of electrical and electronic parts, application in agricultural systems. Lab session includes hands on experience on electrical parts, circuits and equipment operation methods.

Design of Agricultural Machinery I

Agricultural machine design involves a great deal of geometry, too: therefore another useful tool is the ability to sketch and draw the various configurations which arise. Students will also have studied a number of basic engineering sciences, including physics, engineering mechanics, materials and processes, and the thermal-fluid sciences.

These, the tools and sciences, constitute the foundation for the practice of engineering, and so, at this stage of undergraduate education, it is appropriate to introduce the professional aspects of engineering.

Field Machinery and Practice

Based on dynamics, dynamics of machinery and introduction to plant production, this course introduces principles, structure, and, analysis methods on various field machinery and their implements for crop production. Lectures and practices on tillage implements, seeders, sprayers, cultivators, combines and threshers

Farm Shop and Practice

Practice the shearing, cutting, shaping, welding, lathing, milling etc. for understanding the mechanical structure of machinery.

Mechanisms

Kinematics of machines is the study of the relative motion of machine parts and is one of the first considerations of the designer in the design of a machine

Fluid Machinery

This subject seeks to outline the guiding principles underlying all forms of fluid machinery as an energy conversion system. Fluid machinery covers the pump, hydraulic turbine, fluid power systems, blower, compressor, vacuum-pump

Material Engineering for Biological Application Ⅱ

This course aims for understanding fundamental theory and rational and analytical resolving methods for problems of motion of mechanical material, and developing resolving capability for the problems. And the course intends for estimating required strength, building capability of economical material selection and developing mechanical design fundamental through the stress calculation of a mechanical structure and module. The course mainly covers beam and axis strength design, beam elastic estimation, beam elastic estimation by moment-area method, energy by stress and weight, stress forced to a cylinder.

Agricultural Process Machinery and Practice

This course covers fundamentals and design criteria of unit processing machineries for increasing harvested produce value and quality, and the students earn the knowledge of processing machinery integration by lectures and labs.

Heat Transfer in Bioproducts

This subjects introduces the basic heat transfer processes such as conduction, convection and radiation and covers the heat transfer processes in heat engine and energy conversion systems. this basic principles applied to heat transfer problems in the agricultural and bioproducts

Biosystems Engineering Seminar I

Lectures and seminars in research philosophies and the scientific method, with special emphasis on Biosystems engineering research.

Internal combustion engine

This subjects to provide for students the overview of internal combustion engines by applying the basic knowledge of thermodynamics, fluid mechanic, heat transfer etc

Design of Agricultural Machinery II

Agricultural machine design involves a great deal of geometry, too: therefore another useful tool is the ability to sketch and draw the various configurations which arise. Students will also have studied a number of basic engineering sciences, including physics, engineering mechanics, materials and processes, and the thermal-fluid sciences.

These, the tools and sciences, constitute the foundation for the practice of engineering, and so, at this stage of undergraduate education, it is appropriate to introduce the professional aspects of engineering.

Bioenvironment System Engineering

Farmers are developing a high-quality and high-earning new production method by means of facility farming for the purpose of responding to current fancy and diverse diets that have resulted from rapid economic growth and the growing demands for the fresh fruits and vegetable throughout the year, and to cope with both domestic and foreign agricultural difficulties. To understand these methods however, we need to know the use and automation of the bioenvironment control system to support facility farming.

In undertaking facility farming, we should develop a proper bioenvironment condition system on the basis of knowledge of a plant's development and growth. To achieve this goal, we should also equip ourselves with a basic knowledge and experience of new environmental settings, control factors, plant-harvesting factors, greenhouse structural design, and an automation of the bioenvironment system.

This course deals with the properties of air, fluid, plants, the heat transfer, cooling and heating load of a greenhouse, control and measurement of a greenhouse environment, and strives to teach how to acquire systematic knowledge and indirect experience of the Bioenvironment System.

Biosystems Control

The main topics in this course are motivation to control systems, feedback principles, modelling, Laplace transforms, stability, PID control and application in biosystems control.

Tractor Engineering and Practice

With the theoretical and experimental method, practice and analysis for understanding of mechanical structure of farm tractors.

Protected Facilities Environment Control Engineering

This course includes introduction to the fundamental technology and practical application of various automation techniques in protected facilities such as green house.

Biosystems Engineering Seminar II

Lectures and seminars in research philosophies and the scientific method, with special emphasis on Biosystems engineering research.

Precision agriculture system engineering

Precision agriculture will introduce students to the basics of Precision Agriculture, from field mapping to yield monitoring. Students will gain information about Global Positioning System (GPS) receivers, hand-held computers, tractor guidance and variable rate sprayers. A major portion of the course focuses on GPS, Geographical Information Systems (GIS) and remote sensing.

Bio-energy Engineering

Recent industrial advances and an improvement in living standards have clearly brought us increasing energy consumption, and at the same time, the energy crisis. Most of all, a shortage of limited fossil energy resources has resulted in a sky-rocketing oil price, which is in turn overloading national economies. As a result, energy saving is at the forefront of our social problems. Thus, researchers are focusing on developing newer alternative resources. Furthermore, understanding and recognition of the importance of energy is in demand. So, we need to know many different theories and principles on how to make efficient use of energy.

To make an efficient use of energy, we should find out the principle of an energy application system and it's design theory, understand different types of thermal energy such as fossil energy, natural energy, and alternative energy, and know the principles and design theory of a heat pump. This can be achieved when equipped with rich basic knowledge and experience in thermal energy.

This course deals with the theory of thermal energy, fossil energy, natural energy, the application of thermal energy, and agricultural energy for an energy application engineer, and aims to give basic knowledge and indirect application experience in Bioenergy.

Bio-instrumentation and Experiments

This course includes introduction to the fundamental technology and practical application of sensors. Capacitive, inductive, optical, ultrasonic, and other sensing methods are examined. Instrumentation techniques incorporating computer control, sampling, and data collection and analysis are reviewed in the context of biosystems application. Lab session includes hands on experience on sensors, signal processing methods and computer interfacing.

Farm Machinery Management

Understand for the farm machinery management and economically analysis of farm structure

▣ Department of Wood and Paper Science

Introduction

The department aims to foster talented individuals with expert knowledge on utilization and processing of renewable wood and paper resources through a systematic curriculum. Main areas in education and research are wood structural analysis and identification, physical and mechanical properties of wood, processing of wood through physical or chemical treatment, wood to paper processes focused on wood chemistry, pulping, bleaching, papermaking process, and paper converting.

Credit requirements for graduation

The department curriculum has three components:
Basic eduction requirement (20 credits), advanced eduction requirement (9credits), and specialized eduction requirement (3 credits). Also this department requires essential major course requirements (39(3) credits) and selective major course requirements (70 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
	1-2-E Organic Chemistry(3)
2-1-R Wood Physics & Lab. (3)	2-2-R Forest Measurement & Practice (3)
2-1-R Wood Chemistry & Lab. (3)	2-2-R Dendroanatomy & Lab. (3)
2-1-E Dendrology & Practice (3)	2-2-E Silviculture & Practice (3)
2-1-E Wood Mechanics (3)	2-2-E Polmer Chemistry (3)
2-1-E Forest Statistics & Practice (3)	2-2-E Forest Management & Practice (3)
2-1-E Biochemistry of Wood (3)	2-2-E Biomass Hydrolysis (3)
3-1-R Pulp Technology & Lab. (3)	3-2-R Wood Drying & Lab. (3)
3-1-R Adhesive Bonding & Finishing of Wood (3)	3-2-R Wood Based Materials & Lab. (3)
3-1-E Chemical Processing of Wood & Lab. (3)	3-2-R Paper Technology & Lab. (3)
3-1-E Wood Machining & Lab. (3)	3-2-R Paper Properties & Lab. (3)
3-1-E Wet End Chemistry (3)	3-2-E Dendrochronology & Wood Cultural Heritage (3)
3-1-E Wood & Fiber Identification (3)	
3-1-E Unit Operation in Forest Products (3)	3-2-E Wood Furniture & Lab. (3)
	3-2-E Biotechnology in Forest Products (3)
4-1-R Paper Converting & Lab. (3)	4-2-E Special Paper Making (3)
4-1-R Wood Preservation & Lab. (3)	4-2-E Korean Paper Manufacturing & Paper Conservation (3)
4-1-E Special Forest Products (3)	

4-1-E Biomass Energy (3)	4-2-E Wood Industry Machinery (3)
4-1-E Practice in Forest Products (1)	4-2-E Wood and Paper Capstone Design (3)
4-1-E Internship (3)	

● Courses Abstract

Wood Physics & Lab.

To investigate the basic physical properties of wood, wood density, thermal properties, mechanical properties and electrical properties will be taught in this class.

Wood Chemistry & Lab.

To teach the chemical constituent of wood, distribution of chemical components in wood, polymeric structure of wood consisting components and their deriviatvies, analysis of wood components, and isolation of wood components and their utilization.

Dendrology & Practice

The course focuses on the identification of woody plants and their physical and biological properties according to their geographical distributions in oder to establish a data base for making an afforestation plan.

Wood Mechanics

In order to understand wood mechanics, fundamental of material mechanics, elasticity, visco-elasticity, strength, hardness, and other properties of wood will be explained.

Forest Statistics & Practice

Introduction to sampling & normal distribution, representative value & dispersion, x^2 (chisquare test), correlation & regression, analysis of variance, experimental design, completely randomized design, randomized block design(RBD), factorial experiment, split plot experiment.

Biochemistry of Wood

To teach the cellulose, hemicellulose, and lignin biosynthesis process focused general biochemistry viewpoint, including biotechnologic process for better cellulose and lignin biosynthesis process.

Forest Measurement & Practice

Concerned to timber procurement, timber measurement, stem analysis, scaling and grading of log are described in the lecture. In addition, field trip experiences are included.

Dendroanatomy & Lab.

The course focuses on understanding the macro and micro structures of wood

cells and their physiological and morphological properties for the effective utilization of wood material.

Silviculture & Practice

'Silviculture & Practice' will be learned the importance on the handling of seeds, sowing, seedling, lush breeding, natural regeneration, theory and practice of breeding by dividing plantations or natural afforestation.

Polymer Chemistry

Wood itself and subsidiary materials for wood processing such as the adhesives and the paints are polymer materials. Polymer Chemistry is the subject concerning the chemical synthesis and chemical properties of polymer.

Forest Management & Practice

This lecture is aimed the theory and techniques required to forest management and how to quantify the value of forests.

Biomass Hydrolysis

Monosaccharides can be converted to many chemicals by chemical process or biochemical process. In this course, polysaccharide to monosaccharide conversion by enzyme or chemical is main topic. Also chemical or biological conversion of monosaccharides to industrial chemicals will be discussed.

Pulp Technology and Lab.

Concerned to pulping technology, wood preparation, various pulping methods, pulping reactions during acidic, alkaline and solvent cooking conditions, new pulping methods, physical and mechanical properties of manufactured pulps, chemical recovery and pulp bleaching are described in the lecture. In addition wastewater treatment and pollution abatements during pulping processes were reviewed.

Adhesive Bonding & Finishing of Wood

Adhesives and paints are polymer materials for wood bonding and finishing, respectively. These are typically organized by the method of curing or types of origin. Adhesive Bonding & Finishing of Wood is the subject concerning the curing and chemistry of adhesives and the paints.

Chemical Processing of Wood & Lab.

Chemical treatments can be applied to wood to either improve its performance or change its properties. Chemical Processing of Wood & Lab is the subject concerning the treatment method for the chemical processing of wood.

Wood Machining & Lab.

To deal with theoretical background and application of wood process machinery with focused on wood cutting methods and their usages, to improve the wood utilization.

Wet End Chemistry

To teach the wet end chemistry related stock preparation to press process in papermaking, including raw material properties, process properties to improve the papermaking process.

Wood & Fiber Identification

The main focus of Wood & Fiber Identification is to learn and practice the species identification method for domestic and foreign wood and fiber materials under a light microscope.

Unit Operation in Forest Products

Fundamental theory of fluid mechanics, heat transfer, and material transfer will be explained which is related to major production processes of forest products. Equipment operation principles and methods of various processes will be explained.

Wood Drying & Lab.

To improve the wood drying area with wood drying room design, special drying related theory and actual application to apply in wood drying area.

Wood Based Materials & Lab.

Wood-based composites are used for a number of nonstructural and structural applications in product lines ranging from panels for interior covering purposes to panels for exterior uses and in furniture and support structures in buildings. Wood-Based Composites & Lab is the subject concerning the manufacture and the use of new wood-based composites.

Paper Technology and Lab.

Paper manufacturing process, stock preparation, beating and refining, cleaning, screening, blending, filling, sizing, sheet formation, wet-end and dry-end operation, coating, products performance and unit operation are reviewed. In addition, wastewater treatment, pollution abatement and field trip experiences are included.

Paper Properties & Lab.

Physical, mechanical, and visco-elastical properties of paper will be explained. Printing properties, opacity, brightness, air permeability, and other related properties of general, specialty, and functional papers will be explained.

Dendrochronology & Wood Cultural Heritage

The course is divided into two subjects. Subject 1 is Dendrochronology and Subject 2 is Wood Cultural Heritage. The contents of Subject 1 are the principle of dendrochronology and its analysis technique. And more, it will be introduced that the application method of Dendrochronology to other scientific fields, e.g., archaeology, forestry, ecology, climatology and so on. The contents of Subject 2

are mainly the structure of archeological wooden architecture in Korea and the dating method.

Wood Furniture &.Lab.

To handel with furniture development history, and modern furniture with commericalization, design, durability and dimensional stability.

Biotechnology in Forest Products

To teach biotechnologies related wood and paper industry, including biotechnologic conversion of wood component in pulping, bleaching, or papermaking process, including waste water treatment in wood and paper industry.

Paper Converting & Lab.

Theories and equipments of coating and converting will be explained, that are related to pigment coating, aqueous and solvent coating, extrusion coating, corrugated board, and specialty paper production.

Wood Preservation & Lab.

The main focuses of Wood Preservation & Lab. are investigating a course of wood deterioration and its effects on the chemical and physical properties of wood, as well as introducing the protect and treatment methods for wood deterioration.

Special Forest Products

Concerned to production, processing, and utilization of forest by-products and wood sub-chemicals such as organic fertilizer, charcoal, lacquer, natural dyes, herbs and all that sort of things are described in this lecture.

Biomass Energy

Biomass can be used as a source of bioenergy and biorefinery. Utilization of biomass can have both positive and negative impacts on the environment. Biomass Energy is the subject concerning the conversion of biomass to produce fuels, power, heat, and value-added chemicals.

Practice in Forest Products

To lecture and exercise with experiment forest with focused on wood production, charcoal making, special forest product production (cork, rosin, mushroom and wood sap liquor)

Internship

Pre-professional work/field experience for wood and paper science majors. An internship is an integral part of education. It provides real world experience in the profession; Enables correlation of class room learning with its application in industry; Broadens understanding of the types of employment available in the field; Helps students discover their individual interests; Builds resume credentials

for the students; and develops relationships between CBNU-WPS and Industrial Firms.

Special Paper Making

In order to produce specialty papers with functional properties, raw materials, additives, converting methods, and related technologies will be explained.

Korean Paper Manufacturing & Paper Conservation

Paper mulberry and nonwood fiber pulping, cleaning, sheet formation, additives, converting, and sub-materials for the Korean traditional papermaking were reviewed. In addition, development of new Korean traditional papermaking technology and examination on the chemical and mechanical deterioration of papers for paper conservation and restoration were reviewed.

Wood Industry Machinery

To learn basic knowledge of wood industrial machinery to better production for machinery structure and their improvement.

Creative Wood and Paper Capstone Design

The course is designed to create a new applied field based on knowledge learned in the major course of Wood & Paper Science.

▣ Department of Agricultural Economics

Introduction

Agricultural economics is an area of applied economics but also takes on the view of business management towards industries related to agriculture. The department encourages the honing of expert knowledge, application skills and analysis skills to produce graduates who are able to contribute to welfare in agricultural areas and the overall economy.

During the first year, liberal arts subjects and essential subjects for major are taken, including microeconomics, macroeconomics, agricultural economics, agricultural business management, production economics, quantitative economics, agricultural policy, environmental economics, agricultural finance, agricultural products management information theory, agricultural accounting, cooperatives theory, overseas agricultural development and aid theory, the futures market for agricultural goods, distribution theory for agricultural products, business strategy for agricultural products and resource economics.

A total of 34 courses in the major category, of which 14 are essential and 20 are optional, form the core of the curriculum.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(33Credits), a major(78Credits), and electives.

Curriculum :

Yr-Sem-R/E	Course (Credit)		Yr-Sem-R/E	Course (Credit)	
			1-2-E		(3)
2-1-R		(3)	2-2-R	(3)	
2-1-R		(3)	2-2-R	(3)	
2-1-E			2-1-E	(3)	
		(3)	2-2-E		
2-1-E		(3)		(3)	
2-1-E	Agriculture and Food industrial Economics (3)		2-2-E		(3)
3-1-R	(3)		3-2-R		(3)
3-1-R		(3)	3-2-R	Agricultural and Food Price Theory	(3)
3-1-R			3-2-R	(3)	
		(3)	3-2-R	Management Information System in	

3-1-E	(3)		Agriculture and Food (3)
3-1-E	(3)		
		3-2-R	
			(3)
		3-2-E	
			(3)
		3-2-E	(3)
4-1-R	(3)	4-2-R	Agribusiness Strategy (3)
4-1-E		4-2-E	
	(3)		(3)
4-1-E	(3)	4-2-E	
4-1-E	Agrifood technology & management (3)		(3)
4-1-E	(3)		
4-1-E			
	(3)		
4-1-E			
	(3)		
4-1-E	(1)		

● Courses Abstract

Agricultural Economics

Introductory theories concerning agricultural economics are dealt with. Students are encouraged to enlarge visions of agriculture and rural communities. Topics include how to analyze and evaluate socioeconomic values of agriculture and rural communities.

Production Economics

Study economic theory that helps producers to allocate resources for profit maximization. It includes production function, cost function, and profit maximization, which provides economic background for producers' decision making and real world application.

Mathematical Economics

Mathematical methods are broadly used in understanding modern economic phenomena and in analyzing economic problems. This course provides students with fundamental theories and concepts concerning mathematical methods, and helps students to express various economic phenomena mathematically and to analyze them empirically.

International Agriculture for Development and Cooperation

In this course, the characteristics of agriculture in the regions of Africa, Asia, Middle

East and America are identified and discussed first. Then the status and development strategies of associated organizations are discussed for aid and business opportunities.

Agricultural Accounting

Provide general accounting principle and accounting practice to facilitate farm financial accounting.

Agriculture and Food industrial Economics

The economics of food, food industry and food markets. The characteristics of food markets, food demand, food safety, food crisis, food security, globalization and food markets, food market policy, structure of the food industry

Microeconomics

Microeconomic theories form the theoretical basis of agricultural economics. Specifically, this course introduces various microeconomic theories concerning consumption, production, resource allocation, price, market, and etc. By learning those theories, students are encouraged to understand various economic problems including problems in the agricultural field, to analyze them systematically, and tofoster skills to solve present problems empirically.

Macroeconomics

Topics include the followings: 1) national income, 2) unemployment and inflation, 3) total demand and supply, 4) principles of macroeconomic policies, 5) macroeconomics for open economy, and 6) economic development. Students are encouraged to gain skills to analyze and evaluate macroeconomic models.

Farm Management

Understand changes in management conditions under market liberalization and promote the ability to cope with the changes. It deals with economic principle for profit maximization, diagnosis of management performance, and improvement of farm management, which helps students to improve decision making for farmmanagement.

Statistics for Agricultural Economists

This course deals with introductory statistics at undergraduate level as a prerequisite learning for econometrics necessary for applying economic theories to empirical economic problems. This course is composed of three parts; 1) descriptive statistics, 2) probability theories, and 3) inferential statistics. Further, students are encouraged to learn basic methods to use computer statistical packages such as MS-EXCEL, SAS, R, and etc. in order to foster empirical analysis skills in the field of agricultural and applied economics.

Bargaining Theory in Agriculture

In this course, practical approaches to better negotiation techniques from the view points of cooperative game theory and business administration.

Econometrics

The course introduces econometric methods which is empirically applied in analyzing agricultural and economic phenomena and theories.

Agricultural and Food Marketing

Marketing concept and function, marketing channel and organization, marketing margins, price variation across space, time, and form, wholesale and retail marketing, inter-regional trade, market information.

Information Economics for Agriculture and Food

This is an introductory applied game theory course, where students are challenged to learn non-cooperative game theory and application in food and agriculture under symmetric and asymmetric information.

Environmental Economics

Students are encouraged to learn economic theories and policy alternatives concerning environmental problems systematically. Main subjects of this course are 1) natural environment and economic activities, 2) market mechanism and market failure concerning environmental problems, 3) externalities and property rights, 4)economic theories for environmental policy alternatives, 5) benefit-cost analysis, 6)economic evaluation of non-market value, and etc.

Public Economics In Agriculture

Governmental theories and policies concerning national economy are analyzed. Topics include governmental taxation, spending policy, local governmental finance, income distribution, social security, environmental problems.

Agricultural and Food Policy

Based on agricultural and economic policies, new paradigms for agricultural and rural policies are understood. Topics include agricultural structure, farmland, agricultural product price and distribution, agricultural finance, agricultural product trade, agricultural and rural environment, agricultural welfare, and agribusiness.

Agricultural and Food Price Theory

Supply and demand theory, elasticity, market structure and functions, price discovery and price determination, seasonal and cyclical fluctuations, price forecasting, and other price related policies.

Resource Economics

This course deals with economic theories concerning the use of various national resources and energy. Specifically, students are encouraged to learn

how economic theories are applied to economic activities concerning 1) non-renewable resources including petroleum, coal, gas, and other underground resources, 2) renewable resources such as forestry, water, fishery, agriculture, and food. The first half of the course focuses on the static optimization theory, and the second half of the course does on the dynamic optimization theory and its applications.

Management Information System in Agriculture and Food

In this course, the definition of information and utilization strategies are discussed from the view point of business administration in agriculture and food market.

Research Methodology for Agricultural Economics (Capstone Design)

This course provides students with various theories concerning research methodology. Students are encouraged to have professional knowledge for writing their own academic thesis by learning the followings: 1) research design, 2) data collection,3) data observation, 4) data analysis, and 5) report writing.

Farm Business Management Programming

The course helps students strategically establish farm management plan through using the principle of profit maximization.

Theory of Cooperatives

Study origin, transition, and operational principle of cooperatives. Provide pricing mechanism and organizational properties of cooperatives compared with those ofcorporation. In addition, study various types of cooperatives and direction of improvement of cooperatives.

Agricultural Finance

Study financial principle and institutional properties of agricultural finance.And study financing properties of agricultural sector and financial analysis of procurement, operation, and repayment of agricultural funds for farmers.

Agriculture and Rural development & Seminar

The course helps students analyze rural development using case studies based on a holistic view which takes account of industrial aspect, regional aspect, and community member aspect.

Rural Welfare Economics

Theories concerning social and agricultural welfare are introduced. Topics include agricultural and rural development, education, health and medical treatment, welfare for women and the aged, accident insurance, and agricultural poverty. Problems of present welfare policies are examined and an image of the future of welfare rural communities is suggested.

Agrifood technology & management

The course helps students understand technology management in agri-food industry through analyzing technolgy-oriented companies.

Agricultural Futures Market

The economics of agricultural futures and options markets. The mechanism of futures and options trading and hedging, spread trading, arbitrage, fundamental and technical analysis, various agricultural marketing strategies using futures and options.

Study of Teaching Materials & Teaching Methods in Agriculture

In terms of the development of agricultural technology, students are encouraged to have knowledge of agricultural technology and teaching guidelines.

Logics and Writings for Agricultural Publications

Students are encouraged to have skills to thick creatively and write logically. Topics include overall understanding for agricultural education, basic grounding forlogics, and logical writing instruction.

Agribusiness-linked Seminar

The course helps students prepare themselves before entering job market through lectures from CEOs and relevant personnel in agri-food industry.

Agribusiness Strategy

The course helps students understand the strategic behaviors of firms in a highly competitive environment and the various principles of strategic management.

Rural Tourism Management & Seminar

The course helps students understand the rural tourism as means of boosting competitiveness of korean agriculture. The course encourages students enthusiastically to participate the group discussion for specific cases.

International Trade Theory of Agricultural Products

Basic international agricultural trade theory and applications. Agricultural trade models, impacts of trade and non-trade barriers such as tariff and quota on agricultural trade, regional and global trade liberalization, WTO rules on agricultural trading, and other macroeconomics issues impacting international trade.

◇ School of Law

Introduction

School of Law has gained some basic legal knowledge required for the legal profession by educating the systematic theory and practice throughout the Law. It also aims to nurture talented people who can contribute in their respective areas of society.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(53Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Introduction to Law(3)	1-2-R Constitution Law I (4)
1-1-R General Principles of Civil Law I (2)	1-2-R General Principles of Civil Law II(2)
	1-2-E Legal Informatics(2)
2-1-R Constitution Law II(3)	2-2-R Law of Obligations I (3)
2-1-R Law of Property(3)	2-2-R Special Part of Criminal Law(3)
2-1-R General Principles of Criminal Law(3)	2-1-R Administrative Law I (3)
2-1-E Legal History(3)	2-2-R Principles of Commercial Law(3)
2-1-E Information Law(3)	2-2-E History of Legal Thoughts(3)
	2-2-E English Readings in Anglo-American Law(3)
	2-2-E Comparative Constitutional Law(3)
	2-2-E Medicine Law(3)
3-1-R Company Law(3)	3-2-R Criminal Procedure (3)
3-1-R International Law I (3)	3-2-E Philosophy of Law(3)
3-1-R Labor Law I (3)	3-2-E Law of Succession (2)
3-1-R Law of Civil Procedure I (3)	3-2-E Seminar on Criminal Law (3)
3-1-R Administrative Law II(3)	3-2-E Law of Commercial Papers (3)
3-1-R Antitrust Law(3)	3-2-E International Law II (3)
3-1-E Advanced Studies on Public Law(3)	3-2-E Labor Law II(3)
3-1-E Contract Law(3)	3-2-E Law of Torts(2)
3-1-E Family Law(3)	3-2-E Civil Procedure Law II(3)
3-1-E Criminology(3)	3-2-E Law of Administrative Remedies(3)
3-1-E Seminar on Constitutional Law(3)	3-2-E Consumer Law and Practices(3)
3-1-E Industrial Property Law(3)	3-2-E Law of Science and Technology(3)
4-1-E Case of Property Law(3)	4-2-E Social Security Law (3)
4-1-E Practice of Civil Procedure (3)	4-2-E Laws of Bankruptcy and Corporate Reorganization (3)
4-1-E Seminar on Civil Law(3)	4-2-E Tax Law(3)
4-1-E Practice of Criminal Procedure (3)	4-2-E Seminar on International Law (3)
4-1-E Seminar on Administrative Law(3)	4-2-E Seminar on Social Law(3)
4-1-E Insurance and Admiralty(3)	4-2-E Special Transactions Law(3)
4-1-E Conflict of Law(3)	4-2-E Environmental Law(3)
4-1-E International Business Transactions Law(3)	4-2-E Practice of Compensation for Damages(3)
4-1-E Seminar on Commercial Law(3)	4-2-E Civil Execution Law(3)
	4-2-E International Trade Law(3)

● Courses Abstract

Introduction to Law

To make understood that action that human who is social existence with comprehension about social relation with human through this fortitude exchanges mutually is doing normative function.

General Principles of Civil Law I

In order to help students understand a theory of civil law, this course encourages to study a general theory of civil law related with its particular.

Constitutional Law I

This class intend to promote understanding about general of Constitution which is consist of basic concept, structures rest on constitution and also constitution principle.

General Principles of Civil Law Ⅱ

In order to help students understand a theory of civil law, this course encourages to study a general theory of civil law related with its particular.

Legal Informatics

This course aims at teaching the theory and practice on the Legal Research and Informatics that related to the various legal documents and writings.

Constitutional Law Ⅱ

This class intend to promote understanding about basic principle of government and structure rest on constitution as the national assembly, the president, the administration, the judicature, the Constitutional Court.

Law of Property

Property rights are composed of limited real rights and ownership which exclusively has value of use and exchange of goods. Among limited real rights, there are two types of limited real rights. One is usufruct and the other is a security real right. Usufruct domains only value of use and a security real right domains value of exchange. Property law learns occurrence, change ,and extinction of real rights.

General Principles of Criminal Law

This class relates to the study on crime and punishment, namely which conduct is crime and to that which sanction is afflicted.

Legal History

To explains several Problems of law by method of history, and it is reflected to modern legislation and investigates function that interact.

Information Law

This course aims at teaching the theory and practice on Information Law that

control the human rights and legal issues related to information and communication activities in knowledge information society.

Law of Obligations

Contract law is to regulate claim and obligation between a creditor and a debtor. This course focuses on basic systems and legal principles corresponding to the general rules of the law of obligations.

Special Part of Criminal Law

This class deals with every kind of offences, for example murder, theft, arson, sexual offences etc.

Administrative Law I

This class is a basic subject of studying professional knowledge on administrative law.

Principles of Commercial Law

Concept and legal status of commercial law, merchant, commercial agent, trade name, accounting record, commercial registration, transfer of assets, and commercial transactions are taught and discussed.

Philosophy of Law

To studies history of philosophy of law and basis problem of philosophy of law laying stress on concept of law, validity of law, law and morality, ideology of law.

English Readings in Anglo-American Law

This course provides a basic understanding and explanation of the American legal system from a variety of perspectives, both civil and criminal.

Comparative Constitutional Law

This course aims at teaching the theory and practice on Korean Constitution by discussing basic principles of The German Constitution and The Japanese Constitution.

Medicine Law

This course focuses on legal effects against public obligation and its violation of medical doctors. In addition, it studies legal duty of a patient as the other party of medical practice. It deals with various problems that could occur in medical practice.

Company Law

General principles of corporate law and individual legal structure on partnerships, limited liability companies are studied.

International Law I

Under the global system the course make an observation the development decentral co-existence order and organic management in international law

perspective. Furthermore analyse the legal, institutional mechanism for the peaceful settlement of dispute.

Labor Law I

We learn about a general of labor law such as purpose of the labor law, development and occurrence, and particularity etc. it will analyze cases concerning legal duty and right occurred between employers and employees.

Civil Procedure I

Civil Procedure is coding of legal procedures for solving legal disputes This course purposes for learning the basic theory of Code of Civil Procedure.

Administrative Law Ⅱ

It deals with rule of law, administrative rule-making, administrative plans, discretion, administrative procedure, administrative information etc.

Antitrust Law

This course discusses the regulations of the abuse by one or more undertakings of a dominant position in market and those of all agreements between undertakings, as well as the common rules on competition.

Advanced Studies on Public Law

This course aims at teaching the theory and practice on the normative system about rights guaranteed by the Constitution, the government system, the Constitutional decisions. Also It aims at teaching basic theory of administrative law and administrative remedy.

Contract Law

This class reviews each issue from general to specific principles of contract. It also studies a new type of contracts.

Family Law

This class aims at helping students understand family law learning theory and cases of each part of family law. Moreover, it establishes a goal of realizing a better family life.

Criminology

Study of the theory of crime, its cause and prevention, countermeasures and punishment, and other methods of handing offenders.

Seminar on Constitutional Law

Students will understand important issues of constitutional law deeply. This class includes all the topics that have been discussed in the past and recent.

Industrial Property Law

This course covers industrial property laws – patent, utility model, design, and trademark – through statues and cases. The last couple of years, in particular,

have witnessed an explosion of interest in the subject matter of intellectual property. This course affords understanding of industrial property laws to the student who intends to be an intellectual property specialist. The course will provide treatment of patent, utility model, design, and trademark law, with the remainder applied to the law of trade secrets, introduction, and/or review.

Criminal Procedure

In order to make students understood with basic theory and knowledge necessary for criminal procedures, it is intended to convey the general principles of the Code of Criminal Procedure.

Case of Property Law

Importance of precedents has been emphasized even more in reality. This class chooses leading cases for property law. It studies how property law theory is putted in practice.

Law of Succession

This class studies individual and specific cases of inheritance law and learns how inheritance could be made. In particular, students learn who property of the dead could be inherited to a heir.

Seminar on Criminal Law

It aims at developing their ability of applying criminal law theories for specific cases.

Law of Commercial Papers

General pronciples on valuable instruments and legal doctrines about notes and checks are studied

International Law Ⅱ

This course covers about the peaceful dispute settlement, security, disarmament and various laws concerning the wars. Furthermore analyse the new direction of the modern tendency of conflicts and wars.

Labor Law Ⅱ

This course deals with labor strikes showing features of collective labor relations. Mediation and relief steps for solving strikes between labor and management are studied. And each type of unfair labor practices are lectured centering around real cases.

Law of Torts

By discussing issues and general theories of tort, this class provides an opportunity of widely making understood tort.

Civil Procedure Ⅱ

Civil Procedure is coding of legal procedures for solving legal disputes This course purposes for learning the basic theory of Code of Civil Procedure.

Law of Administrative Remedies

In this class, we learn about administrative lawsuit and administrative compensation for damages.

Consumer Law and Practices

This course discusses the regulations of consumer law including the Framework Act on Consumers, Standardized Terms Regulating Act, Installment Transaction Act, Door to Door Sales etc Act, and Electronic Commerce Consumer Protection Act, as well as the relevant legal issues.

Law of Science and Technology

This course aims at teaching the theory and practice on the Law of Science and Technology that related to the promotion of science and technology development and the prevention of dysfunctions caused by science and technology, etc.

Practice of Civil Procedure

This class is aimed at students who have mastered the basic knowledge of Civil Procedure. Using real cases, students learn advanced theories of civil procedures. It aims at putting theory of civil procedure in practice.

Seminar on Civil Law

By solving cases with theoretical knowledge of property law, students build solving ability of legal issues.

Practice of Criminal Procedure

This advanced course will encourage students to understand the criminal procedure law by means of analysis of important judicial decisions in the criminal procedure law.

Seminar on Administrative Law

It is a lecture to have discussion and presentation about cases of a basic theory of administrative law and administrative remedy.

Insurance and Admiralty Law

It aims to understand Part IV and Part V of Commercial Law through the theory, cases.

Conflict of Laws

First, this course studies features, scopes and legislation cases of international private law. Second, it studies the major sources of law of international private law common law and those of common law.

International Business Transactions

This lecture aims at understanding international law regulating international transactions, achieving knowledge of international law and educating experts of international transaction. For this reason, it studies process of international transactions centering around trade of goods which have very often made.

Seminar on Commercial Law

Case law on commercial transactions, valuable instruments, corporate, insurance and maritime is studied.

Social Security Law

This class Introduces a basic theory of social security law. In a general theory, it studies a background and concepts of social security law and the law's system and then learns about remedies of infringement. In particulars, several different legal contents will be studied centering around the four major insurances.

Sociology of Law

To studies formation background and methodology of law sociology, system theory.

Laws of Bankruptcy and Corporate Reorganization

This lecture generally studies insolvency law. It arranges issues of requirements of bankruptcy proceedings and requirements of bankruptcy, and the issue on the effect of legal acts of the bankruptcy estate.

Tax Law

Students learns general knowledge of tax law.

Seminar on International Law

This seminar select and evaluate each domestic courts, international court like ICJ and the other special case concerning International Law.

Seminar on Social Law

This course aims at developing their ability of applying Social law theories for specific cases.

Law of Securities Regulation

Legal issues on securities trading are studied.

Environmental Law

Environmental law is one of the most important sections of administrative law and it aims at preserving environment through regulatory administration and measures. This class studies means of environmental remedies through environmental law.

Law of Electronic Commercial Transactions

Basic principles and practical issues on electronic commercila transactions with law of consumer protection and copy right etc. are taught.

Practice of Compensation for Damages

This course considers the factors consisting of damage scope. It studies how each factor is applied and how remedies for damages are decided.

Civil Execution Law

It coordinates as the Code of Civil Procedure focusing on Law of Civil Execution

newly enacted about the execution procedure of the final real present stage of a right, and carries out systematic and synthetic research and examination.

International Trade Law

In order to educate experts for international trade, this class studies the WTO agreements and analyzes the disputes from GATT system to GTO system.

▣ Department of Education

Introduction

The department, since its establishment in 1979, has been operating undergraduate and graduate courses and produced 642 alumni (565 bachelor degrees and 77 master and doctoral degrees) to date, contributing to the evolution in educational studies of Korea.

With a double major course with China's Yenben, and associated courses with universities in Austria, Finland and Estonia, as well as professor exchange programs with Australia's University of Melbourne, it is also at the forefront of international cooperation. Through a multi-disciplinary approach, the understanding on educational studies is broadened and problem-solving skills are increased.

The department is almost like a college of its own where inter-disciplinary research is valued, a bonding between professors, colleagues and students and team work are emphasized. According to the publicly released data in 2012, our department ranked second in terms of the research grants our full-time faculty received and ranked first in terms of the ratio of courses offered by full-time faculty members. By operating the regional education research center which has been designated as an associated research center by the Ministry of Education, the department stays active in the implementation and distribution of research needed on educational sites.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(30Credits), a major(87Credits), and electives(33Credits).

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Philosophy of Education(3)	1-2-E History of Western Education(3)
1-1-R Introduction to Education(3)	1-2-E Education and Culture(3)
2-1-R Educational Sociology(3)	2-2-R Educational Administration(3)
2-1-R Developmental Psychology(3)	2-2-E Psychology of Personality(3)
2-1-R History of Korean Education(3)	2-1-E Psychology of Learning(3)
2-1-E Theories in Life-long Education(3)	2-2-E Seminar on Instructional Design(3)
2-1-E Educational Statistics(3)	2-2-E Teaching Methodology of Nonformal Education(3)
3-1-R Theories of Curriculum(3)	3-2-R Measurement and Evaluation in Education (3)
3-1-E Classics in Education(3)	
3-1-E Theory in Life-long Education	3-2-E Seminar on Teaching Theory in

	Program Development(3)		Education(3)
3-1-E	Theories of Counselling(3)	3-2-E	Life-long Education Administration and
3-1-E	Seminar on Teaching Materials & Teaching Methods in Education(3)		Management(3)
		3-2-E	Educational Technology(3)
3-1-E	Economics of Education(3)	3-2-E	Research Methods in Education(3)
3-1-E	Seminar on Global Education(3)	3-2-E	Contemporary Educational Thoughts(3)
4-1-E	Introduction to Special Education(3)	4-2-E	Theories of Educational Policy(3)
4-1-E	Theory of Teacher and Teaching Practice affairs(3)	4-2-E	Essay Writing Seminar on Education(3)
4-1-E	Theories of Educational Organization(3)	4-2-E	Theories and Policies of Higher Education(3)
4-1-E	Theory of Psychological Testing(3)		
4-1-E	Practice of Life-Long Education(3)		

● Courses Abstract

Introduction to Education

Treats basic contents of various educational areas in order to provide understanding the essence of education phenomena.

Educational Statistics

The course covers basic statistical concepts and analytical methods necessary for the study of educational practices. It deals with both descriptive analysis and statistical reference.

History of Western Education

Considers the Old and Middle ages, Renaissance, Religious Reformation of Western, also develops opinion of education. Compares with History of Eastern Education and History of Korean Education.

Education and Culture

Observes and understands as a educational eye. Also Educates an ability to analyze and forecast the matter of Korean education as a view of culture.

Educational Sociology

Analyzes phenomena of education as a sociological paradigm. Discusses the function, system and contents of education related to models and concepts of sociologist as a detailed and comprehensive view.

Developmental Psychology

Treats the matter of development from pregnancy to old ages, and then, specially studies the relation between education and cultures.

History of Korean Education

Reviews wisdoms of korean educational tradition, focusing on the democratization which coincided with a way of Korean education to guide right way.

Introduction to Special Education

Reviews the characteristics of individuals with special abilities or disabilities. Discussion of program models, instructional methods, and curricula for students with special needs.

Theories in Life-long Education

Studies the main concepts of adults and Life-long Education, ideas, purposes, historical development tends, education institution, educational contents, process of teaching and learning, theories of adults' learning, and character of teacher and learner.

Seminar on Instructional Design

This class is to provide the opportunity to study theories of instructional processes, to apply the theories to instructional design particularly classroom instruction, conduct classes, and analyze class instruction by using micro teaching

Philosophy of Education

Treats basic problems of education, various kinds of theories of education and trends of philosophy of education.

Educational Administration

Gives lectures on the development of educational administration, administrative behavior, organization and function, and principles' leadership, etc. The purpose of this subject is for understanding of the theories and practices educational administration.

Theory on Psychological Testing

The course deals with different theories on psychological testing that is required to better understand and help students in classroom setting, which serves as the objective of educational research. Students are encouraged to actively involved in psychological test.

Teaching Methodology of Life-long Education

The goal of this course is to equip students with core skills and perspectives required for program developer. Students are disposed to various theories of life-long education program development as well as diverse agencies with different goals and ideals for whom the program would be adopted

Research Methods in Education

Treats technical matters about the finding problems, methods of study, setting-up research plans, and reporting.

Psychology of Personality

Searches applicate matters due to the process of historical changes in theory of personality, the understanding to some theories of personality in these days and various theories of personality.

Psychology of Learning

Treats the matters of methods and practices about psychological processes and items of learning.

Theories of Curriculum

Treats the ideology of Korean education, the purpose of schooling, the theory of curriculum, the changes of curriculum, the classification of knowledge, the selection and composition of curriculum's contents, the new learning theory, the organization for learning, and the evaluation of learning's achievement, etc.

Economics of Education

Gives lectures on Human Capital Theory, education production function, internal and external efficiencies of education, and economic analysis of educational behaviors.

Theories of Counselling

Studies the theory of counselling and understands purpose, process and skills of counselling in contemporary theories. Also tries to get ready its applicative skills.

Classics in Education

Learns the modern history of education. Reads and relishes classics of education books.

Theory in Life-long Education Program Development

The goal of this course is to equip students with core skills and perspectives required for program developer. Students are disposed to various theories of life-long education program development as well as diverse agencies with different goals and ideals for whom the program would be adopted.

Seminar on Teaching Materials & Teaching Methods in Education

Aims to understand characteristics of education, and provides authentic experiences by analyzing and developing highschool education textbook, the composition of lesson plans, and applying teaching methods in the classroom.

Measurement and Evaluation in Education

Searches several theories about the work of academic achievement test, the selection and use of standard's test and the evaluations and analysis of test results.

Educational Technology

Designed to understand and reflect upon the history, characteristics, theories, and issues in educational technology. The role of technology in teaching and learning processes, hands-on experience with new technologies and software to develop useful learning products, and practical educational technology research or development are emphasized.

Group counseling

Treats introductory group counseling theories and practices, review of the basics of setting up and conducting counseling groups, and discussion of ethical standards related to group counseling.

Seminar on Teaching Theory in Education

Analyzes various theories, principles, strategies of the process of teaching and learning. Also makes out episodes in actual scenes of teaching and learning and then develops effective models in teaching and learning situation.

Theories of Educational Organization

Examines a historical process of educational organization, and analyzes and examines principle, practice, and positive studies of educational administrative organization and school organization

Life-long Education Administration and Management

The course provides students with an opportunity to understand basic principles of managing life-long education organizations such as leadership skills required for the manager of the agencies, personnel management, finance, and resource management, and marketing strategies.

Seminar on Global Education

In order to understand the status of Korean education, educational achievements, educational systems, students and teachers, evaluation system will be analyzed. This class is to develop specialists of international comparative studies of education and of educational ODA (Official Development Assistance).

Contemporary Educational Thoughts

Studies about developments of education after World War II and the influences which influenced comtemporary educational thoughts.

Theories of Teacher and Teaching Practice Affairs

Analysis the theory and real cases in good teacher's distinctive quality, a subject and the method of student guidance, roles and status of teacher, rights and duties of teacher and the developmental process of teaching. Also this course debate issues related in achievement of teaching and survey the methods for professional quality and development.

Theories and Policies of Higher Education

In educational practices, understanding the field of higher education is essential which would also serve as the foundation for deeper understanding of secondary school practices. With the goal in mind, the course provides students with an opportunity to deal with theories, practices, and policies on higher education.

Theories of Educational Policy

Applies the basic theories of education policy to practical side by analyzing several methods of the establishment of educational policy and the process of

politic achievement. Also searches alternative models of educational reform.

Essay Writing Seminar on Education

Makes a point of teaching pedagogic essay and logical reasoning adjusted to characteristics of Pedagogy (or Education)

▣ Department of Korean Education

Introduction

The goal of our department, Dept. of Korean Education, is to train pre-service teachers to prepare for the future. To address this need the Department is offering a range of knowledge areas that can be grouped into four general categories: the Korean language; classical Korean Literature; modern Korean Literature; Korean Education. First, the Korean Language involves general theories of linguistics with a focus on the analysis of linguistic systems of the middle, modern, and contemporary Korean language. Second, through taking courses of Classical Korean Literature, students will be able to read the classics and interpret what it refers to. Third, students will participate in reading and interpreting modern Korean literature while studying general theories of modern literature. Furthermore, taking educational classes, students as pre-service teachers will be able to improve their teaching skills and methods, accumulating a lot of knowledge and ideas on educational topics. Dept. of Korean Education has been offering a range of important major-based and pedagogical knowledge to students. As such, it can afford new challenges to students, and equip them for a large number of potential occupations in the educational field. Along with this ideology, 1115 students have been graduated since its establishment in 1972, and they have been actively working in the educational field.

Credit requirements for graduation

The department curriculum has four components: major courses(69 credits), pedagogy(22 credits), liberal arts(33 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
	1-2-R Outline of Korean Literature (3) 1-2-R Logic and Essay in Korean Education (3)
2-1-R Outline of Korean Philology (3) 2-1-R Modern Korean Poetry & Teaching Poetry (3) 2-1-E Teaching Oral Literature (3) 2-1-E Reading in Chinese Classics (3)	2-2-R Theories of Korean Education (3) 2-2-R Teaching History of Classical Korean Literature (3) 2-2-E Korean Phonology Teaching Skills (3) 2-2-E Teaching Modern Korean Novel (3) 2-2-E Teaching Methods of Literary Research (3)
3-1-R History of Korean Language (3) 3-1-R Education of Communicative Competence (3) 3-1-E Teaching History of Modern Korean	3-2-E Topics in Korean Language Teaching Methods (3) 3-2-E Teaching Classic Korean Poems and Education II (3)

Literature (3) 3-1-E Teaching Modern Korean Drama (3) 3-1-E Teaching Mediaeval Korean Grammar (3) 3-1-E Teaching Classic Korean Poems and Education I (3)	3-2-E Teaching Classical Korean Romans (3) 3-3-E Teaching Korean Grammar (3) 3-2-E Modern Korean Authors and Education (3) 3-2-E Teaching Korean Philology (3)
4-1-R Korean Language Teaching Material and Teaching Skills (3) 4-1-E Topics in Korean Philology (3) 4-1-E Korean Semantics Teaching Skills (3) 4-1-E Teaching Thoughts of Literary Arts (3) 4-1-E Teaching Modern Korean Literary Criticism (3) 4-1-E Reading of Classical Prose (3)	4-2-E Teaching Korean Dialectology (3) 4-2-E Teaching History of Korean Philology (3) 4-2-E Topics in Modern Korean Literature (3) 4-2-E Resource of Classical Korean Literature(3)

● Courses Abstract

Outline of Korean Literature

This Class focuses on the basic conceptions and principles of Korean literature. Understanding of the characteristics of history and genre of Korean literature, and its application in important literary works will develop basic competences of literary teacher.

Logic and Essay in Korean Education

This course is general study for teachers to have basic ability of the logical essay writing. Purpose of this essay course is to achieve and to enhance the synthesizing and creative writing as well as to learn the essay education in the Korean Education.

Outline of Korean Philology

This class focuses on the basic conceptions of Korean Linguistics and its educational uses. We study the basic conceptions of Phonology, Morphology, and the syntax of Writing, and apply them in Korean language use. We also cultivate students to acture general foundation of Korean language teacher, to use correct Korean language, and to establish value system on the Korean language.

Modern Korean Poetry & Teaching Poetry

This course will study several poets who represent the period stretching from the beginning of human civilization to the 1950's. In addition, we will examine the history of researches that have been performed on them and select a methodology through which the students themselves can research and compare

their works with.

Teaching Oral Literature

This course capacitates students to use research techniques on order to understand the characteristics of Korean oral literature. Additionally, students will learn to analyze and interpret the philosophies of Koreans depicted in various genres such as folklore, folk music and traditional plays while examining the existing researches and aesthetics of selected works.

Readings in Chinese Classics

The goal of this course is to foster the students' ability to critically read works of Sino-Korean literature. Students will read works selected from the traditional genres of poetry and prose and attempt its actual analysis and interpretation. This course may substitute for the linguistics examination.

Theories of Korean Education

This course covers basic knowledge of the Korean language, including its comprehension and expressions. It provides intensive study on the pronunciation, letters, rules, and other principles needed to learn Korean as a foreign language.

Teaching History of Classical Korean Literature

This course will investigate the development and classification of distinct periods in the history of classical Korean literature. The two primary components of this course will include critical analysis of the texts and an investigation of the historical context in which it was written.

Korean Phonology Teaching Skills

This course will survey the general theory of phonology and how it can be applied to the korean language. First, the course will cover the basic principles of phonology. Methods of establishing a phoneme will be analyzed to understand korean phonemes and their organization. In addition, the course will cover synchroic and diachronic phonology as well as the historical development of phonemes.

Teaching Modern Korean Novel

This course develops the ability to do a structural analysis of a novel. This ability will enable students to better understand and critique novels. In class we will read various novels to explore the structure and theory behind the modern Korean novel as a genre. While we will focus on the unique characteristics of the modern Korean novel, its descriptive techniques and construction, we will also review the history of the Korean novel's development as a whole and evaluate problems discovered in the process.

Teaching Methods of Literary Research

This course will offer comprehensive explanations on the questions concerning the study

of Korean literature. It will provide the students a basic level of Korean literary knowledge that is needed to study and understand its works. Students will systematically examine the concept, scope, genre systems, historical development, as well as the characteristics of themes and aesthetics found in its literature. Such an examination will strengthen and sharpen the student's research skills for more advanced studies in this field.

History of Korean Language

The course provides a survey of the ways in which the Korean language has changed from ancient times to the presents. First, we will inquire into the genealogy and formation of the Korean language and discuss methods of classifying the language by period. Later, we will examine the characteristics of the systems for spelling, phonology, grammar, and vocabulary from each period. By comparing these characteristics, student will be able to grasp how the Korean language has changed.

Education of Communicative Competence

The goal of language education, communicative competence has been expanded to encompass discourse competence and socio-pragmatic competence in addition to the traditionally acknowledged linguistic competence. Linguistic competence refers to the structural knowledge at the sentential level. Discourse competence is a higher level of knowledge which construes and constructs coherent and cohesive texts. Sociolinguistic and pragmatic competence modulate the use of language appropriate for the socio-pragmatic context. In addition, communicative competence is further understood to include linguistic as well as nonlinguistic communication strategies that settle communication tasks and problems of various sorts. This course aims to introduce the expanded notion of communicative competence, and help students to acquire communicative competence through various authentic communicative activities.

Teaching History of Modern Korean Literature

This course deals with the development of modern Korean literary history, focusing on the criticisms, novels, poems, and dramas of each period from the Enlightenment Period until the 1960s. Students will come to comprehend the particular significance of works in relation to modern Korean literary history, which covers the new novels and poetry of the Enlightenment Period, the new literature founded by Yi Gwang-su, Choi Nam-sun, Kim Dong-in, Yeom Sang-seop, and others, the proletarian literature of the 1920s, the realist and modernist literature of the 1930s, the literature of liberation, and post-war literature.

Teaching Modern Korean Drama

The goal of this course is to engage in demonstrative research of specific

modern Korean dramas and their performance. while exploring the unique aesthetics of the genre. Through comparisons with oter genres we will examine how literary ontology is expressed through dramatic styles, and establish a distinctive dramatic aesthetic.

Teaching Mediaeval Korean Grammar

this class will use grammar to look at the structure of the Mediaeval Korean language. Phonemes - consonants, vowels, syllables, accents, and other sounds of the language - will be studied in terms of how they relate to the Mediaeval Korean language's morphemes, vocabulary, phrases and sentences. The goal of the course is to enhance students' understanding of Mediaeval Korean grammar.

Teaching Classic Korean Poems and Education Ⅰ - Hyangga & Yeoyo

This course presupposes a foundation in classical poetry. Its goal is to help students understand the aesthetic characteristics of classical poetry and the emotions and thoughts of Koreans that are expressed in it. Various classical forms including gayo, hyangga, Goryeo gayo will be studied. Also examined are the research as well as practice methods of analysis and interpretation. The class will also emphasize the studying of the aesthetic characteristics of specific works and genres.

Topics in Korean Language Teaching Methods

To be able to understand the methodological knowledge necessary to teach the major contents of the Korean effectively as a junior high school Korean teacher. To select a learning task of Korean education, to learn the appropriate teaching methods to challenge.

Teaching Classic Korean Poems and Education Ⅱ - Sijo & Kasa

The goal of this course is to foster a general understanding of classical poetic works from ancient gayo to sijo, and gasa. Students will master the methods of understanding and interpreting literary works. They will survey phraseology, meter, and methods of expression, while learning how to properly read, analyze and interpret works of classical poetry.

Teaching Classical Korean Romans

Based on an overall understanding of Korean classical full-length novels, we will analyze individual full length novels and examine existing research on these novels, gaining an understanding of their aesthetic characteristics and applying these to their study of the works. In this way, students will develop their own methodologies and learn how to study classical full-length novels. An examination of the process of development on Korean classical novels will also foster the development of a comprehensive perspective on Korean classical novels.

Teaching Korean Grammar

In this course, students will study orthography, the prescription of standard

Korean, writing methods for loan words, Romanization of the Korean language, and, to enhance Korean language, and, to enhance Korean language education, the principles of Korean language on which each linguistic regulation is based.

Modern Korean Authors and Education

This course focuses on select, controversial Korean authors from the Enlightenment Period through the 1970's. The class wil attempt at a deeper understanding of these author's ideologies and the characteristics of their novels.

Teaching Korea Philology

The course will broaden students' understanding of Korean by reading and analyzing materials with respect to spelling, letters, phonology, grammar, and vocabulary. With philological and bibliographical approaches, students will learn the methods and procedures for dealing with historical texts in Korean.

Korean Language Teaching Material and Teaching Skills

Based on the knowledge of the Korean language education curriculum, to analyze the contents and organization of Korean language education materials, enhance the efficiency of teaching methods to consider, To be able to learn the proper teaching methods in response to a variety of learning content.

Topics in Koran Philology

In this course, students will study academic systems in terms of the subject and method of Korean language education. To accomplish this goal, the improvement of linguistic competence, the course will deal with the general basic concepts and methods needed to carry out and study Korean language education.

Teaching Thoughts of Literary Arts

This course will survey the historical arguments in criticism from the Japanese colonial period to the Liberation. Students will thus derive a desirable direction in contemporary literature and establish the educational foundations of literary aesthetics.

Korean Semantics Teaching Skills

Language is generally viewed as the union of sound and meaning. Semantics is the branch of linguistics concerned with meaning This course will evaluate the definition of meaning, the relationship between the meanings of words, and how they change Furthermore, it will evaluate the meaning of sentences and conversations to facilitate a thorough and comprehensive understanding of the Korean language.

Teaching Modern Korean Literary Criticism

This course presupposes the student to have a foundation in various schools of literary criticism from after the Enlightenment Period. The class explore modern Korean literature through different perspectives. One of he primary tasks of literary criticism is to establish standards by which we evaluate a piece of literature.

Reading of Classical Prose

Students will be trained in the various approaches that have been used throughout Korean classical prose, enabling them to conduct their own research and establish their own arguments. We may study a variety of subjects, such as the concepts, origin, genre theory, or author theory of classical prose. Accordingly, subtitles to the course title for each semester will clearly explain the character of the course for that semester.

Teaching Korean Dialectology

The goal of this course is to expose students to the methods necessary to carry out research on Korean dialectology. Students will be introduced to various theories on dialectology. In particular, the course will concentrate on geographical dialectology and evaluate the characteristics of each dialect's phonemes, grammar, and vocabulary. Students will learn to distinguish between different dialects and create dialectological diagrams to illustrate such differences.

Teaching History of Korean Philology

The aim of this course is to evaluate existing research and to assess the current trends in Korean language research. In this course Korean linguistic history will be divided into different eras and notable linguists from each era will be selected and their research evaluated. Each student will present an analysis of one linguist and lead the class discussion.

Topics in Modern Korean Literature

This course develops the ability to do a structural analysis of a modern korean literature. This ability will enable students to better understand and critique novels. In class we will read various korean literature to explore the structure and theory behind the modern Korean literature. While we will focus on the unique characteristics of the modern Korean literature, its descriptive techniques and construction, we will also review the history of the Korean literature's development as a whole and evaluate problems discovered in the process.

Resource of Classical Korean Literature

The development process of Korean classical literature to understand a historic order. Enhance reading comprehension while reading classical literature, so as to understand the era features.

▣ Department of English Education

Introduction

The department aims at educating its major students to be competent English teachers. To this end, it provides the students with various courses which help them gain a sufficient command of English, technical ability, and professional understanding. Those courses include educational principles, methods of teaching English, testing, studies on teaching materials, multimedia & English teaching, English linguistics, and English and American literature.

Credit requirements for graduation

The department curriculum has four components: major courses(69 credits), pedagogy(22 credits), liberal arts(33 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E English Conversation (3)	1-2-R English Pronunciation (3) 1-2-E English Listening Comprehension (3) 1-2-E English Reading Comprehension (3) 1-2-E English Composition (3)
2-1-R Introduction to English Education (3) 2-1-R Introduction to English Literature (3) 2-1-E Teaching English Conversation (3) 2-1-E Teaching English Listening Comprehension (3) 2-1-E English Novel and Movie (3)	2-2-R Introduction to English Linguistics (3) 2-2-R English Grammar (3) 2-2-E Teaching English Composition (3) 2-2-E Reading in English Novels (3) 2-2-E Understanding British Literature (3) 2-2-E Seminar in English Education (3)
3-1-R Teaching English Reading Comprehension (3) 3-1-R Teaching Materials and Methods of English Teaching (3) 3-1-E English Phonology (3) 3-1-E Reading in English Poetry (3) 3-1-E English Syntax (3)	3-2-R Logic & Writing of English (3) 3-2-R Seminar in British and Americn Culture (3) 3-2-E Reading in English Plays (3) 3-3-E English Language Testing (3) 3-2-E Understanding of English Semantics (3) 3-2-E Advanced English Conversation and Composition(3)
4-1-E Understanding American Literature (3) 4-1-E Theory and Practice in English Education (3) 4-1-E Advanced English Grammar (3) 4-1-E English Pragmatics (3) 4-1-E English Conversation and Composition for Pre-service Teachers (3)	4-2-E Practice in English Classes (3)

● Courses Abstract

English Conversation

Guided practice in interactive communication for beginners for a variety of every language functions.

English Grammar

Study of pedagogical school grammar points expressed in metalanguages such as articles, nouns, subject, verbs, subjunctive, etc.

Introduction to English Education

The course focuses on the theories and research in second language acquisition and encourages students to consider the implications of research for classroom pedagogy. The similarities and differences of first and second language acquisition, variables affecting second language learning, and developmental learner languages are studied and discussed in depth.

English Pronunciation

Study of how to pronounce English sounds at the level of phonemes, syllables, words, phrases, and sentences along with the notion of stress, rhythm, intonation, and so on

English Listening Comprehension

Focusing on improving English listening ability required to prepare students for academic study and to be secondary school English teachers.

English Reading Comprehension

Focusing on improving English reading ability required to prepare students for academic study and to be secondary school English teachers.

Teaching English Conversation

Demonstrations of effective English teaching, focusing on structure, pronunciation and idiomatic usage appropriate in given language contexts and social situations.

Introduction to English Linguistics

A critical survey of the internal history of English language: its sounds, grammar, and word stock, tracing the history of the language from prehistoric Indo-European days through Old English, Middle English, and early Modern English up to the present time.

Introduction to English Literature

An introduction to the background knowledge of English literature and a chronological genre survey of English literature with reference to major authors

English Composition

Basic writing practice in narration, description of people and places, critical

evaluation, etc.

Understanding British Literature

A critical survey of the English prose, poetry and drama of Great Britain and Ireland from Old English to the present day. It discusses the work of major writers in their historical context.

Teaching English Listening Comprehension

Teaching how to listen texts spoken in English as pre-service teachers, and improving their listening ability as listeners

Teaching English Reading Comprehension

Teaching how to read texts written in English as pre-service teachers, and improving their reading ability as readers

Teaching Materials and Methods of English Teaching

This course aims to give students an opportunity to explore the theory and practice of materials and methods in English language teaching. The students are requested to choose a set of materials to assess individually, working towards the dual objective of analyzing the materials as thoroughly as possible and developing the materials (methods of using them) in their current or future work.

Advanced English Grammar

Grammar, in general, refers to linguistics in a broad sense or pedagogical grammar in a narrows sense. This course is designed to integrate the concepts of general linguisics into the teaching of school grammar in order to deepen the knowledge of traditional school grammar.

Reading in English Novels

An introduction to the theories of English Literature, appreciating the novels of some prominent authors in modern English Literature

English Phonology

Introducing the students to the English sound pattern: the way they pattern with respect to each other, the way they are used to make up words and phrases, and the changes they undergo. The applicable aspects of the theories will also be examined.

Reading in English Poetry

Reading English poetry and also studying how to apply the poetry written in English to English teaching.

Logic and Writing of English

This course provides students with logical thinking and writing of English literature, and English Education. Logical and creative writing samples, basic laws and structural features for logical and creative writings are introduced.

Seminar in British and American Culture

Comparing Korean culture with English culture and also a study of how to teach the secondary school students the aspects of English culture effectively.

Reading in English Plays

Reading the plays of major playwrights of England and America. Also study how to apply dramatic techniques to English teaching.

English Language Testing

Understanding theoretical and practical aspects of English testing, and studying how to measure young students' English proficiency

Teaching English Composition

Demonstration of effective English teaching, focusing on basic writing practice in narration description of people and places, critical evaluation, etc.

English Syntax

Students learn Chomsky's theory of Generative Grammar and, on the basis of it, how to analyze English syntactic structures. Students are guided to develop keen insights into English syntactic analysis. This course gives students a thorough grounding in the basics of sentence structure and acquaints them with the essentials of syntactic argument.

Understanding American Literature

The course aims to provide background knowledge for prospective English teachers. This course includes a survey of the history of American literature and reading of selected classics.

Understanding of English Semantics

This introductory course in English semantics will cover the basis of semantics on vocabulary and formal semantics. Students are guided to the study of meaning in the English language and how language is used, providing a solid foundation for further semantic studies.

Practice in English Classes

Pre-service teachers will have an opportunity to think about and address daily classroom challenges and issues in teaching and learning, in order to make their future classes effective by reflecting their prior learning in the field, and synthesizing it through constructing lesson plans, practicing instructional techniques, and using classroom English.

English Novel and Movie

This course is designed to arouse the motivation for learning and to train the four skills by using the movies based on the English novels. It also aims to awaken literary imagination and promote the critical appreciation for literature.

Theory and Practice in English Education

The aim of this course is to help students develop their abilities to utilize their

theoretical knowledge for solving issues and problems they will encounter when teaching English in the future. Students will be given information related to various issues and problems, and they will seek best plausible solutions using their theoretical knowledge of English Education.

Seminar in English Education

A consideration of historical and contemporary issues of foreign and second language acquisition will form the context of this seminar. Through learning L1 & L2 acquisition from linguistic, psychological and sociological perspectives, students will have a deep understanding of language acquisition process, and seek learning theories effectively applicable to our EFL learning environments.

English Pragmatics

The aim of this course is to provide an introduction to contemporary linguistic pragmatics, which is necessary to teachers-to be. Pragmatics is defined as the systematic study of meaning by virtue of language use, and the central topics of pragmatics include implicature, presupposition, speech acts, deixis, and so on.

Advanced Conversation and Composition

An extension of the 1st year conversation and composition class. Guided activities in speaking will be used to practice conversational skills and pronunciation. The 5 essay paragraph will be further looked at and practiced. Through various texts and small group/whole class discussions, students will be able to develop critical thinking in order to develop the different styles of essays.

English Conversation and Composition for Pre-service Teachers

The purpose of this class is to help students develop skills that they will need for both the Korean National Teacher's Exam and as future English teachers. Points of focus will include improving students' fluency in both spoken and written form, as well as useful expressions for classroom management. There will also be some focus on how to use keywords (spoken and written) in ways that will enable you to achieve better results on the National Teacher's Exam.

▣ Department of History Education

Introduction

This department established in 1977. The goal of this department is to produce history(Korean history, World history) teacher in secondary-school and it will be able to take charge of a common social subject teacher cooperate with contiguity study.

To achieve this goal, the department teaching in-dept knowledge, methodology for fields of history(Theories in history teaching, Korean history, Asian history, European history) and to cultivate a theoretical and actual knowledge, ability against the historical teaching material and an instruction method.

Not only the acquisition which is balance of major study, teaching all studies (geography, politics, economics) of the contiguity field for enhance the proper understanding and interest about subject education.

Not the cramming method of teaching, importance in extension of the historical study ability which leads autonomous discussion of students, literature investigation, documents teaching, exploration of historic remains etc was letting one feature of curriculum.

Exploration of Historic Remains opens only 4th grade the second semester in education curriculum but the study progress of same subject divides in every semester of all grades(2nd~4th grade) advancing a study and then the record produces synthetically.

Credit requirements for graduation

The department curriculum has four components: major courses(75 credits), pedagogy(22 credits), liberal arts(33 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Introduction of Korean History (3)	1-2-R Modern History of Korea (3)
1-1-R Introduction of Asian History (3)	1-2-E History and Education of History (3)
1-1-R Introduction of European History (3)	
2-1-R Documents Teaching in Korean History (3)	2-2-R Medieval History of Korea (3)
2-1-E Ancient History of Korea (3)	2-2-E History of Korean Historical Studies (3)
2-1-E Ancient History of Asia (3)	2-2-E History of Korean Thought and Culture (3)
2-1-E Ancient History of Europe (3)	

	2-2-E Documents Teaching in Asian History (3)
	2-2-E Documents Teaching in European History (3)
	2-2-E History of America (3)
3-1-R Theories in History Teaching (3)	3-2-R Modern History of Asia (3)
3-1-E Modern History of Korea (3)	3-2-R Modern History of Europe (3)
3-1-E Medieval History of Asia (3)	3-2-E History of Korean Society and Economy (3)
3-1-E Medieval History of Europe (3)	
3-1-E History of Southwest Asia and Africa (3)	3-2-E History of India and Southeast Asia (3)
	3-2-E Materials and Theories in History Teaching (3)
	3-2-E Contemporary World and Korea (3)
4-1-R Contemporary History and Korea (3)	4-2-R Exploration of Historic Remains (3)
4-1-E Contemporary History of Asia (3)	4-2-E History of Interchange between Korea and Foreign Countries (3)
4-1-E History of Exchange between the East and the West (3)	4-2-E History of Asian Historical Studies (3)
4-1-E History of European Historical Studies (3)	4-2-E Contemporary History of Europe (3)
4-1-E Logic and Discourse of History Subject (3)	4-2-E Contemporary History of 20th Century (3)

● Courses Abstract

Introduction of Korean History

Current of Korean history with it grasps the connection characteristic of World history as outline of each period Korean history in order to deepens a Korean history systematically to necessary subject.

Modern History of Korea

It understands in general and systematically that historical change process and development, characteristic of each field(politics, economy, society and culture etc) from establishment of Choseon Dynasty until at the time of King of Cheoljong.

History and Education of History

For an understanding of the history and history education, to study methods of historical research, the essence of history and research historical thinking. Through the process to study the individuality and generality of history, to study the academic foundation of history education.

Documents Teaching in Korean History

It analyzes the characteristic of culture and ideology systematically and then understand the cultural form which it follows in ancient people's thought through the original text of the ancient history which it constitutes type of Korean

history.

Introduction of Asian History

Current of Asian history with it grasps the connection characteristic of World history as outline of each period Asian history in order to deepens a Asian history systematically to necessary subject.

Ancient History of Korea

It observe the feature and change of nation and national culture formation and change of society, economic structure to considering interchange of continent culture from Ancient Choseon to unification of Shilla.

Ancient History of Asia

Politics, economy, social cultural all sides of Chinese historical development analyze and criticize since Chinese civilizational formation until post-Han and then understand all characterizations through each other relation of East Asia and comparison of the other Asia in this time.

Ancient History of Europe

Feature of politics, economy, culture survey around Greece and Rome history and then understand the cultural form which it follows in European culture of today.

Introduction to History

It discern meaning of history and it establishes the historical view which will dispose in actuality through a lecture on methodology of historic study and tendency of modern history.

Medieval History of Korea

Developmental condition of the medieval society grasp and then look around feature of the middle ages around relation of each field of society, politics and ideologies to consider specially in comparison of front time.

Introduction of European History

Current of European history with it grasps the connection characteristic of World history as outline of each period European history in order to deepens a European history systematically to necessary subject.

History of Korean Historical Studies

It understands current of history development and set up new value of history to consider periodic characteristic of present history as developmental process of Korean history according to change of intelligence and ideology.

History of Korean Thought and Culture

It is the subject for grasping the development process and specific character of Korean thought and culture, understanding the intrinsic nature of Korean cultural development, and extending the capacity for teaching Korean cultural history in the secondary school.

Documents Teaching in Asian History

It necessary study for studies the history and a culture of the Chinese character cultural area. It raises the ability that various historical document and literature be able to decode, analyze and criticize.

Documents Teaching in European History

The ability which it analyzes a historical document and criticizes educates as decodes the basic historical document of European history with foreign language.

History of America

It is the subject for grasping the development process of American history from the ancient to the contemporary period, and understanding the specific character of American history connected with present America.

Theories in History Teaching

It set up scholastic, philosophic foundation of historical education to consider meaning and character of historical education, Objective of historical education, contents selection of history and principle of organization, characteristic of historical thought, problems of structurization of historical education.

Medieval History of Asia

Since post-Han until Tang Dynasty it grasps the structural feature which the Chinese society has through comparison in society of the East Asia each area and of the medieval society of Europe. It views oriental modern history a further.

Medieval History of Europe

It understands the issues relative of the European medieval society, specially the problems regarding a feudalism and Christianity from relation inside modern history.

History of Southwest Asia and Africa

It is the subject for grasping systematically the development process and specific character of Southwest Asian and African history, and understanding straightly the historical meaning of Southwest Asian and African history.

Modern History of Asia

It grasps development process until of Song Dynasty since then 19 century with structure and then it examines closely contents of every societies, culture which are formed in this time how to operate in modern society.

Modern History of Europe

From at the time of Renaissance until of Germany unity it grasps all problems, specially it understand the rise of the liberalism which leads a civil revolution and nationalism problem around Italy and Germany unity.

History of Korean Society and Economy

It is the subject for grasping systematically the intrinsic development process of Korean social and economical history, and understanding the specific character of Korean social and economical history.

History of India and Southeast Asia

It is the subject for grasping the development process of India and Southeast Asian history centering around the mutual exchange among the regions, and understanding systematically the specific character of India and Southeast Asian history.

Materials and Theories in History Teaching

It is the subject for grasping systematically the classification of historical materials, the theoretical basis of history teaching, the object and contents of history teaching, and understanding the theoretical and practical foundation.

Contemporary History of Korea

From 1863 until restoration of independence it grasps systematically the development, feature of politics, economy, society and culture at the same time it does to have the fundamental understand against suffering and independence movement of the nation.

Contemporary History of Asia

In this course, we will study changes in the Asia society to the present day from the 19th century and the analysis of the deployment process of the Chinese history.

History of Exchange between the East and the West

It is the subject for grasping systematically the development process of mutual encounter and exchange between the East and the West, and understanding the influence and meaning to the development of the world history.

History of European Historical Studies

It is the subject for grasping systematically the development process and specific character of European historical studies from the ancient to the contemporary period, understanding the influence and meaning of European historical studies in the development of historical studies of the world.

Logic and Discourse of History Subject

It is the subject for grasping systematically the theories and practice of logic and discourse of history subject, and extending the capacity for teaching the discourse of history subject in the secondary school.

Exploration of Historic Remains

It supplement a shortage of theoretical to explore, investigate the cultural remains and historical site directly and it raises a ability to leading for exploration.

History of Interchange between Korea and Foreign Countries

It is the subject for grasping systematically the development process of the political, economical and cultural contact and interchange, understanding the influence and significance of such interchange to the history development of Korea and other countries.

History of Asian Historical Studies

It is the subject for grasping systematically the development process and specific character of historical studies from the ancient to the contemporary period, and understanding the influence and meaning of the Asian historical studies in the development of historical studies of the world.

Contemporary History of Europe

After World War I it understands the change of all fields of the world and then we equip the ability it will can grope to advance.

Contemporary History of 20th Century

It is the subject for grasping systematically the development process of 20th contemporary history, understanding the historical background of the present world, and having straight insight to the character and problems of present society.

▣ Department of Geography Education

Introduction

The Department of Geography Education was founded in 1980 as a part of the College of Education. Since the foundation of the department, 580 students have graduated and are working as experts in various fields in society, especially as teachers in secondary education. Current members of the department include 4 professors and 63 students.

The main purpose of the activities of the department is to prepare students to become excellent teachers in secondary schools and to provide quality teaching in the future. The secondary purpose is to prepare students to become geography-related experts such as professors, education administrators, regional planners, and urban planners.

The curriculum of the department consists of (1) physical geography (geomorphology, climatology, soil geography, and etc.), (2) human geography (urban geography, political geography, and economic geography, etc.) and (3) geography education (Study of Geographic Education, The Logic and Statement in Geography Education, Study of Teaching Materials and Method in Geography Education, etc.).

Practical research expertise in geography is gained by (1) the study of theories through lectures, (2) experimental research using facilities such as experimental room, geomorphological analysis room, mapping room, and GIS room, and (3) field research.

Credit requirements for graduation

The department curriculum has four components: major courses(69 credits), pedagogy(22 credits), liberal arts(33 credits), and electives.

Curriculum :

Yr-Sem-R/E	Course (Credit)	Yr-Sem-R/E	Course (Credit)
1-1-E	Human Geography (3)	1-2-E	Physical Geography and Field Survey (3)
2-1-R	Geomorphology and Field Survey (3)	2-2-R	Economic Geography (3)
2-1-R	Study of Geographic Education (3)	2-2-R	Climatology (3)
2-1-E	Regional Geography of Asia (3)	2-2-E	Political Geography (3)
2-1-E	Environmental Geography (3)	2-2-E	Regional Geography of America (3)
2-1-E	Rural Geography (3)	2-2-E	Structural Geomorphology and Field Survey (3)
		2-2-E	Introduction to Geography

			curriculum (3)
3-1-R	Urban Geography (3)	3-2-R	Cartography Education and Practice (3)
3-1-R	Population Geography (3)	3-2-R	The Logic and Statement in Geography Education (3)
3-1-E	Regional Geography of Korea (3)	3-2-E	Social Geography (3)
3-1-E	Regional Geography of Africa and Oceania (3)	3-2-E	Geography of Production (3)
3-1-E	Regional Geography of Europe (3)	3-2-E	Applied Geography (3)
		3-2-E	Study on Practice of Soil and Ecologic Geographic (3)
		3-2-E	Historical and Cultural Geography (3)
4-1-R	Study of Teaching Materials and Method in Geography Education (3)	4-2-E	Theory of Regional Development (3)
4-1-E	Geography of Circulation and Information (3)	4-2-E	History of Geography (3)
4-1-E	Research and Practice of Physical Geography (3)	4-2-E	Geographical Information Systems and Remote Sensing (3)
4-1-E	Research and Practice of Human Geography (3)		

● Courses Abstract

Human Geography

This course deals with the geographical and spatial analysis of politics, economy, society, and culture. The purpose of this course is to help students develop geographical skills that students may use to better understand and appreciate the place where students live and places around the world as well as the interconnections among them.

Physical Geography and Field Survey

Physical geography and field survey is a subfield of geography that focuses on the systematic study of patterns and processes within the hydrosphere, biosphere, atmosphere, and lithosphere. It aims to understand the physical layout of the Earth, its weather and global flora and fauna patterns. Many areas of physical geography make use of geology, particularly in the study of weathering and erosion. The geology of other planets is discussed at geological features of the solar system.

Physical geography as a scientific discipline is usually contrasted with and complemented by its sister science human geography

Geomorphology and Field Survey

Geomorphology and field survey is the study of landforms, including their origin and evolution, and the processes that shape them. Geomorphology seek to understand landform history and dynamics, and predict future changes through a

combination of field observation, physical experiment, and numerical modeling. The discipline is practiced within geology, geodesy, geography, archaeology, and civil and environmental engineering. Early studies in geomorphology are the foundation for pedology, one of two main branches of soil science. Landforms evolve in response to a combination of natural and anthropogenic processes. The landscape is built up through tectonic uplift and volcanism. Denudation occurs by erosion and mass wasting, which produces sediment that is transported and deposited elsewhere within the landscape or off the coast.

Study of Geographic Education

This course aims to prepare students to gain expertise and skills of geography education in secondary schools. For this purpose, students study the characteristics of geographical subjects, pedagogical content knowledge, teaching and learning methods, assessment, and curriculum.

Regional Geography of Asia

This course explores Asia from a regional perspective. Through a comparative and systematic geographical approach, students learn about the regional problems and policies affecting the major countries of East, Southeast, South, and Southwest Asia.

Environmental Geography

Environmental geography covers the issues of environmental degradation, quality of the global environmental, and the condition of human life. It is actually made up of many fields of geography including physical geography, human geography, regional geography, economic geography, and others that deals with different pars of the environment, human population, land use, and interrelations. Students can be educated environment problems, other organisms, environmental change by the human activities in three topics.

Rural Geography

This course seeks to understand the locational factors, developmental processes, distributions, sizes, and functions of rural settlements. Through this understanding, we will grasp the geographical characteristics of rural settlements

Economic Geography

In this course students will learn and analyze the principles and processes of changes in location, spatial system performed in both regional and global dimensions. The following themes will be discussed in the course : 1) Issues and changes in global economic orders, and problems of resources and environments in the world 2) Spatial aspects of money and capital 3) Spatial organization of labor power and market.

Climatology

This syllabus includes all aspects of the interaction between the atmosphere, the ocean and the earth. Particularly examines mechanism and characteristics of the general circulation, airmass, climatic change, etc. and recognize possible effects of human activities on the environment.

Regional Geography of America

America represents one of the richest and most complex regions in the world in terms of culture, history and politics. This syllabus is to examine each nation's physical and human geography, regionality and particularly, is to understand in the context of its language, religion, industrial patterns and social inequality etc.

Structural Geomorphology and Field Survey

Structural geomorphology and field survey is the science of surface features and landforms including the forces and processes that create them. Geomorphology has strong ties to geologic structure, rock types, and local/regional climate. Studies modern concepts of Earth's physical makeup including minerals and rocks, topography, crustal structure, plate tectonics and processes and forces acting on and within the earth. (Normally offered fall, spring and summer)

Introduction to Geography curriculum

This course aims to study the changes of geographical knowledges and thoughts, and curriculum. Moreover, we will explore ways towards desirable geography education.

Urban Geography

This course aims to understand the system, structure, form, location, and function of the city. Students will engage a unique and interesting way to examine how cities have been conceptualized, investigated, experienced and lived in, and how urban geography immediately touches upon questions of belonging, identity, responsibility, obligation, ethics and social justice.

Population Geography

This course provides students with spatial perspectives on the distribution, characteristics, and changes of population. Its focus is on the three major demographic variables, namely fertility, mortality, and migration. It examines global and local patterns of population distribution and characteristics as they relate to culture, economic development, technology, and the environment. In addition, students study the methods for producing population estimates and the planning problems of government as well as private businesses.

Regional Geography of Korea

This course aims to study the geographical characteristics of Korea and its regions through the analysis of physical and human phenomena in Korea.

Regional Geography of Africa and Oceania

This syllabus is to understand physical and humanistic characteristics of Africa and Australia continents and focus on contemporary Africa's landscape, space and economy, population, poverty and development, etc.

Regional Geography of Europe

Regional geography of Europe is one of the world's major regions. As a major world region, the rationale for examining the geography of Europe should be self evident. When one looks at Europe, it is apparent that Europe has played a dominant role in world history for the last half Millennium, and it has a special contribution to the course of American history and geography. Currently, Europe interests us a possible model of the future (collective security and economic cooperation) as well as a counter-balance to American leadership in global affairs (geopolitics and world cultural).

Geography of Europe is a new "regional geography" course that examines the human and physical geography of Europe, the European Union, and the contested meanings of "Europe" itself. The political, economic, and cultural changes in Europe occur at both governmental and individual levels; the European Union is an institutional fixture as well as a contested symbol of the new Europe. The three main geographical scales of inquiry are the internal geographies of individual European states as well as cross-border regions, the regional geography of the European continent, and the global ramifications of a unified Europe.

Cartography Education and Practice

This syllabus is intended to understand students to acquire map projection, the statistical of data. Skills and techniques specified in the subject are those relating to the use of topographical map, soil, land use, etc.

The Logic and Statement in Geography Education

This course is aimed at student throughout the exploring of the geography pedagogical content knowledge who are seeking to enhance their practical ability to understand, state and write on its.

Social Geography

This course deals with the interrelationships among social structure, social system, institutions, and cultural backgrounds. In addition, this course deals with how and why different places have different ways and qualities of lives.

Geography of Production

In this course students will learn and analyze the principles and processes of changes in location, spatial organization performed in both regional and global dimensions. The following themes will be discussed in the course : Spatial organization and locational decisions in agriculture, manufacturing, and

multinational corporation etc.

Applied Geography

This course seeks to understand how geography can be utilized for real life through the study of the applied aspects of geography and cases in developed countries. The goal of this course is to thoroughly train students in applying technologies to geospatial issues.

Political Geography

This course aims to study the relationships between physical structure and politics. In addition, this course deals with political-spatial patterns through the historical approach, hermeneutic approach, and quantitative approach.

Study on Practice of Soil and Ecological Geography

ecological geography and field survey is the made of origin of the soil, with special reference to the processes of soil-forming factors responsible for the development of the solum from the parent material. (A division of soil science concerned with soil genesis. -Syn: soil formation; pedogenesis.

A general term for the systematic examination of soils in the field and in the laboratory, their description and classification, the mapping of kinds of soil, and the interpretation of soils for many uses, including suitability for growing various crops, grasses, and trees, or for engineering uses, and predicting their behavior under different management systems.

A map showing the distribution of kinds of soil in relation to prominent physical and cultural features of the Earth's surface. Kinds of soil are ezpressed in terms of soil taxonomic units, such as series, or as phases of series. Maps showing soil characteristics or qualities, such as slope, texture, depth, fertility, or erodibility are not soil maps.

Historical and Cultural Geography

This course aims to study the geographical characteristics of historical and cultural elements such as languages, nations, religions, necessities of life, and folk cultures.

Study of Teaching Materials and Method in Geography Education

This course is intended to enhance student in terms of more effective selecting · organizing teaching materials, planning teaching contents and implementing teaching strategies in their own practical knowledge.

Geography of Circulation and Information

In this course students will learn and analyze the principles and processes of changes in location, spatial organization performed in both regional and global dimensions. The following themes will be discussed in the course: 1) Commerce and services industry, transportation and information industry. 2) Graph and

interaction theory, and spatial diffusion of innovation of economic activities

Research and Practice of Physical Geography

This syllabus explores the dynamic discipline of physical geography. the goal of physical geography is to understand the spatial dimension of earth's natural system-its energy, air, water, weather, climates, landforms, soil, plants and animals, it can be analysed and synthesized the materials of physical phenomenon by field work.

Research and Practice of Human Geography

This course aims to enable students to attain research capacities using human geographical data. This class takes a wide-angle view of geographic research methods, encompassing application as well as critique.

Theory of Regional Development

This course outlines the basic concepts related to the theory and practice of regional development. Analyzing and comparing case studies, the following themes are covered. 1) The comparison of growth-centered development strategies and endogenous balanced development strategies and their relevance to regional development. 2) The environmental ethics of regional development and ethical policy guidelines; and 3) Interregional and regional-national conflicts over development.

History of Geography

This course aims to understand geographers' thoughts and research methods in order to grasp the nature of geography. Moreover we will study various approaches and recent research tendencies of modern geography.

Geographical Information Systems and Practice

GIS technology helps us organize the data about environmental problems and understand their spatial associations, and provides a powerful tools for analysing and synthesizing information about the future of the global climate, the need for the ecological sensitive development of global natural resources, rapid urbanization, etc.

▣ Department of Social Studies Education

Introduction

The department offers programs designed to educate students as social studies teachers in secondary schools. Students are required to cover all fields of social sciences, and special emphasis is placed upon the following courses : Political Science, Economics, Jurisprudence, Cultual Anthropology, Ethics, and Methodology of Social Education.

Credit requirements for graduation

The department curriculum has three components: liberal arts (33Credits), a major courses(66Credits), pedagogy(22Credits), and electives

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Mankind and Administration (3)	1-2-R Introduction of Law (3) 1-2-E Citizenship Education and Social ethics (3)
2-1-R Social Studies Education (3) 2-1-R Understanding on the market Economy (3) 2-1-R Society and Politics (3) 2-1-E Social Thoughts (3) 2-1-E Methodology of Social Survey (3)	2-2-R Principles of Sociology (3) 2-2-E Understanding on National Economy (3) 2-2-E Korean Constitutional Law (3) 2-2-E Understanding Korean Politics (3) 2-2-E Social Studies Curriculum (3)
3-1-R Studies on Social Studies Materials and Methods (3) 3-1-E An Economic Principal and Civic Life (3) 3-1-E International Relations (3) 3-1-E Law of Private Life (3) 3-1-E Modern Society and Thoughts (3)	3-2-R Principles of Cultural Anthropology (3) 3-2-R Methodology of Social Science (3) 3-2-E Theories of Citizenship and State (3) 3-2-E The Market Economy and Government (3) 3-2-E Teaching Materials in Society & Culture (3)
4-1-E Seminar in Economics (3) 4-1-E Modern Thoughts (3) 4-1-E Teaching Materials in Politics (3) 4-1-E Teaching Materials in Law (3) 4-1-E Case Studies in Law (3) 4-1-E The studies on social studies assessment (3)	4-2-E Seminar in Economics Education (3) 4-2-E Seminar in Sociology and Anthropology Education (3) 4-2-E Seminar in Politics Education (3) 4-2-E The writing and logics in Social Studies (3)

● Courses Abstract

Man and Administration

Students will examine the major concepts of administration. The students in this course understand the theories of public administration, so they will solve problem of educational practice.

Introduction of Law

Study of basic theories and principles of law as a basis for social studies education

Citizenship Education and Social Ethics

Student in this course will explore social values in democracy and understand the good citizenship. Students make out the basics and issues of social ethics. Therefore, the purpose of this course is to provide future social studies teachers with some philosophical perspectives which make them understand social studies practice.

Social Studies Education

Study of the concept, characteristics, goal, history, content, methodology, evaluation, teachership of Social Studies

Understanding on the Market Economy

Study of the basic concepts and principles of Economics

Society and Politics

Study of a society and politics and their relationship.

Social Thoughts

Study of various social thoughts across ages: pre-modern, modern, and post-modern.

Methodology of Social Survey

Study of theoretical and experimental survey methodology

Principles of Sociology

Study and comparison of various basic principles of sociology

Understanding on National Economy

Study of theories and principles of national income, employment, price level, and so on

Korean Constitutional Law

Study of Korea's constitutional law and its historical changes until present time

Understanding of Korean Politics

Study of various Korea's political phenomena in order to understand the process of policy decision-making and execution

Social Studies Curriculum

Special lecture on the curricula, contents, and teaching techniques of social studies education

Studies on Social Studies Materials and Methods

In this course, students will examine the characteristic of good social studies materials and core teaching methods of social studies. This course emphasis on exploring good the materials and methods. Student will be professional teacher in secondary social studies practice.

secondary schooleducation major concepts, historical development, aims and objectives, curricula, and and search for the right direction and methods for the improvement of Korean social studies education. The latest trends in research on social studies education and an examination of treatises will be important parts of the course.

An Economic Principal and Civic Life

Study of economic theories of home and industry, and principles of market structure and general budget balance

International Relations

Study of political, legal, and diplomatic relations with other countries

Law of Private Life

Study of Social-relationship, especially Rights and Duty through Private Law.

Modern Society and Thoughts

Study of various modern social thoughts.

Principles of Cultural Anthropology

Study of theories, principles, and methdologies of cultural anthropology

Methodology of Social Science

Study of theories and mothodologies adopted to investigate various social phenomena

Theories of Citizenship and State

Study of citizenship and stateship appropriate for a modern society based on political thoughts throughout old, medieval, and modern ages

The Market Economy and Government

Advanced study of the basic concepts and principles of Economics

Teaching Materials in Society & Culture

Study of instructional materials for teaching society and culture, the two main areas of the social studies subject in secondary school.

Seminar in Economics

Special lecture on the major topics of Economics and Economic Education.

Modern Thoughts

Study of various modern thoughts.

Teaching Materials in Politics

Study of instructional materials for teaching politics.

Teaching Materials in Law

Study of instructional materials for teaching law.

Case Studies in Law

In this course, students inquire jurisprudential case about problem of modern life.

The Studies on Social Studies Assessment

This course aims at understanding the conceptions and theories of social studies assessment, based general theory of evaluation. Student in this course understand social studies-specific evaluation framework, the issues and the task of social studies evaluation. Student in this course will put reasonable assessment into social studies practice.

Seminar in Economics Education

Trying variable approach about Economic education and Phenomena in Social Studies lecture. That aim intelligence, values and attitude necessary to guide junior or senior high schools students.

Seminar in Sociology and Anthropology Education

Special lecture on the major topics of Sociology and Anthropology.

Seminar in Politics Education

Seminar in Politics Education subject will adopt a complex method of student expression, lectures and discussion to ensure students to possess a intelligence, values and aptitude necessary to guide junior or senior high schools students.

The Writing and Logic in Social Studies

The process of this course is for students to understand social science and logic, the aim of course is to develop creative thinking and reasonable thinking. The process of this course put together the making out the social science and logic and the writing and the teaching method of an assay writing assessment.

▣ Department of Ethics Education

Introduction

The main purpose of Ethics Education Department is the training of teachers who can play their roles competently as moral and ethics teachers in the middle and high schools.

The department offers several lectures like "Korean and Eastern Ethical Thoughts", "Western Ethical Thoughts", "Political Philosophy", "Social Sciences" and "Religion", in order to suggest desirable views on ethical problems which are engendered in contemporary societies. And the department offers other lectures like "Teaching Methods on Morals", "The Curriculum in Moral Education", "Theories of Moral Education" and so on, to give students various teaching skills which could be used in the middle and high schools.

The educational environments, including six respectable professors, of the Department is very good to become a competent moral and ethics teacher. So the Department is one of the highest level in passing percentages of national teacher employment examination.

Credit requirements for graduation

The department curriculum has four components: major courses(66 credits), pedagogy(22 credits), liberal arts(33 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Introduction to Ethics(3)	1-2-E Moral Imagination & Public-common ethics(3)
1-1-E Introduction to Basic Social Sciences(3)	1-2-E Human Rights and Peace(3)
2-1-E History of Western Ethical Thought I(3)	2-2-R Theories of Democracy(3)
2-1-E Theories of State(3)	2-2-E Modern Ethics(3)
2-1-E Moral Psychology(3)	2-2-E History of Eastern Ethical Thought I(3)
2-1-E History of Korean Nation(3)	2-2-E History of Western Ethical Thought II(3)
2-1-E Studies on North-Korea(3)	2-2-E Personality and human conscience(3)
3-1-R Theories & Approaches of Moral & Ethics Education(3)	3-2-R Readings in Ethics Great Books(3)
3-1-R Education of Unification(3)	3-2-E Studies Social Ethics (3)
3-1-E Studies on Religious Ethical Education(3)	3-2-E Studies on Ecological Ethical Education(3)
3-1-E History of Eastern Ethical Thought II(3)	3-2-E The State and Justice(3)
3-1-E Contemporary Ethical Thoughts(3)	3-2-E Applied Ethics(3)
3-1-E Studies of Character Education(3)	3-2-E History of Korean Ethical Thoughts(3)
4-1-R Korean Ethical Thoughts Education(3)	4-2-E Topic in Classical Korean Literature (3)
4-1-R Theories of citizenship education(3)	4-2-R Ethics and Essay Writing(3)

4-1-E Seminar in Western Ethical Thoughts(3)	4-2-E International Problems and Ethics(3)
4-1-E Studies on ethical Studies Materials and Methods(3)	4-2-E Global Ethics Education(3)

● Courses Abstract

Introduction to Ethics

In this lecture, by understanding basic ideas of Ethics such as Korean ethical tradition and Oriental & Occidental ethical traditon, we can improve intellectual ability, ethical judgment, rational inference and response in minding & empathy.

Introduction to Basic Social Science

We'll study theoretical and practical Social Sciences to research the causes and alternatives of serious issues of modern society. By these ways, we can investigate the overall relations of social phenomena, and we can suggest the solutions to settle social issues.

Moral Imagination & Public-common ethics

In this lecture, we can make ethical judgement focused on moral imagination. we can touch creative activity to improve moral imagination including communicative understanding, sympathetic understanding and spiritual awareness. we can build publicity by public-common ethics beyond prejudice.

Human Rights and Peace

The course will study the practical issues of peace and human rights. Students in this course can understand the meaning of the Other, the responsibility ethic for the Other and Peace with the Other in postmodern society.

History of Western Ethical Thought I

In this course, students will examine the ethical questions, concepts, and arguments that were formed and implemented in the ancient and medieval period of Western Ethics. This course deals primarily with the works of Socrates, Plato, Aristotle, Hedonism, Augustinus, Aquinas and others.

Theories of State

This course offers the experience to discuss the justifiabilities of the state authority and to survey the theories of political obligation. It includes such theoretical perspectives as philosophical anarchism, civil disobedience, concent theory, theories of justice, social contract theories, and associative theories

Moral Psychology

The goal of moral education is that moral knowing is reached to moral practice. Therefore, in moral education, it is important to understand the psyche and interiority of human beings which initiate human behaviors. Moral psychology can help the understanding. Futhermore, The course consider the contemporary

theory of moral education.

History of Korean Nation

In this lecture, we'll study our national reality, recognition about foreign power, various social thoughts to overcome national crisis and several ideas to construct independent nation in modern Korean society. In this way, we'll develop our own perspective that can see our modern history rightly.

Studies on North-Korea

Analyzing politics, economy, and structure of diplomacy of North-Korea, and understanding of North-Korea's problems will be tried.

For achieve unification of Korea, we'll study about some problems that will be performed by South and North Korea.

Theories of Democracy

This course deals with models of democracy from ancients to contemporaries. It includes such democratic models as the Athenian, the republican, the marxist, the liberal, the elite, the participatory, the neo-liberal and the deliberative.

Modern Ethics

We have to know about various problems of modern ethics and flow of from a duty ethics to an application ethics. For this, we'll study analytic philosophy, and phenomenology because they are philosophical foundation of modern ethics. And then, We are going to criticize main theories of modern ethics.

History of Eastern Etical Thought I

Reflection of characteristic of Eastern Ethical thoughts. Reading selections of Eastern classics, and Understanding of eastern life style and culture.

History of Western Ethical ThoughtⅡ

This course deals with the main ethical works of the modern western era. The course covers the development and content of rationalism(Spinoza), empiricism(Hume), deontology(Kant), utilitarianism(Bentham, Mill).

Personality and human conscience

The process of this course will read and discuss on human conscience and cultivation in east-west and past-present thoughts. Students in this course understand ethical subject and have the opportunity of the ethical practice.

Theories & Approaches of Moral & Ethics Education

This course is designed to enhance the practical abilities as a moral and ethics teacher. It includes such subjects as moral psychology, character education, moral constructivism, moral identity theory, and etc.

Education of Unification

During the partition of 50years, we have tried for unification continually. We'll analyze these factors and try to minimize its problems. And we'll offer a

theoretical basis, also. We'll study theories and teaching methods of unification education need for students who become teachers.

Studies on Religious Ethical Education

For development of skills of religious ethics teaching, we have to acquire skilful teaching method under the various religion situation. We have to get systematic view about many problems of religious ethics.

History of Eastern Etical Thought Ⅱ

By general overviewing Confucianism, Taoism, Buddhism and Neo-Confucianism, we'll consider how eastern ethical thought contribute to the advancement of modern philosophy and to solve modern ethical problems.

Contemporary Ethical Thoughts

This course provides an introduction to important theories of prominent problems in the contemporary ethics. We will critically survey the theories of Moore, Hare, Scheler and others who proposed to solve the fundamental problems in ethics. This introductory survey will help students grasp the basic themes and concepts of contemporary ethics.

Studies of Character Education

Students in this course can cultivate the personality teaching competence. Students will study the main concept, core values, personality competence, the tradition of personality teaching, creative experience activity and program etc.

Readings in Ethics Great Books

The process of this course will read and discuss ethical great books. Students in this course understand the major concepts in East-West ethical thoughts and ethical logic.

Studies Social Ethics

Social ethics is connecting ethics with social structures, because one's moral behavior is not only individual thing but also social thing. This lecture deals with some issues like an abortion, sexual ethics, racial-social-sexual distinction, the freedom of the individual and governmental authority and so on.

Studies on Ecological Ethical Education

We can research many problems connected with Ecological crisis, by considering about today's science-technology. We have to make clear some ethical decision methods that containing ecological humanism, by criticizing of modern civilization. In this way, we intend to help teachers to teach student's learning effectively and to perform their studies well.

The State and Justice

Justice is one of the most significant standards which can be used to evaluate the orders of political communities. This course aims to review the various

theories of justice from ancients to contemporaries. Especially, it is focused on the discussions of the relationships between goal of nation and justice.

Applied Ethics

This course deals with major practical themes and specific problems arising in various realms of ethical inquiry such as applied ethics and practical philosophy. Accordingly this course provides the students an opportunity to investigate the actual practical problems of ecological ethics, biomedical ethics etc.

History of Korean Ethical Thoughts

By studying the origin, development process and controversial issue of Korean ethical thoughts, and by inquiring their meaning in modern Korean society, we'll try to help to establish right view of morals as a Korean.

Korean Ethical Thoughts Education

Focused on the history of Korean ethical education, Inter-subjectivity of ethnical spirit, Social movement of Korean spirit, we can understand the creative transmission of Korean thoughts by public cooperation traditional ethics and modern society.

Theories of citizenship education

Citizenship is one of the most important factors to consolidate democracy in information society. This course deals with the various approaches to citizenship, e.g. liberalistic perspectives, communitarian perspectives, republican perspectives and concrete teaching techniques in educating democratic citizenship.

Seminar in Western Ethical Thoughts

This course aims at promoting students' academic intelligence through general understanding and improvement in recognition on Western Classics. By reading, analyzing and criticizing Western Classics, students will understand western ethical thoughts in-depth.

Studies on ethical Studies Materials and Methods

Students in this course can understand the construction principle of ethical materials. They cultivate the analytical competence of text materials and can explore good teaching methods which is demanded for PCK in ethics teacher.

Ethics and Essay Writing

The purpose of this course is to improve students' capabilities to use essay in accordance with the nature and essence of moral education, by dealing with logical-critical thinking and core issues in the area of moral education.

International Problems and Ethics

This course aims to try to find the solutions for the major ethical problems which is breaking out in the modern international society. Major theoretical perspectives adapted in this course are just international relations theories,

international aids theories, cosmopolitanism and multiculturalism.

Global Ethics Education

For the cultivation of global citizenship, we can understand the situation and task of global ethics. In addition, we can touch the holistic character of global ethics. Focused on moral judgement and ethical thought, we can consider public-common citizenship and deep citizenship to the future task of ethics.

▣ Department of Physics Education

Introduction

In our department, in order to develop their expertise for physics teacher in the middle schools, the students take the courses for physics theories, experiments, theories of physics education, and how to teach physics. For physics theories, based on general physics, the students study mechanics, electromagnetism, waves and optics, electronics and modern(quantum) physics systematically. For experiments, they carry various experiments on mechanics, electromagnetism, wave and optics, electronics, and modern physics, starting from basic experiments. Also they carry the experiments in the physics textbooks for the middle schools. For theories of physics education, the students study the physics curriculum, how to evaluate physics education, the history and philosophy of science, and science learning theories. In order to enhance their expertise as physics teacher, the students analyse various teaching materials for physics and study how to teach physics, logic and writing for science. Additionally, through the seminar on every Wednesday in the semester and various activities for physics education in the department, the students can have opportunities to practice how to teach physics in the middle schools. We have the lecture room with multimedia system and microcomputer-based laboratories for the students. Finally, we would like to mention that the faculty try to do their best for the goal of the department.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(37Credits), a major(66Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Development of Teaching Materials in Physics Education I (1)	1-2-E Development of Teaching Materials in Physics Education II (1)
1-1-E General Physics & Lab. I (4)	1-2-E General Physics & Lab. II (4)
2-1-R Mechanics & Mechanics Education I (3)	2-2-R Mechanics & Mechanics Education II (3)
2-1-E Middle & High School Physics Experiment I (1)	2-2-E Middle & High School Physics Experiment II (1)
2-1-E Physics Practice I (3)	2-2-E Physics Practice II (3)
2-1-E Mathematical Physics I (3)	2-2-E Mathematical Physics II (3)
2-1-E Study on Teaching Materials and Teaching Methods in Science I (2)	
3-1-R Modern Physics & Modern Physics Education I (3)	3-2-R Modern Physics & Modern Physics Education II (3)
3-1-R Electromagnetism & Electromagnetism	3-2-R Electromagnetism & Electromagnetism

	Education I (3)		Education II (3)
3-1-R	Physics Experiment I (1)	3-2-R	Physics Experiment II (1)
3-1-R	Theory of Science Education (3)	3-2-E	Waves & Optics Education (3)
3-1-E	Study on Teaching Materials and Teaching Methods in Mechanics (3)	3-2-E	Study on Teaching Materials and Teaching Methods in Physics (3)
3-1-E	Computer Education in Science (3)	3-2-E	Electronics and Lab (3)
3-1-E	Mechanics & Mechanics Education (3)	3-2-E	Investigation and Teaching of Traditional Science (3)
		3-2-E	Electromagnetism & Electromagnetism Education (3)
4-1-E	Quantum Mechanics I (3)	4-2-E	Quantum Mechanics II (3)
4-1-E	Thermal and Statistical Physics (3)	4-2-E	Topics in Physics (3)
4-1-E	Study on Teaching Materials and Teaching Methods in Electromagnetism (3)	4-2-E	Topics in Science Education (3)
		4-2-E	Study on Teaching Materials and Teaching Methods in Optics (3)
4-1-E	Seminar in Modern Physics (3)	4-2-E	Advanced Physics Experiment II (1)
4-1-E	Advanced Physics Experiment I (1)	4-2-E	Theory of Relativity (3)
4-1-E	Nuclear Physics (3)	4-2-E	Solid State Physics (3)
4-1-E	Nano Physics & Nano Physics Education (3)	4-2-E	History of Science (3)
		4-2-E	Logic and Logical Writing in Science (3)
4-1-E	Modern Physics & Modern Physics Education (3)		

● Courses Abstract

Development of Teaching Materials in Physics Education I

Learning the ability about making materials yourselves which is needed to teach things related to physics that is one of the curriculum in middle school.

General Physics & Lab. I

Based on Newton's mechanics and thermodynamics, this course deals with the fundamentals of matter in nature and various phenomena resulting from the interactions in them. This course consists of Newton's law of mechanics, heat and energy, first and second law of thermodynamics, mechanical waves, electromagnetism, properties and propagation of light, relativistic dynamics, and basic concept of modern physics.

Development of Teaching Materials in Physics Education II

Acquiring of ability about making materials yourselves which is needed to teach things related to physics that is one of the curriculum in middle school.

General Physics & Lab. II

Based on Newton's mechanics and thermodynamics, this course deals with the fundamentals of matter in nature and various phenomena resulting from the interactions in them. This course consists of Newton's law of mechanics, heat and energy, first and second law of thermodynamics, mechanical waves, electromagnetism, properties and propagation of light, relativistic dynamics, and basic concept of modern physics.

Mechanics & Mechanics Education I

Students learn the fundamental concepts of physics with applying the Newton's equation of motion to the various phenomena related to dynamics and with analyzing its physical meaning.

Middle & High School Physics Experiment I

Students learn contents of the experiments in science and physics of secondary schools and the teaching method of the experiments.

Physics Practices I

Experimenting, practicing about basic field of mechanics, thermal dynamics, optical dynamic and electromagnetics and the making theory in detail also, making those use in physic educational place after practicing compose of material in physics practice developing of experimental tools which is suited in educational place.

Mathematical Physics I

Students learn the fundamental mathematical theories for undergraduate physics and the actual application of the mathematical theories to the physical systems through various examples.

Study on Teaching Materials and Teaching Methods in Science I

This course provides methodology of the teaching basics concepts of physics for non-major preservice science teachers. Analyses of secondary school physics texbooks and lab-experiment will be performed by the students.

Mechanics & Mechanics Education Ⅱ

Students learn the fundamental concepts of physics with applying the Newton's equation of motion to the various phenomena related to dynamics and with analyzing its physical meaning.

Middle & High School Physics Experiment Ⅱ

Students learn contents of the experiments in science and physics of secondary schools and the teaching method of the experiments.

Physics Practices Ⅱ

Making student who is short of knowledge of major in physics or who is needed to review because of going back to university understand definition and principal through solving problems.

Mathematical Physics Ⅱ

Students learn the fundamental mathematical theories for undergraduate physics and the actual application of the mathematical theories to the physical systems through various examples.

Modern Physics & Modern Physics Education I

Students learn the fundamental concept in modern physics and how to teach the

main concept of modern physics to students in secondary schools.

Electromagnetism & Electromagnetism Education I

Acquiring the basic characters of electromagnetic field and lead to draw general picture so that make understand of transition by electromagenetic field or theory of relativity

Physics Experiment I

Viewing experiment or exercise about basic field of mechanics, thermal mechanic optics, electromagnetics so that make theory in detail and using them in physical instrument field with practicing how to make method, how to consist of material.

Theory of Science Education

As a basic course on general topics in science education, this course will cover the science history, physics education curricula and science education assessment.

Study on Teaching Materials and Teaching Methods in Mechanics

learning about a guiding principle and a course of study with method hat how collect basic materials and materials collected by hem in order to reconsist of them according to course in middle school.

Computer Education in Science

Realizing the way of solving problems in every science field using mathmatica.

Mechanics & Mechanics Education

This course is for students who major in integrated science. Students learn the fundamental concepts of physics with applying the Newton's equation of motion to the various phenomena related to dynamics and with analyzing its physical meaning.

Modern Physics & Modern Physics Education II

Students learn the fundamental concept in modern physics and how to teach the main concept of modern physics to students in secondary schools.

Electromagnetism & Electromagnetism Education II

Acquiring the basic characters of electromagnetic field and lead to draw general picture so that make understand of transition by electromagenetic field or theory of relativity

Physics Experiment II

Viewing experiment or exercise about basic field of mechanics, thermal mechanic optics, electromagnetics so that make theory in detail and using them in physical instrument field with practicing how to make method, how to consist of material .

Waves & Optics Education

In this course, fundamental concept and phenomena in physical optics and quantum optics, consisting of reflection, refraction, interference, diffraction of

waves(light), and understanding atomic structure, are introduced and studied. As application of physical optics and quantum optics, measurement of speed of light, interferometers, spectrometers, and basis of laser optics are introduced and studied.

Study on Teaching Materials and Teaching Methods in Physics

Students analyze various teaching materials in current secondary school physics and learn the effective teaching method for actual secondary school physics.

Electronics and Lab

Applying basic definitions to atomic physics and electromagnetics of circuit's definition and element's character.

Investigation and Teaching of Traditional Science

Exploring science motive within traditional culture and make understand science principle in them, therefore lecturing middle-high school students how to defy definition through traditional culture.

Electromagnetism & Electromagnetism Education

This course is for students who major in integrated science. Acquiring the basic characters of electromagnetic field and lead to draw general picture so that make understand of transition by electromagenetic field or theory of relativity

Quantum Mechanics I

Understanding basic concept and theory system based on modern physics. especially nuclear physics, optics and then practice ability by physical system in reality.

Thermal and Statistical Physics

Lecturing way which is explained definition, basic principle of thermal physics and then, also motion of atoms individual.

Study on Teaching Materials and Teaching Methods in Electromagnetism

Collecting material related to electromagnetics considering students in high school middle school and them learning guiding principle or a course of study using them.

Seminar in Modern Physics

Making presentation, discussion, evaluation basic theory or topic in modern physics between professors and students.

Advanced Physics Experiment I

Acquiring how to consist make individuals products, and verifying physics theory through exact science instrument.

Nuclear Physics

Dealing with basic theory of atom, development of nuclear energy, nuclear motion and structure based on atomic physics and quantum physics.

Nano Physics & Nano Physics Education

Introducing recent physics theory and applying to them about physic conditions in nano system so lecture students in middle or high school how these relate with reality life.

Modern Physics & Modern Physics Education

This course is for students who major in integrated science. Students learn the fundamental concept in modern physics and how to teach the main concept of modern physics to students in secondary schools.

Quantum Mechanics Ⅱ

Understanding basic concept and theory system based on modern physics. especially nuclear physics, optics and then practice ability by physical system in reality.

Topics in Physics

Collecting and arranging information about researching field in current physics world an training ability how teach student in middle, high school effectively.

Topics in Science Education

Dealing with science education deeply and broadly related with science philosophy, science history, science learning motive, science evaluation and then focusing on presentation and discussion.

Study on Teaching Materials and Teaching Methods in Optics

Dealing with conditions of physical optics which is interference, diffraction, refraction, quantum optics and so on, and learning basis of laser optics as introducing interferometer measurement of velocity of light, spectrometer.

Advanced Physics Experiment Ⅱ

Acquiring how to consist make individuals products, and verifying physics theory through exact science instrument.

Theory of Relativity

Discussing situation in physics relatively with concept of theory of relativity using Rorenzii diagram.

Solid State Physics

Dealing with character of solid from state level to application level and the treating crystal structure, photon, energy band, fermi statistic and so on.

History of Science

Viewing "process of discovery", or, by examining history of formation in science definition, be able to know effect studying science.

Logics and Logical Writing in Science

Students study current logic and writing in science in secondary school and learn the teaching method of that course.

▣ Department of Chemistry Education

Introduction

This major aims to acquire knowledge on Theory of Chemical Education, Physical Organic Chemistry, Instrumental Analysis ,Analytical Chemistry. and by completing Theory of Chemical Education, Physical Organic Chemistry, Instrumental Analysis ,Analytical Chemistry. enable students to master not only a basic but highly advanced level of science theory. Also it does to study the scientific curriculum of chemical and the map law, chemicals and the teaching material research back, science(chemicals)it cultivates the instructional method ability as the teacher. It will be able to enter upon studies in the graduate school if the student wants to Continues a study.

Credit requirements for graduation

The department curriculum has four components: major courses(66 credits), pedagogy(22 credits), liberal arts(39 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E General Chemistry & lab. I (4)	1-2-E General Chemistry & lab. II (4)
2-1-R Organic Chemical & Inquiry Lab. I (4)	2-2-E Teaching Methods and Study on Teaching Materials in Science II (2)
2-1-R Physical Chemistry & Inquiry Lab. I (4)	2-2-E Organic Chemical & Inquiry Lab. II (4)
2-1-E Mathematics for Chemistry (3)	2-2-E Physical Chemistry & Inquiry Lab. II (4)
3-1-R Theory of Science Education (3)	3-2-R Inorganic Chemistry & Inquiry Study II (3)
3-1-R Inorganic Chemistry & Inquiry Study I (3)	3-2-R Inorganic Chemistry & Inquiry Lab (1)
3-1-R Analytical Chemistry & Inquiry Study I (3)	3-2-E Logic & Writing in Science (3)
3-1-R Analytical Chemistry & Inquiry Lab I (1)	3-2-E Analytical Chemistry & Inquiry Lab II (1)
3-1-E Physical Chemistry & Inquiry Study III (3)	3-2-E Problem Solving in Physical Chemistry (3)
3-1-E Biochemistry (3)	3-2-E Physical Organic Chemistry (3)
	3-2-E Analytical Chemistry & Inquiry Study II (3)
4-1-E Seminar in Chemistry Education (3)	4-2-E Quantum Chemistry (3)
4-1-E Study on Teaching Materials&Teaching Methods in Integrated Chemical Education (3)	4-2-E Environment Chemistry Education (3)
4-1-E Instrumental Analysis (3)	4-2-E Topics in Chemistry Education II (3)

4-1-E Topics in Chemistry Education I (3)	4-2-E Polymer Chemistry (3)
4-1-E Qualitative Analysis of Organic Chemistry (3)	4-2-E Molecular Spectroscopy (3)

● Courses Abstract

General Chemistry and Lab. 1

This is the first course in chemistry for students in the integrated science teacher program. Topics will cover: chemical principles and experiments; gas, liquid, and solid states; chemical reactions and energy relationships; oxidation and reduction; electrochemistry; and chemical bonding.

General Chemistry and Lab. 2

This is the second course in chemistry for students in the integrated science teacher program. Topics will cover reaction kinetics, chemical equilibrium, Kinetic theory of molecules, metals and nonmetals, coord eqtion compounds, organic chemistry, biochemistry basics, instrument operation, and experimental data handling and statistics.

The course will offer chemical principles and experiments for students majoring in other sciences such as physics, earth science, and biology. The course General Chemistry and Laboratory 1 is prerequisite.

Organic Chemical & Inquiry LAb. I

This course covers simple organic compounds with emphasis on structure, bonding and reaction. Its pre-requisite is Fundamental Chemistry and Lab 1,2.

Physical Chemistry & Inquiry Lab. I

One of the major requirement course in the Department of Chemistry Education, this class studies equilibrium thermody- namics. More specifically, it covers such topics as the laws of thermodynamics, the properties and the structure of gas, liquid, and solid, as well as phase change and equilibrium. This class has pre-requisites of General physics, General Chemistry and Calculus.

Mathematics for Chemistry

This course deals with the mathematical method required in the study of physical chemistry and quantum chemistry.

Teaching Methods and Study on Teaching Materials in Science Ⅱ

In this course, the secondary school science textbooks are analyzed in every unit, and discussed to be used properly in the learning of secondary school students.

Organic Chemical & Inquiry LAb.Ⅱ

Following Organic Chemistry 1, this course covers simple organic compounds with emphasis on bonding and reaction, structure and various functional groups. Its pre-requisite is Organic Chemistry 1.

Physical Chemistry & Inquiry Lab. Ⅱ

This class discusses the basic concepts of quantum mechanics. It covers such topics as the properties and the structures of atoms and molecules, as well as the fundamentals of chemical spectroscopy and statistical mechanics.

Physical Chemistry Inquiry Study

The subject deals with quantum mechanics, spectroscopy, statistical mechanics, thermodynamics, and chemical kinetics. This course provides a firm foundation for understanding the physical principles.

Theories of Science Education

This course covers learning theories applied to science instruction in secondary schools. It discusses such topics as behavioral, cognitive, and constructivist learning theories. In addition, the course emphasizes the contemporary perspectives of learning theories.

Inorganic Chemical & Inquiry Study I

This course provides an introductory survey of the bonding of inorganic compounds, as well as various reactions of inorganic compounds such as acid-base, oxidation-reduction and substitution reactions.

Analytical Chemistry & Inquiry study Ⅰ

This course discusses systematical approaching method to deal with an equilibrium in several kinds of fundamental chemical reaction which is related to all fields of chemical science. It also covers basic topics such as activity, concentration, gravimetric and volumetric analysis, titrations using precipitation formation and acid-base neutralization, and determination of metal ion concentration using chelates complex formation/EDTA titration. Theories and methodology measuring composition, quantity, and concentration of unknown samples will be dealt with based on understanding of funda- mental chemical reactions in this course.

Analytical Chemistry &Inquiry Lab Ⅰ

The laboratory experiments cover several types of volu- metric analyses using titration such as precipitation reaction, acid-base neutralization, redox reaction, chelate EDTA complex formation reaction in order to detect and quantize a specific component existing in the unknown mixture solution. In addition, spectrophotometric determination of metal ion, iodimetric titration of vitamin C, electrogravimetric analysis of copper ion, analysis of a mixture of carbonate and bicarbonate, and standard addition method will be included in this lab course.

Physical Chemistry & Inquiry StudyⅢ

This class discusses the basic concepts of quantum mechanics. It covers such topics as the properties and the structures of atoms and molecules, as well as the fundamentals of chemical spectroscopy and statistical mechanics.

Biochemistry

This course covers the characteristics of enzyme reaction in living cells, bio-energy theory, fundamentals of intermediate metabolism, physico-chemical function, and biosynthesis.

Inorganic Chemical & Inquiry Study Ⅱ

This course covers such topics as coordination chemistry of transition metals, inorganic reaction mechanisms, and organometallic chemistry.

Inorganic Chemical Chemistry & Inquiry Lab

This course enables students to acquire skills for synthesis of various inorganic compounds and chromatographic as well as ion exchange separation of inorganic compounds.

Logic and Logical Writing in Science

This course deals with the scientific thinking method, and the teaching-learning of science essay writing in the secondary school.

Chemical Kinetics

Phenomenological methods, dynamical and statistical approaches to chemical reactions are taught in the course. This includes the conventional theory of chemical kinetics, the scattering theory, the transition state theory and the unimolecular reactions and photochemistry of reactions..

Physical Organic Chemistry

This course covers various topics such as the application of molecular orbital theory to organic chemistry, orbital symmetry, thermochemistry, and linear free energy relationship.

Analytical Chemistry & Inquiry Study Ⅱ

Fundamentals of several types of chromatography and countcurrent distribution for separation and extraction of pure components will be covered using different physical/chemical properties of chemical substances in the mixtures. This course involves oxidation /reduction of materials, fundamental electrochemistry, redox titrations, electrolysis, electrogravimetric and coulometric analyses, voltammetry, fundamentals of spectrophotometry and spectroscopic analyses using light properties.

Seminar in Chemistry Education

This seminar is established a field of the following areas by turn: Chemistry Education, Analytical Chemistry, Physical Chemistry, Organic Chemistry, and Inorganic Chemistry. The course suggests new ideas and what discusses about each distinction, utility through analysis the current study of most recent in the chemistry education or a division of chemistry. It makes a schedule with capturing of subjects of the study through discussion and analyses of results, and makes a paper and report.

Study on Teaching Materials&Teaching Methods in Integrated Chemical Education

The change of science curriculum is learned with National Curriculum of Korea, and the contents are analyzed in the high school chemistry textbooks and middle school science textbooks. The teaching-leaning method is learned and practiced to be used in secondary school chemistry lesson. In addition, this course deals with the teaching focused on STS (Science-Technology-Society) and science teacher's self-evaluation.

Qualitative Analysis of Organic Chemistry

Confirming structure and characters in organic compound using chemical reaction and analysis tools or machinery.

Quantum Chemistry

This course deals with quantum theory as the basis of theoretical chemistry. Emphasis will be placed on molecular rotation, vibrational phenomena, chemical bonding, and inter- action between matter and light.

▣ Department of Biology Education

Introduction

The department of biology education trains students to become responsible members of society who can relay knowledge of biological sciences to middle and high school students, thereby contributing to the progress of biology education in the country. While preparing to become future teachers of biology, our students learn ways of creative thinking and gain knowledge on the study of genetics, molecular biology, animal physiology, biochemistry, developmental biology, microbiology, taxonomy, botanical physiology and ecology. Through experiments and practice, they are able to gain skills helpful in teaching the subject to middle and high school students. Through field studies, they are able to experience the issues faced by the ecosystem and hone their presentation skills through seminars. Furthermore, to support future excellent biological scientists, cutting edge research methods and biological science trends are also being taught in-depth and broadly with the best research instruments.

Credit requirements for graduation

The department curriculum has four components: major courses(66 credits), pedagogy(22 credits), liberal arts(27 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E General Biology & Lab. I (4)	1-2-E General Biology & Lab.II (4)
2-1-R Plant Systematics & Lab (4) 2-1-R Cell Biology & Lab (4) 2-1-E Theory of Life Science Education (3)	2-2-E Diversity of Animals (3) 2-2-E Biochemistry (3) 2-2-E Teaching Methods and Study on Teaching Materials in Life Science (3) 2-2-E Teaching Methods of ScienceIII (2) 2-2-E Plant Morphology (3)
3-1-R Animal Physiology (3) 3-1-R Plant Physiology (3) 3-1-E Ecology (3) 3-1-E Organic Chemistry (3) 3-1-E Searching Experiments of Animal Physiology (1) 3-1-E Searching Experiments of Ecology (1) 3-1-E Evolutionary Biology Education (3) 3-1-E Immunology (3)	3-2-R Lab. Teaching of Secondary School Biology (2) 3-2-E Animal Embryology (3) 3-2-E Molecular Biology (3) 3-2-E Animal Histology and Morphology (3) 3-2-E Marine Surveys (1) 3-2-E Plant Embryology (3)

4-1-R Microbiology (3)	4-2-E Logic and writing of Life Science (3)
4-1-R Genetics & Lab (4)	4-2-E Skills of Biotechnology (3)
4-1-E Seminar of Biology Education (1)	4-2-E Conservation Biology and Environmental Impact (3)
4-1-E Practices of Outdoor Biology (1)	4-2-E Computer in Science Education (3)
4-1-E Biotechnology (3)	

● Courses Abstract

General Biology & Lab. Ⅰ , Lab.Ⅱ

Biology is the scientific study of living organisms (humans, animals and plants) from the point of view of their structure and how they function and reproduce. The content is divided into two parts; General Biology & Lab. Ⅰ and General Biology & Lab.Ⅱ

Plant Systematics & Lab

Consideration about such principles, systems, methods and classification of plants through experiments such as morphological observation target higher plants, says a coincidence relationship of plants.

Cell Biology & Lab

Cell Biology is the study of how biological molecules account for the structure and function of cells. This lecture is a course opened for undergraduates.

Theory of Life Science Education

Primary subject for the middle and high school life science education include biology education, study activity, evaluation and teaching skills.

Diversity of Animals

Diversity of Animals is the subject to emphasized on the phylogenic development, classification, morphology. physiology of vertebrate and invertebrate.

Biochemistry

Biochemistry is the study of chemical processes within and relating to living organisms. This lecture is a course opened for undergraduates.

Teaching Methods and Study on Teaching Materials in Life Science

Learning and practicing of the middle and high school life science text books for precise conceptual analysis and effective teaching methods.

Teaching Methods of ScienceⅢ

Learning and practicing of the high school science text books for precise conceptual analysis and effective teaching methods.

Plant Morphology

It examines the external shape and anatomical features of the plant.

Animal Physiology

Animal Physiology is the scientific study of the animal normal function, including

metabolism, respiration, circulation, nutrition, secretion, response to the stimulation, regulation process in living systems.

Plant Physiology

The understanding of the response of the regulation and physiology of plants, ie photosynthesis, nutrition, growth, differentiation, and other creatures.

Ecology

Find out about the interaction between the structure and function of biological populations and organisms and the natural environment.

Organic Chemistry

Organic chemistry is a chemistry subdiscipline involving the scientific study of the structure, properties, and reactions of organic compounds and organic materials, i.e., matter in its various forms that contain carbon atoms. This lecture is a course opened for undergraduates.

Searching Experiments of Animal Physiology

Animal Physiology Searching Experiments is the experimental class to learn the animal physiology in the practical ways.

Searching Experiments of Ecology

With respect to the interaction between the structure and function of biological organisms and the natural environment and population understand the experiment.

Evolutionary Biology Education

Evolutionary Biology offers integrated studies in the disciplines of evolutionary biology including historic discoveries and their causes and results with the aspect of population genetics.

Immunology

Immunology is a branch of biomedical science that covers the study of immune systems in all organisms. This lecture is a course opened for undergraduates.

Lab. Teaching of Secondary School Biology

Practical approach of high school level of life science experimental methods and practise combined with theory and discussion.

Animal Embryology

Animal Embryology is the subject to investigate the development principle of animal and human embryos, from zygote to adult.

Molecular Biology

Theoretical and methodological understanding of modern molecular biology for primary theory and application in life.

Animal Histology and Morphology

Animal Histology and Morphology is the study of anatomical structures and physiological activities of animals. This lecture is a course opened for

undergraduates.

Marine Surveys

Experimental surveys of fields, mountains and seas to practical observation and collection of field species.

Plant Embryology

As well as the history of the plant embryology Cattle pojanang, for pojanang magnetic actors themselves, moisture, modify, endosperm, germ uncensored, Department of Experimental occur examines in depth for applications such as embryology.

Microbiology

Microbiology is the study of microscopic organisms, those being single cell, multicellular, or acellular. This lecture is a course opened for undergraduates.

Genetics & Lab

Study for classical and modern genetics theory following with experimental practice in basic molecular genetical methods and classical genetics theory.

Seminar of Biology Education

Seminar for the new topics in life science development and discovery.

Practices of Outdoor Biology

Through outdoor learning and learning how to field trials, research and observation, sampling, sample production methods on the plant.

Biotechnology

Biotechnology is the lecture for the use of living systems and organisms to develop or make products, or “any technological application that uses biological systems, living organisms or derivatives thereof, to make or modify products or processes for specific use".

Logic and writing of Life Science

An accurate and objective courses for doctors to develop a medium of communication between the reading for the correct understanding and accurate delivery of biological phenomena, between life scientists based in speaking or writing, and teachers and students.

Skills of Biotechnology

Skills of Biotechnology is the advanced class for Biotechnology which emphasizes the recently developed technique practice.

Conservation Biology and Environmental Impact

To create a book of life, nature and human harmony is the absolute will of the natural ecosystem. Based on the understanding of the structure and function of the nature of the biological grounds of lectures for specific target actions, behavior guidelines and Code of Practice do humans practice.

Computer in Science Education

Learning technical usages of computer hardware parts and structure and software application in life science education.

▣ Department of Earth Science Education

Introduction

The Department of Earth Science Education at Chungbuk National University aims to educate and train students to become a science teacher for secondary education. It offers courses of astronomy, geology, meteorology, oceanography, and science education. Established as the earth science major of the Department of Science Education in 1981, it became its own department in 2009 and admits 15 students each year. The department possesses various facilities including optical telescopes and thin section preparation machines which the students can use to learn various aspects of Earth science. It also offer many opportunities for field studies which are essential to the field.

Credit requirements for graduation

The department curriculum has four components: major courses(66 credits), pedagogy(22 credits), liberal arts(27 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E General Earth Science & Laboratory (3)	1-2-E General Earth Science & Laboratory Ⅱ (3) 1-2-E Mineralogy (3)
2-1-R Introduction to Astronomy and Practice (3) 2-1-E Earth History and Paleontology (3) 2-1-E Teaching Methods of Earth Science Education (3) 2-1-E Meteorology Observation Teaching and Practice (3) 2-1-E Earth Science & Laboratory Ⅰ (3)	2-2-R Petrology (3) 2-2-E Earth Science & Laboratory Ⅱ (3) 2-2-E Introduction to Oceanography (3) 2-2-E Observational Astronomy Teaching & Laboratory (3) 2-2-E Logic and Logical Writing in Science (3) 2-2-E Structural Geology (3)
3-1-R Theory of Science Education (3) 3-1-E Stratigraphy & Sedimentology (3) 3-1-E Celestial Mechanics (3) 3-1-E Inquiry Teaching in Dynamic Meteorology (3)	3-2-R General Astronomy & Laboratory (3) 3-2-R Geophysics (3) 3-2-R Atmospheric Science & Laboratory (3) 3-3-E Teaching Methods of Earth Science Education (3)
4-1-E Earth and Environment Science Seminar (3) 4-1-E Gaseous Nebula and Extra-galaxy (3) 4-1-E Physical Oceanography (3)	4-2-R Advanced Astronomy (3) 4-2-E Natural Disaster and Energy (3)

● Courses Abstract

Mineralogy

This course is designed to give the student a fundamental background in minerals necessary to understand mineral forming processes. The student will learn the basic principles behind crystal structures, physical and chemical properties of various minerals.

Introductory to Astronomy and Practice

The lecture firstly guides students to learn the introductory knowledge on the astronomical objects and figure out their physical characteristics. And then students are asked to apply their acquired basic knowledge to the solar system and planets to promote their skill and learning ability on the data analysis.

Earth History and Paleontology

This course will introduce to the student fossils and their use in stratigraphy and history of Earth from Precambrian to Recent.

Meteorology Observation Teaching and Practice

Meteorological measurements and analyses are required for diagnosing and predicting the spatio-temporally changing weather phenomenon, based on the knowledge of atmospheric sciences including atmospheric dynamics, atmospheric physics, cloud physics, atmospheric thermodynamics, and etc. Besides the basic atmospheric measurement technique, this class incorporates the analysis and interpretation of various weather charts representing the weather observational results. Through this class, changes in the past and realtime weather environment can be interpreted with weather charts, satellite images, radar echoes, and other suppementary diagrams.

General Earth Science & Laboratory I

As a basic course on general topics in earth science education, this course explores the basic knowledge of geology. The field of geology is designed to investigate how events in the lithosphere such as mineral, rock, earthquakes, and volcanic activities affect our lives, along with the need to develop the learning ability on field through geological survey and establish measures to deal with changes in the environment of Earth.

Petrology

A study of the mineralization of wall rocks according to the properties of them and the comparison of stability condition between ore deposit and gangue mineral

Observational Astronomy Teaching & Laboratory

Students will learn the principle of the astronomical observation with telescopes and detectors to reduce the data. Some astronomical definitions and observation skills, such as sidereal time, hour angle, astronomical coordinates, seasonal constellation, telescopic system and its structure; and CCD and detectors, will be

learned.

Introduction to Oceanography

History of Oceanography is briefly introduced and characteristics of ocean water body are examined in the aspect of physical properties, currents, waves, and etc. The mathematical equations are minimally used in this class. Chemical properties of ocean water and origin of organic ocean constituents are included in the class, along with geographical distributions and biogeochemical processes of those organic matters. Using various class materials, relationships between Earth environment and living creatures in the ocean are also introduced in view of oceanic biology.

General Earth Science & Laboratory Ⅱ

As a basic course on general topics in earth science education, this course explores the basic knowledge of astronomy and meteorology. The field of astronomy is designed to investigate features of our solar system and galaxy, as well as how to observe them through activities such as using a telescope and making astronomical observations in the field of astronomy. And the field of meteorology focuses on learning about the formation, distribution and physical properties of glaciers and appreciate the fact that the study of glaciers can be applied to the interpretation of climate change, and the relationship between climate change and hydrospheric changes caused by human activities.

Structural Geology

This course is designed to give the student back concepts of geological deformation such as fold and fault and to introduce how to draw and interpret geologic map.

Logic and Logical Writing in Science

This course is designed to investigate the contents of the statement education which is enforced through the secondary school and to develope the instructional methods

Theory of Science Education

As a basic course on general topics in science education, this course will cover the science history, Earth Science education curricula and science education assessment.

Stratigraphy & Sedimentology

The student will learn about the basic concepts of stratigraphy and sedimentology. In particular, this course will introduce various sedimentary rocks and depositional environments.

Celestial Mechanics

Astronomical parameters such light and its meaning in Astronomy, stellar

brightness and physical parameter of radius and mass will be review, at first. Celestial mechanics and physical parameters on the stellar system will be lectured.

Inquiry Teaching in Dynamic Meteorology

Understanding the structure and dynamics of the atmosphere in the Earth system is central to forecasting weather and understanding climate. This course aims to build a fundamental set of physical principles and apply them to understanding large-scale atmospheric motions. Mathematical descriptions of the atmospheric dynamics are constructed and interpreted in terms of their physical significance. This course is essential to explain a wide range of physical phenomenon in the atmosphere with the dynamical motion theory

General Astronomy & Laboratory

The course discusses the Galactic astronomy and stellar system within it. Students will be asked to attend to the problem solving session on the stellar physics, stellar atmosphere, and interstellar matter at the end of each chapter given in the lecture.

Geophysics

This course will introduce basic concepts of geophysical properties of the Earth such as seismology, gravity and magnetism

Atmospheric Science & Laboratory

This course presents an advanced survey of atmospheric properties and physical processes that determine current weather and long-term climate trends. It includes the factors affecting incoming solar radiation and outgoing terrestrial radiation in relation to the overall energy balance of the earth/atmosphere system, how the forces of motion act together to produce winds in the atmosphere, the processes related to cloud formation and precipitation including the role of atmospheric stability, the existence of general atmospheric circulation patterns such as the jet stream, trade winds, and monsoonal flow, characteristics of different air masses and describe the structure of fronts and mid-latitude cyclones, characteristics of thunderstorms and hurricanes and identify the hazardous phenomena associated with each, and how forecasts are made and the factors that determine their accuracy. The Final goal is to make students demonstrate the following knowledge of the tools and methods used by scientists to study the natural world:

Teaching Methods of Earth Science Education

This course focuses on effective method for teaching science and analysis of studying materials for earth science education, high school science, and middle school science.

Earth and Environment Science Seminar

Seminar in Geoenvironmental Sciences: As in-depth studies of geoenvironmental sciences, this course introduces background knowledge and various up-to-date methods to graduate students whose research topic is related to the field.

Gaseous Nebula and Extra-galaxy

Leaning the basic knowledge of gaseous nebula and extra-galaxies and training the personal physical abilities to solve the problems of astronomical objects other than the stars and our own Galaxy and enlarge personal understanding on them.

Physical Oceanography

This course aims to build understanding of physical conditions and physical processes within the ocean, especially the motions and physical properties of ocean waters. Physical description of the sea includes physical properties of seawater, mathematical description and interpretation of ocean waves and currents, and interpretation methods and measurements.

Advanced Astronomy

A lecture along with discussion will be given on the overall area of all astronomical fields, observations, physical properties of stars, stellar evolutions, Galactic astronomy, extra galaxies and cosmology. In addition to lecture, cooperative discussion between students regarding the preselected astronomy subjects will be encouraged to deepen and enrich their knowledge to find out most recent astronomical discovering.

Natural Disaster and Energy

Energy supporting Earth's living creatures is introduced in the physical and environmental aspects. Energy supply, pollution, climate change and finite resources of fossil fuels and uranium is also introduced to understand concept on climate change and sustainable energy including the influence of Earth changes on energy utilization.

▣ Department of Mathematics Education

Introduction

Mathematics is a study both in its own purpose and at the same time an indispensable tool for expressing and understanding ideas in natural sciences in general. The courses offered by the department are designed to develop skills in teaching secondary school students and the appreciation of mathematics. We offer mathematics education, algebra, analysis, geometry, topology, statistics and several other pedagogical subjects.

Credit requirements for graduation

The department curriculum has four components: major courses(75 credits), pedagogy(22 credits), liberal arts(27 credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Combinatorics and Graph Theory (3)	1-2-R Logic and Essay Writing in Mathematics Education (3)
	1-2-E Introduction to Analysis and Mathematics Education(3)
2-1-R Analysis I (3)	2-2-R Study on Teaching Materials and Teaching Methods in Mathematics Education(3)
2-1-R Mathematics Education (3)	
2-2-E Linear Algebra and Mathematics Education I (3)	2-2-E Differential Equation(3)
2-1-E Geometrry for Teacher I (3)	2-2-E Analysis Ⅱ(3)
2-1-E Set Theory (3)	2-2-E Mathematics Education Technology (3)
2-1-E Number Theory and School Mathematics(3)	2-2-E Linear Algebra and Mathematics Education Ⅱ (3)
	2-2-E Geometrry for Teacher Ⅱ (3)
3-1-R Algebra and School Mathematics I (3)	3-1-R Probability & Statistics I (3)
3-1-R Differential Geometry I (3)	3-1-E Algebra and School Mathematics Ⅱ (3)
3-1-R Complex Analysis I (3)	
3-1-R General Topology I (3)	3-1-E Differential Geometry Ⅱ (3)
3-1-E Functions of Several Variables (3)	3-1-E Complex Analysis Ⅱ (3)
3-1-E Topics in Mathematics Teaching Methods (3)	3-1-E General Topology Ⅱ (3)
	3-1-E Topics in Theory Teaching Methods (3)
4-1-E Real Analysis and School Mathematics (3)	4-2-E Algebra and Education (3)
4-1-E Probability & Statistics Ⅱ (3)	4-2-E Analysis and Education (3)
4-1-E History of Mathematics (3)	4-2-E Geometry and Education (3)
4-1-E Algebra for Teacher (3)	4-2-E Topology and Education (3)

● Courses Abstract

Combinatorics and Graph Theory

This subject is designed for students who wish to study various theories and efficient teaching methods for the Discrete Mathematics.

Logic and Essay Writing in Mathematics Education

We study the theories and practice of logic and essay writing of mathematics, and extend the capacity for teaching the essay writing of mathematics in the secondary school.

Introduction to Analysis and Mathematics Education

This subject provides a careful and strict development in the real number system and the real-valued function theory by using the basic technique and the sequence method.

Analysis I

This course continues the studies of technique and the sequence method begun in the prerequisite course to investigate further important properties of continuity, differentiability and integrability for the real-valued functions.

Mathematics Education

This course provides sociological, psychological and philosophical bases for learning mathematics, problem solving, assessment techniques in mathematics education, paying particular attention to the connection between theory and practice.

Linear Algebra and School MathematicsI

The education goal lies in the study to matrix and system of linear equations, inverse of matrix and determinant, vector space and linear transformation, eigenvalue and eigenvector and its applications.

Geometry for Teacher I

For the purpose of understanding the axiom-centered mathematics, we study basic mathematical logic, construction method of axiomatic system, basic history of geometry, expanding process of Euclidean geometry and projective geometry with axiomatic method.

Set Theory

In this introductory course, operations of sets, function and equivalence relations, finite and infinte sets, cardinality and its arithmetics, and axiom of choice are studied.

Number Theory and School Mathematics

Main content of education is to check up and systematize the contents relating to number theory in school mathematics and based on them to study the properties

of residue, congruence relation of polynomial, quadratic residue and continued fraction.

Study on Teaching Materials and Teaching Methods in Mathematics Education

We study topics such as analysis of mathematics curriculum and textbooks, composition of lesson plan, and teaching methods in middle or high school.

Differential Equation

This course studies the ordinary differential equations. The main topics of this course contains the concepts of differential equation, first order equations and applications, higher order differential equations and applications, etc.

Analysis Ⅱ

This course continues the further studies of the various contents of analysis begun in the prerequisite courses in order to investigate further important properties of integrability and the sequence and series for the real-valued functions.

Mathematics Education Technology

This course provides use of current computer software for mathematical explorations, mathematical investigations appropriate to the secondary school using various technology tools, development of materials for mathematics instruction enhanced by technology.

Linear Algebra and School Mathematics Ⅱ

This course is a continuation of Linear Algebra and School Mathematis Ⅰ. Based on elementary theories of matrix and linear transformation, inner product space, Gram-Schmidt orthogonal process, Cayley-Hamilton theorem, minimal polynomial are studied.

Geometry for Teacher Ⅱ

This course provides the background of teaching the junior and high school geometry. This covers plane and solid analytic geometry.

Algebra and School Mathematics Ⅰ

We define the basic concept of group structure, and study isomorphism, permutation group, cyclic group and so on. In addition, we study the basic algebraic structure, e.g. understand the concept of ring structure and study about ideal and properties of polynomial ring.

Differential Geometry Ⅰ

This course presents the basic concepts and properties of space curves and surface in Euclidean space with multi-variable calculus. Topics are moving trihedron, curvature, torsion, Frenet formula, contact theory, first and second fundamental forms.

Complex Analysis I

This course studies the various properties and applications of complex numbers and complex functions defined on the complex plane.

General Topology I

Topological spaces as a generalization of the real numbers are introduced. Main topics treated in this course include bases of a topological space, continuous functions, product spaces, metric spaces, compact spaces, and separation axioms.

Functions of Several Variables

This course studies the differentiation and integration of the functions of several variables. The main topics of this course contain the differentiation of the functions of several variables, vector-valued functions, double and triple integrals, the change of variables formula and applications of integration, integrals over paths and surfaces, Green's theorem, Stokes' theorem and Gauss' theorem.

Topics in Mathematics Teaching Methods

We study about mathematics, pedagogy, and student's mathematical learning. And we implement teaching and learning activities, including selecting worthwhile mathematical tasks and facilitating meaningful discourse.

Probability & Statistics I

This course will give a theoretical background of probability and statistics that are currently used in highschool mathematics. The following topics will be covered: distribution functions of random variables, conditional probability, independence, properties and characteristics of distribution functions including binomial distribution, limiting theorems, etc.

Algebra and School Mathematics II

Continuing on the Algebra and School mathematics I we study on abstract algebraic structure and, understand the concept of more complex structure of abelain groups, vector space, structure of fields and Galois theory and study relating application theory.

Differential Geometry II

This course is the continuation of Differential Geometry I. Topics are normal curvature, principal direction, principal curvature, Gaussian curvature, Mean curvature, geodesic curvature, geodesics, Gauss-Bonnet theorem.

Complex Analysis II

This course continues the further studies of the various properties and applications of complex analysis begun in complex analysis I in order to investigate further important theory, Cauchy's theorem and applications of its, harmonic functions.

General Topology II

This course is a continuation of General Topology I. Connected spaces, complete metric spaces and function spaces are the main subjects to study.

Topics in Theory of Mathematics Education

We study topics in psychological and philosophical bases for learning mathematics, problem solving, and assesment techniques in mathematics education, paying particular attention to the connection between theory and practice.

Real Analysis and School Mathematics

This course studies the various properties of the Lebesgue measure and Lebesgue integration. The main topics of this course contain Lebesgue measure, measurable function and its properties, Lebesgue integration, etc.

Probability & Statistics Ⅱ

This course studies the various properties of the Lebesgue measure and Lebesgue integration. The main topics of this course contain Lebesgue measure, measurable function and its properties, Lebesgue integration, etc.

History of Mathematics

We study the development of mathematical thought from ancient times to the present, paying particular attention to the contexts of mathematics curriculum.

Algebra for Teacher

We analyze the contents of algebra dealing in the middle and high school mathematics curriculum, and lectures on number theory, linear algebra and algebra which play the theoretical background.

Algebra and Education

Through Mathematic education and education curriculum various contents which we have studied, especially based on various contents of Linear Algebra, Number Theory, Modern Algebra, we study on algebra education totally e.g. analyze the algebra contents which are taught in middle-high school and develop new education contents.

Analysis and Education

This course provides the systematic studies for all subjects of analysis in the curriculum of Mathematics Education majors. The aim of this course is the students can analyze and investigate the contents of analysis in the mathematics subject in the secondary education so that students find the desirable teaching methods for analysis in the mathematics class.

Geometry and Education

The goal of this course is to provide the background of teaching school geometry and interpretation of relations between materials of school geometry and the geometry which pre-teachers learned in college.

Topology and Education

This course focuses on a comprehensive understanding of General Topology and practical training for solving diverse mathematical problems in General Topology. It provides students with a significant improvement of ability of solving and analyzing mathematical problems. It also strengthens the potential of students to deal with the middle and high school mathematics in class efficiently by experiencing varieties of good and difficult problems.

▣ Department of Physical Education

Introduction

The department aims to educate professional sportsmen and physical educationalists contributing to sports science, popularization and organization, and to a close association with broad academic fields with various demanding sports activities in the contemporary society. Under these aims, the department intends to satisfy social demands of professionalists in sport related fields in the twenty-first century training idealistic man power which posses theory, practical skill and value.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Gymnastics Ⅰ (1)	1-2-E Golf (1)
1-1-R Principle of P.E (3)	1-2-E Theory of Life-time Sports (3)
1-1-R Track and Field Ⅰ (1)	1-2-E Ski (1)
1-1-R Swimming Ⅰ (1)	1-2-E Badminton Ⅰ (1)
1-1-E Handball (1)	1-2-E Handball Ⅱ (1)
1-1-E Leisure Sports Ⅰ (1)	
2-1-R Volleyball Ⅰ (1)	2-2-R Track and Field Ⅱ (1)
2-1-R Soccer Ⅰ (1)	2-2-R Swimming Ⅱ (1)
2-1-R Gymnastics Ⅱ (1)	2-2-R BadmintonⅡ (1)
2-1-R Sports Psychology (3)	2-2-E Statistics in P.E. (3)
2-1-E Introduction to Dance (3)	2-2-E Physical Conditioning and Training (3)
2-1-E Sports Sociology (3)	2-2-E Physiology of P.E. (3)
2-1-E Water Sports (1)	2-2-E Folk Dance (1)
2-1-E Leisure SportsⅡ (1)	2-2-E VolleyballⅡSoccer Ⅱ (1)
2-1-E Logic and Discourse of Physical Education (2)	2-2-E Soccer Ⅱ (1)
	2-2-E Theory of Physical Education (3)
3-1-R Basketball Ⅰ (1)	3-2-R Health and Exercise Prescription (3)
3-1-E History of Physical Education (3)	3-2-R Measurement and Evaluation in P.E (3)
3-1-E Exercise Nutrition (3)	3-2-E School Health (3)
3-1-E Biomechanics (3)	3-2-E BasketballⅡ (1)
3-1-E Martial Art (1)	3-2-E Baseball (1)
3-1-E SwimmingⅢ (1)	3-2-E Creative Dance (1)
3-1-E Leisure SportsⅢ (1)	3-2-E Tennis Ⅰ (1)
3-1-E GymnasticsⅢ (1)	3-2-E Teaching Methods and study on Teaching Materials in Physical Education (3)
3-1-E Track and FieldⅢ (1)	
4-1-E Motor development and Aging (3)	4-2-E Sports Management and Administration (3)
4-1-E TennisⅡ (1)	

4-1-E Leisure SportsⅣ (1)	4-2-E Adapted Physical Activity (3)
4-1-E Extra Sports Ⅰ (1)	4-2-E Table tennis (1)
4-1-E Intensive course of physical education theory Ⅰ (3)	4-2-E Extra SportsⅡ (1)

● Courses Abstract

Gymnastics Ⅰ

This is a sport involving the performance of exercises requiring strength, flexibility, balance and control. To increase education skill of somersault and flow exercise for students.

Principle of P.E.

To understand nature of human activity and nature of sport as well as ideological and philosophical structures about object and principle of physical education.

Track and Field Ⅰ

To instruct appropriate short distance running, starting and hurdling methods by phases.

Swimming Ⅰ

To obtain swimming ability and skill through various swimming styles and water safety method for the safeties of oneself and others.

Handball Ⅰ

To train fundamental skill and applicable skill of handball game in order to train abilities of the game and of its instruction.

Leisure Sports Ⅰ

Leisure sports is as a quality of experience and activity of physical education as free time The purpose of leisure sport education is to increase skill of participation, cooperation, and relationship with students of humans.

Golf

To make students to be able to possess capability for instruction after understanding and obtaining principle and skill of golf swing.

Theory of Life-time Sports

The more female participants in sport under the title of 'Sport for All', the more increase of informational demands on female's health and athletic abilities. Therefore, through this subject it is offered to understand female's biological characteristics on exercise in accordance to two different genders' differences and similarities, exercise and non-menstruation, nutrition and weight control, and so forth.

Ski

To learn skiing which is an important leisure activity for contemporary cultural society by the step-by-step method through sufficient theoretical instruction and basic movements as well as to train practical and various skiing skills to accustomed to various situation.

Badminton I

It is a racquet sport played using racquets to hit a shuttlecock across a net. The purpose of badminton teaching is to increase ability of skill about basic and applied technique, such as serve and receiving skill, forehand stroke and backhand stroke.

Handball II

Learning of advanced individual basic skills and improve of the trainers's theoretical and practical qualities. Understanding how to analyze the play strategy, how to play as a team, how to coach a play and how to judge a play.

Volleyball I

To train appropriate instructing ability of volleyball, it intends to teach volleyball's fundamental technic, theories and practical skills by phases.

Soccer I

To train appropriate instructing ability of soccer, it intends to teach soccer's fundamental technic, theories and practical skills by phases.

Gymnastics II

1) Understanding of basic theory and principle. Each technique of gymnastics is based by logical and systematic science.

2) To increase of artistic gymnastics' technique. The artistic gymnastics constructs stamping of feet, roundoff in beat board skill in physical education. The significant impact skills of artistic gymnastic are stamping of feet, roundoff, and landing using suitable technique.

Sports Psychology

Teaching of exercise and function psychology, understanding of mechanism and settlement of stress.

Introduction to Dance

The subject offers to learn socio-cultural, educational and life-long educational values of dance through investigation of related literatures and to understand dance through practical dance appreciation.

Sports Sociology

As analyzing phenomenons that happen in all situations in sports side and seek rationalization of physical education, issues or problems of sports in angle of sociology lecturing theory and method which are objective and actual proof.

Water Sports

From quality training and filed practices, cultivate trainers' abilities for water sports such as Water ski which is becoming increasingly popular, and Rafting.

Leisure Sports Ⅱ

Understanding of the concept and types of leisure sports and inspire the needs. It aims to cultivate intellectuals considering their personalities, skills, cooperative spirits and personal relationships through voluntary leisure sports activity participation.

Logic and Discourse of Physical Education

This subject deals with education for fundamental rule of logical thought and discourse in conjunction with the principles of sport studies and physical education.

Track and Field II

To instruct high jump and shot put through practices by phases.

Swimming Ⅱ

Learning of the basic principles of swimming such as the history of swimming, principles, dynamics, movement and how to cope with emergency swimming injury. Also learn how to accurately swim for each swimming styles through practical learning. Also learn the basic swimming teaching method for kids and children.

Badminton Ⅱ

Learning of the basic, advanced and application technique for Sport for all. Through practice games, learn how to analyze the opponent's strategy and how to quickly act to their play. Also cultivate Sports of all expert by learning professional teaching methods and judging methods.

Statistics in P. E.

To understand appliable basic principle to apply to sports and physical education, and to be able to collect data of sports so that can do wise decision-making through analyzing collective materials.

Physical Conditioning and Training

This lecture is subject that body conditioning and training. The subject is to be lectured on physical condition and physical strength training method to maximize athletic level. This lecture also lectures on principle of training, structure and system, theory of training and furthermore, practical skill contents according to detail purpose.

Physiology of P. E.

To make students understand value and necessity of exercise physiology in this

subject. Also, to understand theories connected with effect of dissection school register reaction and adaptation phenomenon and exercise. Specially, to possess ability that can use actual training or exercise formula with mastered basic knowledge.

Folk Dance

To learn folk dances of the world and utilize them for school physical education or sport for all.

Volleyball Ⅱ

To train appropriate instructing ability of volleyball, it intends to teach volleyball's fundamental technic, theories and practical skills by phases.

Soccer Ⅱ

To train appropriate instructing ability of soccer, it intends to teach soccer's fundamental technic, theories and practical skills by phases.

Theory of Physical Education

As an educational activity, students study and research P.E practically as well as theoretically. Through this course, their quality as desirable P.E. teacher can be fostered.

Basketball Ⅰ

To train appropriate instructing ability of basketball, it intends to teach basketball's fundamental technic, theories and practical skills by phases.

History of Physical Education

Analyzing various ideologies existed in various cultural societies through centuries and the ideologies have been sources of power to move the realities. It is the lecture's intention to explore the relationship between the ideologies and sport. Especially, learn research method of cultural studies of sport and physical education in accordance to the investigated results of sporting cultural ideologies in the academic level of sports studies.

Exercise Nutrition

Learn about health, physical strength and esteemed daughter intake for capital steam power elevation.

Biomechanics

This lecture stresses on physical principles connected with motion(exercise). Also, to make students understand sports function achievement what action is safe and efficient and effective action. Specially, to make students may select particular sports function and have an opportunity that can analyze actual state with these theories.

Martial Art

This lecture makes students to understand basic actions of wrestling, boxing,

Taekwondo, and other matrial arts, and also, to lecture technics connected with actual games as well as to cultivate practical skill for fostering professionalists' quality.

Swimming Ⅲ

How to teach safety in swimming as a middle school physical education teacher. Learn basic skills through practice and learn teaching methods for advanced swimming that can teach advanced swimming and how to assist body.

Leisure SportsⅢ

Understanding of the concept and types for leisure sports and inspire the needs. It aims to cultivate intellectuals by considering the individual's personalities, skills, cooperative spirits and personal relationship through voluntary leisure sports activity participation.

Gymnastics Ⅲ

Understanding of how to teach safety around the gymnastics as a middle school physical education teacher and through practice learn the basic skills for gymnastics as well as teaching methods for advanced gymnastics skills.

Track and Field Ⅲ

It shows how to teach safety around the running as a middle school physical education teacher and through practice, learn the basic skills for running as well as teaching methods for advanced running skills.

Health and Exercise Prescription

These show how to diagnose appropriate sports that fits the purpose of doing the sports (such as to improve health and stamina, prevent adult disease etc). This module contains the overview of the sports diagnostics, basic knowledge of human anatomy, the effect of sports on human biology and psychology, diagnose of appropriate sports, adult diseases and how to work out, practical sports diagnosis.

Measurement and Evaluation in P.E

Lecture way and rating and method to analyze that measure effect of physical education and all arguments that the effect exists that become learning target of physical education. Lecture main contents are consisted of anthropometry (measurement, functional measurement form enemy), exercise ability measurement (basis motor skill, full text motor skill), social adaptation measurement (character type & characteristic, group characteristic, attitude examination), and measurement about physical education profession/liberal arts.

School Health

This lecture is aimed to make understood theory and practice about school health

service, school environment sanitation administration, school health education etc. Also, to put a target to foster active performance actively to coach students in school spot with these comprehension on health education.

Basketball Ⅱ

To train appropriate instructing ability of basketball, it intends to teach basketball's fundamental technic, theories and practical skills by phases as well as its operation and umpiring skills.

Baseball

Through theory and practical skill of baseball, learn actual fighting experience.

Creative Dance

This lecture learns method that can improve power of expression and creative mind through impromptu amusement and productive practices so that students foster applicable ability in education.

Tennis Ⅰ

Learn ability that understand principle of basic function of the tennis and apply in actual state.

Teaching Methods and study on Teaching Materials in Physical Education

The purpose of this lecture is in fostering the capability of field study and the quality as professional P.E teacher through the understanding about the contents of P.E, teaching and studying methods, and its' mission.

Motor development and Aging

It shows that human's development and the change of aging human body and psychology in relation to regular sports activity and understand the effect and role of sports on human's qualitative life. The module consists of the overview of the aging, human anatomy, the change of ability, the change of movement control ability, physical and psychological relationship and change, aged human body's ability and achievements.

Tennis Ⅱ

Learn ability that understand principle of basic function of the tennis and apply in actual state.

Leisure Sports Ⅳ

Understanding of the concept and types for leisure sports and inspire the needs. It aims to cultivate intellectuals by considering the individual's personalities, skills, cooperative spirits and personal relationship through voluntary leisure sports activity participation.

Extra Sports Ⅰ

To increase of the advanced practical skills for each individuals events such as

gymnasium, running, and swimming. Learning the accurate position and ability to cultivate all around quality for middle school teacher.

Intensive course of physical education theory Ⅰ

In preparation for physical education teacher qualification exam, conduct in depth study of the physical education - the overview, revising of the basic theory and final in-depth study.

Sports Management and Administration

The program's curriculum is interdisciplinary in nature with a strong emphasis in business, operating skill for management and administration as well as leadership for physical educationalist through case studies.

Adapted Physical Activity

The subject teaches developmental process, associated laws and various special sport of adapted physical activity and combination of those criteria to make students understand and to train practical adaptational skill through experiments.

Table tennis

Learning of the basic skills and application technique and strategy for advanced skills and teaching method, and understanding of how to serve and receive in various situations and learn how to appropriately use forehand stroke and backhand stroke at right timing.

Extra Sports Ⅱ

Advancing practical skills for ball games such as volley ball, soccer, basket ball and hand ball. Learning the accurate position and ability to cultivate all around quality for middle school teacher.

▣ Department of Food and Nutrition

Introduction

Our department aims to educate students for functioning as food and nutrition professionals and then for contributing to health and well being of the local community, the nation, and the world. We provide fundamental principles of the field of food and nutrition as well as the specialized understandings in the areas of nutritional science, food sanitation, food science, applied nutrition, and foodservice management, and functional foods.

Credit requirements for graduation

The minimum requirements for graduation are 140 credits. These are divided into three categories; liberal art requirements (a minimum of 33 credits), food and nutrition major (a minimum of 80 credits), and unrestricted electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Human Physiology(3)	1-2-R Organic Chemistry(3) 1-2-E Principles of Cookery(3)
2-1-R Basic Nutrition(3)	2-2-R Food Service Management(3)
2-1-R Food and Nutritional Analysis Lab. I (3)	2-2-E Community Nutrition(3)
2-1-R Nutritional Biochemistry(3)	2-2-E Advanced Nutrition(3)
2-1-R Practices in Cookery Principles(3)	2-2-E Public Health(3)
2-1-E Food Distribution & Purchase Management(3)	2-2-E Food Microbiology & Lab.(3)
2-1-E Food & culture(3)	2-2-E Molecular Food and Nutrition(3)
3-1-R Clinical Nutrition(3)	3-2-R Institutional Food Service Practice(3)
3-1-R Food Chemistry I (3)	3-2-R Nutritional Assessment(3)
3-1-E Nutrition Lab.(3)	3-2-E Nutritional Biochemistry Lab.(3)
3-1-E Food Sanitation(3)	3-2-E Food Chemistry II(3)
3-1-E Meal & Menu Management(3)	3-2-E Capstone Design : Diet Therapy Practice(3)
3-1-E Food and Nutritional Analysis Lab. II(3)	3-2-E Capstone Design : Food Processing·Preservation and Practice(3)
4-1-E Nutrition Education and Counseling(3)	4-2-R Dietetic Internship(3)
4-1-E Food Bioactivity(3)	4-2-E Nutrition in life Cycle(3)
4-1-E Capstone Design : Food and Nutrition Research & Practice(3)	4-2-E Marketing Strategy for Restaurant Operations(3)
4-1-E Experimental Cookery & Food Evaluation(3)	
4-1-E Jop Search in Food & Nutrition(3)	

● Courses Abstract

Human Physiology

This course introduces the structure and functions of cells, tissues, organs and organ systems with nutritional relevance.

Organic Chemistry

Organic chemistry covers elementary aspects of nomenclature, structures, and common reactions of organic compounds.

Principles of Cookery

This course is designed to provide students with an understanding of the fundamental concepts of Korean and foreign food cooking and Korean and foreign table manners.

Basic Nutrition

This course is designed to provide the student with an understanding of the fundamental concepts of human nutrition including digestion, absorption, metabolism, function and food sources of the macro nutrients (carbohydrates, lipids and protein).

Food and Nutritional Analysis Lab. I

This course introduces basic concepts, principles, and experimental procedures on analytical chemistry. Students learn basic skills in manipulating laboratory apparatus and instruments.

Nutritional Biochemistry

Nutritional Biochemistry is concerned with the chemical properties and metabolism of carbohydrates, proteins, lipids and nucleic acids, and the concepts of enzyme catalysis, enzyme regulation and hormone action.

Practices in Cookery Principles

This course is designed to provide students with an understanding of the fundamental concepts of Korean and foreign food cooking and Korean and foreign table manners. The students learn culinary techniques for preparing Korean and foreign dishes.

Food Distribution & Purchase Management

Contemporary in perspective, this lecture offers a practical, non-theoretical, approach to the all aspects of purchasing for the food service industry. Features a combination of how to purchase plus the factors needed to purchase. Provides the detail necessary to get what is desired in the various foods and services that are purchased.

Food & Culture

This lecture provides information on the health, culture, food, and nutrition habits of the most common ethnic and racial groups living in the earth. Includes comprehensive coverage of key ethnic, religious, and regional groups, including Native Americans, Europeans, Africans, Mexicans and Central Americans, South Americans, Chinese, Japanese, Koreans, Southeast Asians, Pacific Islanders, Greeks, Middle Easterners.

Food Service Management

This lecture provides students with experience in facility design; equipment selection, use, and care; job analysis and evaluation; human resources planning; management of financial resources; recipe development and volume food production; computer-assisted management; employee training; and applied safety and sanitation standards.

Community Nutrition

This course is concerned with understanding nutrition problems in a certain community, and designing nutrition services to solve the problems. Students learn how to assess, plan, implement, and evaluate nutrition service programs for a target population.

Advanced Nutrition

This course covers the fundamental concepts of human nutrition including digestion, absorption, metabolism, function, food sources, daily requirement of the micro nutrients (vitamins, macro-minerals and micro-minerals). Especially, the dynamic metabolic interrelationships among the nutrients are studied.

Public Health

This course covers the basic concepts of public health including sanitary system of facilities for providing meals in order to prevent diseases.

Food Microbiology & Lab.

This course is concerned with the nature and major grouping of food-borne microbiology, and the contamination of foods with microorganisms. Causes, symptoms and prevention of food-borne illness are focused.

Molecular Food and Nutrition

This course introduces fundamentals of molecular biology, including the molecular mechanisms of DNA replication, repair, transcription, and protein synthesis. Modern technology frequently utilized in food and nutrition industry and academic research laboratories are also introduced.

Clinical Nutrition

This course provides the role of diet in disease including diet as a factor related to prevention of disease or illness, diet as an etiologic agent in illness and diet as a treatment for disease. Specific diet therapies to treat diseases are studied.

Food Chemistry I

This course covers basic information on the composition of foods and the changes of their chemical and physical characteristics during processing and storage.

Nutrition Lab.

Basic experimental techniques for feeding trial of experimental animal (rat) are

trained in this courses. Students design their experiments to identify the role of the specific nutrients, and carry out feeding trial. After experimental period, blood and specific tissue samples of the animals are collected and analyzed for biochemical data.

Food Sanitation

This course covers the significance and control of food-borne hazards associated with pathogenic microorganisms, microbial toxins, natural toxins and environmental contaminants. Also national and international regulations to ensure the safety of food supply are examined.

Meal & Menu Management

This lecture covers how to make decisions about what to cook, where to shop, when to shop, and how much to purchase for reasonable meal management. Practical meal planning is trained by practice.

Food and Nutritional Analysis Lab.Ⅱ

This course introduces the principles behind qualitative and quantitative analyses of food components. Students learn advanced skills in manipulating laboratory apparatus and instruments.

Institutional Food Service Practice

Quantity Food Production, Planning, and Management goes beyond the mere teaching of technical skills to address the multitude of situations and challenges facing operators today. This lecture provides the standard for planning production, executing culinary technique, and understanding food and beverage management.

Nutritional Assessment

This course covers theoretical basis and practices of four nutritional assessment methods; dietary, anthropometric, biochemical and clinical method.

Nutritional Biochemistry Lab.

This course introduces essential principles and techniques on experimental biochemistry and molecular biology. Students learn how to handle data and interpret results.

Food Chemistry Ⅱ

This course covers the chemistry of main food components including the chemical and physical properties of water, proteins, lipids and carbohydrates in the context of their functional roles in foods.

Capstone Design : Diet Therapy Practice

This course covers the basic principles of therapeutic diets for patients on the basis of clinical nutrition. Dietary guidelines, diet planning and diet preparation for individual patient of obesity and weight control, diabetes mellitus, gastrointestinal diseases, liver disease, cardiovascular diseases, renal disease and

surgery are studied and practised.

Capstone Design : Food Processing and Preservation and Practice

This course covers an overview of food preservation by thermal processing, drying, freezing and fermentation. The principles of preservation by controlling microbial and enzyme activity are also studied.

Nutrition Education and Counseling

An important focus of this course is the application of nutrition knowledge to real environment. Students learn how to prepare teaching materials and develop effective nutrition communication skills through application in a variety of settings.

Food Bioactivity

This course introduces important physical and chemical properties of functional food ingredients followed by corresponding biological health effects. Safety and regulatory issues associated with functional foods are also discussed.

Capstone Design : Food and Nutrition Research & Practice

This course is designed for students to conduct research and write a research article. Students learn how to explore their interests, review research articles, and integrate their skills for doing research.

Experimental Cookery & Food Evaluation

Students in this course will study the principles of sensory evaluation of food quality such as color, flavor and texture and its application to the development of new products or recipes and quality control in the food industry. And they will have experience the basic procedure of development and evaluation of new food products or recipes.

Dietetic Internship

Dietetic Internship provides intensive field experiences in food service institutions such as elementary school, hospital, and industrial company. Students learn the role of dietitians by applying their dietetic knowledge to real environments.

Nutrition in the Life Cycle

This course covers nutritional aspects associated with each phase of the human life cycle, including pregnancy, infancy, childhood, adolescence and adulthood and elderly.

Marketing Strategy for Restaurant Operations

Excellent service is the foundation for services marketing. This lecture provides that inspired leadership, a customer-minded corporate culture, an excellent service-system design, and effective use of technology and information are crucial to superior service quality and services marketing.

▣ Department of Child Welfare

Introduction

The vision of department of Child Welfare is to reinvent child related profession through the focused employment of interdisciplinary inquiries, research, and technology. We create and advance knowledge for our students and for the profession through new modes of inquiry, research, scholarship and related intellectual activities, and national and international collaborations.

The mission of the Department of Child Welfare is to

1. Educate students for advanced child and family related practices and lifelong professional development.
2. Prepare students to serve society at the local, national and international levels.
3. Create and disseminate, through research and knowledge building, social innovations using interdisciplinary problem-solving efforts.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(33credits), a major(81credits), and electives.

Curriculum :

Yr-Sem-R/E	Course (Credit)	Yr-Sem-R/E	Course (Credit)
1-1-R	Infant Development (3)	1-2-R	Introduction to Early Childhood Education (3)
1-1-E	Introduction to Social Welfare (3)	1-2-E	Early Child Development (3)
		1-2-E	Human Behavior & Social Environment (3)
2-1-R	Family Relations (3)	2-2-R	Child Welfare (3)
2-1-E	Music Education for Young Children (3)	2-2-E	Curriculum for Early Childhood Education (3)
2-1-E	Art Education for Young Children (3)	2-2-E	Family Policy (3)
		2-2-E	Health Education for Young Children (3)
3-1-R	Child Counseling (3)	3-2-R	Research in Social Welfare (3)
3-1-R	Social Work Practice (3)	3-2-E	Play in Early Childhood (3)
3-1-R	Social Welfare Policy (3)	3-2-E	Family Counseling & Therapy (3)
3-1-E	School Social Work (3)	3-2-E	Skills & Techniques for Social Welfare Practice (3)
3-1-E	Medical Social Work (3)		

3-1-E	Introduction to Healthy Families (3)	3-2-E	Social Welfare Administration (3)
3-1-E	Principles and Application of Early Childhood Education (3)	3-2-E	Community Welfare (3)
3-1-E	Learning Materials and Teaching Methods in Early Childhood Education (3)		
3-1-E	Mathematics Education for Young Children (3)		
4-1-E	Field Practice in Child Care Centers (3)	4-2-E	Mental Health Problem (3)
4-1-E	Language Education for Young Children (3)	4-2-E	Social Welfare for the Disabled (3)
4-1-E	Social Welfare for the Elderly (3)	4-2-E	Family Life Education (3)
4-1-E	Social work Field Practicum (3)	4-2-E	Family Social Welfare(3)
4-1-E	Social Welfare & Law (3)	4-2-E	Science Education for Young Children (3)
4-1-E	Logic and Essay Writing in Young Children (1)	4-2-E	Study on Teachers for Young Children (3)

● Courses Abstract

Infant Development

This course will provide an overview of infant development based on current research from different theories. Theoretical and methodological issues in infant development research will be discussed. Additionally, the role of caregivers and teachers in infant development will be learned.

Introduction to Social Welfare

This course introduces students to basic ideologies, historical development of social welfare, and practice methods as well as various field of social welfare. Major areas of social welfare such as child welfare, welfare for the elderly, welfare for families, and other issues will be briefly discussed.

Introduction to Early Childhood Education

This course aims at understanding of the background of early childhood education, construction of various types of curriculum, and basic principles and theories in teaching methods.

Early Child Development

This course will introduce students to the basic principles of child development. Students will gain a general understanding of children, especially in the areas of physical, cognitive, and socio-emotional development, and the complicated process of growing into adults.

Human Behavior & Social Environment

This course is to provide students an integrative approach to understanding

human development across social and cultural contexts. An integrative approach gives students a multidimensional framework for assessing concerns about human behavior that can be used for services of the individuals and society along with the balancing of human development and social systems.

Family Relations

This course is to provide an understanding of contemporary family relationship in a changing society based on family theory and research findings. The primary goal of this course is to develop competence in integrating and applying substantive and theoretical knowledge in family relationships over the family life cycle.

Music Education for Young Children

This course is designed to understand theories and practices on music and movement education to enhance children's creative expression.

Art Education for Young Children

This course deals with developing creative arts expression in early childhood. Emphasis on an examination of theories and practices in arts education will be maintained throughout the course.

Child Welfare

This course will focus on biological, psychological and social challenges and changes of childhood. The prevalence, etiology and a variety of problem behaviors will be reviewed. Various human services and policies that provide treatment, and rehabilitation aimed at children in the broad context of formal and informal life course of children and youth will be addressed.

Curriculum for Early Childhood Education

This course studies the plan and management of kindergartens and child care centers goals of learning, selection and organization of content, teaching methods, and the teacher's role in various theories of early childhood education and care.

Family Policy

Main purpose of this course is to broadly understand the factors and social consequences of low fertility and population ageing as well as the intertwined relationship between unpaid care-work and paid market-work. In specific, policy tools for socializing care-work and supporting dual earner society are compared and analyzed.

Health Education for Young Children

This course is designed to acquaint students with the relationships between child's development and health and to develop skills necessary to effectively provide health guidance to children.

Child Counseling

This course is designed to help students develop approaches for putting counseling theories into practice in helping children and adolescents who are experiencing difficulties in their developmental, personal, and social growth.

Social Work Practice

This course presents foundation knowledge and skills essential to interpersonal practice while considering the community, organizational and policy contexts in which social workers practice. The student's filed experience and future practice methods courses will build upon the skills presented in this basic course.

Social Welfare Policy

Macro-level backgrounds of social welfare policies such as history, ideologies, population, and nexus between labor market and social welfare are explored in a comparative perspective. Principal differences in social insurance and social assistance programs in terms of targeting, entitlement, delivery, and funding are introduced and applied to programs in Korea. Policy-making process as well as influences of social values are also studied for improving understanding of welfare program in reality.

School Social Work

Basic concepts of social work in school, and nexus between school environment and students are provided. Practical skills and applied theories are introduced to better analyze students in the school settings and to better protect their human rights and well-being, in general. Professional values and intervention models are examined to enhance school social workers' professional capacity.

Medical Social Work

This course explores core concepts, purposes, and roles of medical social work and researchs professional knowledge and practice skills for the field crucial for boosting professional abilities of social workers in health-care and expanding their activities.

Introduction to Healthy Families

The purpose of this course is to learn basic elements of healthy family and the importance of the family in the changing society. Students may have opportunities to develop skills for collaborating with individuals, families, and other professionals to solve family problems and promote competence and well-being of families.

Principles and Application of Early Childhood Education

This course provides students with general concepts and needs for child assessment and program evaluation. The topics covered include examining and understanding the types of evaluation methods required in early childhood education as well as different characteristics displayed according to evaluation

subjects. Students will participate in actual field experiences.

Learning Materials and Teaching Methods in Early Childhood Education

This course is designed to investigate and develop various learning materials and diverse teaching methods in early childhood educational setting.

Mathematics Education for Young Children

This course explores theories of basic cognitive processes and provides students with practices of early mathematic education.

Research in Social Welfare

This course is designed to provide students with an overview of research methods commonly used in the field of social welfare. Students will be exposed to key concepts, terminology, theory, ethics, research design and data collection which are necessary for an adequate understanding of social work research. The goal of this course is to assist students to become competent and discerning consumers of professional social work research works, and improve their ability to apply the field of social work practice.

Play in Early Childhood

This course explores theories of basic cognitive processes and provides students with practices of early mathematic education.

Family Counseling & Therapy

This course is to provide practical guidance that acknowledges in breadth of family counseling and therapy while helping students to integrate common elements specific, detailed instructions on how to conduct family therapy, from initial contact, through assessment, through treatment planning, through intervention, and through final evaluation.

Skills & Techniques for Social Welfare Practice

This course is based on Practicum of Social Welfare, addresses practice methods. Various practice theories and models deal with restoration, maintenance and promotion of social functioning of individuals, families, small groups in social workers' practice will be visited.

Social Welfare Administration

It is about a policy and management for social welfare, and cultivates effective welfare problem solution on the basis of administrative relations and theories.

Community Welfare

The major purpose of this course is to provide knowledge and skills which is needed for professional intervention in communities' social problems. This course is specially of importance in the current context of decline of "a sense of community" in modern society. On the basis of understanding concept of community, models and principles of organizing community to solve various

problems are introduced. Social workers' relevant roles in different models such as community development, community planning, and community action are specified. In addition, theoretical models and approaches are applied and adapted to Korean communities.

Field Practice in Educare Center

This course is designed for the practice of developmentally appropriate educare programs. Opportunities are given to students to teach and care for infants in various levels of classes. There will be practices on providing children with optimal care, physical and social activities, lessons for language, and cognitive development.

Language Education for Young Children

This course is designed to understand children's language development, language acquisition theory, language evaluation. Application of language teaching-learning method, language integrated education, integrated language education program based on the theme.

Social Welfare for the Elderly

This course is to provide students understanding the aging process that adequately addressed the biological, psychological, and social aspects of aging. It is also important for students to understand the changes that occur within the aging individual, how these changes influence interactions with social and physical environments, and how the older person is affected by such interaction.

Social work Field Practicum

This course is intended to help students apply foundation knowledge of social work skills, values, and ethics in practice. The course consists of a field placement and a field seminar to provide a basis for generalist practice.

Social Welfare & Law

The unique aspects of social welfare law as a branch of social law is examined through historical development as well as comparison with Constitution. Similarities and differences in legal system of social Insurance, social assistance, social services are introduced. Through examining laws, students will be able to point out major weak points in social welfare laws, and obtain a broad picture of social welfare rights(or entitlement) and the structure of Korean social protection systems.

Logic and Essay Writing in Young Children

This course is designed to enhance writing skill about various subjects related to early childhood education and to foster HE teachers' professionalism through persuasive power logically.

Mental Health Problem

The goal of this course is to understand a theoretical context for mental health and to provide students an integrative framework for the perception of the self, others, the world, and the future which are essential for mental health. Emphasis is on skill acquisition and the development of effective methods of facilitating the stress and mental health problems.

Social Welfare for the Disabled

Basic characteristics of physical and psychological disability as well as service programs are studied. Major programs in income maintenance, training and employment, treatment and care, and rehabilitation will be discussed. This course also deals with issues such as social discrimination, human rights of disadvantaged.

Family Life Education

This course provide the application of theory and program models to program designs and teaching effectiveness of family life education. Students will have the opportunity to evaluate their competencies and comfort in areas of professional development, group leadership, evaluation, and program design for family life education.

Family Social Welfare

This course identifies family related issues in modern society. It introduces theories of family development and family process; family life cycle; family functioning. It also teaches methods and skills to deal with those issues and covers social institutions and services to promote healthy family.

Science Education for Young Children

This course examines theories and teaching strategies for science education for young children.

Study on Teachers for Young Children

This course is designed to provide a basic understanding of being a early childhood teacher, along with the basic attitudes, social responsibilities and ethics.

▣ Department of Fashion Design Information

Introduction

The department, through various educational activities, aims to foster experts in the field of fashion who are apt at both theory and technique, and who can lead the Korean fashion industry into the future.

The curriculum offers courses on clothing environment, clothing materials, fashion design and fashion marketing in both theory and practice. Special lectures by industry experts, visits to fashion-related companies and internships make the program more practical. Annual student exhibits, participation in competitions nationwide (illustration, fashion brand merchandise planning, textile necktie competition and recycled fashion show etc.) have shown the competence of our students who are skilled in the practice of their chosen fields. Through a network with local fashion businesses, an infrastructure for fashion information and competitiveness in the job market are also secured.

- 4 Core Capabilities: ABLE

The department, with a goal to offer competence in both theory and practice in the field of design, merchandise design, production, sales and marketing, continues to strive for improvement in its curriculum to meet the 4 core capabilities of following.

- Applicability : the ability to apply one's expert knowledge based on a comprehensive understanding
- Broad Neighbor-orientation : Fostering of experts that meet the needs of the globalized era and the local community
- Leadership : Fostering of a mindset and quality befit for a leader in the fashion industry
- Expertise : Expert knowledge and techniques to enter the field of fashion

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(45Credits), a major(111Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)

1-1-R Introduction to Textiles (3) 1-1-R Human Body & Clothing (3)	1-2-E Fashion Illustration (3) 1-2-E Consumer Psychology of Fashion (3) 1-2-E Textile Planning Practice (3)
2-1-R Fashion Marketing (3) 2-1-R Fashion Design (3) 2-1-E Digital Fashion management (3) 2-1-E Fashion & Dyeing (3) 2-1-E Clothing Construction (3)	2-2-R Fashion & Culture (3) 2-2-E Fashion Information Analysis (3) 2-2-E Fashion Product Processing (3) 2-2-E Computer Aided Textile Design (3) 2-2-E Fashion Website Planning (3)
3-1-R Clothing Comfort & Practice (3) 3-1-R Fashion Merchandising & Practice (3) 3-1-E Computer Aided Fashion Design (3) 3-1-E Tailoring (3) 3-1-E Clothing & Textiles Education (3) 3-1-E Pattern CAD (3)	3-2-R Research Method in Clothing & Textiles (3) 3-2-E Hightech Fabric Information (3) 3-2-E Fashion Retailing (3) 3-2-E Draping & Capstone Design I (3) 3-2-E Color & Fashion Styling (3) 3-2-E Teaching Method of Clothing & Textiles (3)
4-1-R Apparel Quality Evaluation (3) 4-1-E Fashion Industry Application (3) 4-1-E Technical Wear (3) 4-1-E Creative Costume & Capstone DesigⅡ (3) 4-1-E Global Fashion Industry (3) 4-1-E Fashion Research & Seminar I (2) 4-1-E Topics on Clothing & Textiles (2)	4-2-E Visual Merchandising (3) 4-2-E Fashion Product Management (3) 4-2-E Promotion Strategy (3) 4-2-E Fashion Research & SeminarⅡ (2)

● Courses Abstract

Introduction to Textiles

An introduction to scientific principle for construction and properties of fibers, yarns, fabrics, and other textile products in relation to finishing, serviceability and appearance.

Human Body & Clothing

Focuses on theory and technology of anthropometry. Human body is analyzed in terms of shape, and physiological functions.

Fashion Illustration

Development of creative skills for fashion design drawing with style, color and texture.

Consumer Psychology of Fashion

Focuses on the socio-psychological significance of clothing in understanding motivations and patterns of consumer behavior.

Textile Planning Practice

Practical aspects of the planning and developing trendy fabrics by analysis of fashion trends and their effect on textiles.

Fashion Marketing

Introduction to understanding dynamics in fashion products, consumers and market environmental factors, and theoretical and practical application to fashion marketing management.

Fashion Design

Study and application of the expression techniques and skills in fashion design based on the understanding of elements and components of design.

Digital Fashion Management

Application of fashion marketing management in designing and developing electronic commerce system based on multimedia, such as internet, mobile, digital networks.

Fashion & Dyeing

Practical application of dying principle and techniques to be utilized for textile and fashion products.

Clothing Construction

A Theoretical approach to the history of dress from ancient to the 20th century. Development of technique for pattern clothing construction and designs.

Fashion & Culture

An understanding of cultural perspective for contemporary fashion with its artistic expression of the 20th century fashion designers in the historical context.

Fashion Information Analysis

Developing technic for analyzing and forecasting fashion market information regarding fashion trend, consumer and market environments.

Fashion Product Processing

Overview of apparel production processing with emphasis on processes from production to quality management.

Computer Aided Textile Design

Application of computer-aided design and drafting skills for textile design.

Fashion Website Planning

Introduction to concept and characteristics of e-commerce, and developing a website for online fashion retailing in the maketplaces.

Clothing Comfort & Practice

An introduction to new ways to design and clothing, based on dynamic mechanism between environment-body-clothing and to explore the relationships between them.

Fashion Merchandising & Practice

Practices and applications of fashion merchandising process including marketing, merchandise mix, concept &design planning, line developing for new seasonal products or brands.

Computer Aided Fashion Design

Practices and applications of computer-aided design program for the creative fashion design planning.

Tailoring

Related to clothing construction, this course pursues completion of suit making by learning the pattern making and sewing process.

Clothing & Textiles Education

Introducing the principle of education and analyzing curriculum for clothing and textiles education.

Pattern CAD

Improving professional and practical ability for fashion Industry by practicing Flat pattern, Grading, Marking Via the application to technical design pattern CAD program.

Research Method in Clothing & Textiles

An introduction to research methods for collecting and analyzing quantitative or qualitative data in the area of clothing and textiles.

Hightech Fabric Information

An introduction to high-tech textile materials which are friendly applied to fashion fabrics.

Fashion Retailing

Developing knowledge and applications to fashion retail management by understanding retail market structure and various channels in fashion industries.

Draping & Capstone Design I

An introduction to basic draping principles and skills. Application to modelism process with variation in style, pattern and construction for creating garments.

Color & Fashion Styling

Study and application of color mixing, matching and planning for the fashion design and styling.

Teaching Method of Clothing & Textiles

Developing effective teaching methods and practical application to clothing and textiles for secondary education.

Apparel Quality Evaluation

Analysis of quality issues on the performance properties of fabrics and importance of evaluation to product development, quality control, and specifications of care requirements.

Fashion Industry Application

Supervised work experience and fields trip in fashion industries for professional development.

Technical Wear

Detailed study of functions of clothing such as body protection from hazardous environment and maximizing work efficiency. Focuses on function clothing, sports

wear, clothing for individuals with disabilities, space suit and the garment for protection from heat, cold, chemical and flame.

Creative Costume & Capstone Design Ⅱ

Developing creative clothing design via the application of various fashion themes, fabrics and techniques.

Global Fashion Industry

Overview of textiles and apparel industries with emphasis on cultural diversity of consumer and market; understanding of marketing practices in product management, distribution, branding practice from a global perspective.

Fashion Research & Seminar Ⅰ

Discussions or seminar in understanding fashion research trends based on fashion information and academic literatures domestically or internationally issued on the fashion field.

Topics on Clothing & Textiles

Understanding logical sequence for creative thinking and discussion on special topic in the clothing and textiles.

Visual Merchandising

Principles and practices in visual merchandise including product presentation planning and display techniques in fashion stores.

Fashion Product Management

Introduction to managing clothing in relation to hygienic, functional and aesthetic conditions with emphasis on specific problems concerning finishes, washes and bleaching processes for textiles and clothing.

Promotion Strategy

Understanding principle and practice in marketing communication for fashion advertising, sales promotion, and store management.

Fashion Research & Seminar Ⅱ

Advance in fashion research seminar for developing a special topic, qualitative or quantitative research application and research problem solving in the fashion field, and articulating presentation skill.

▣ Department of Housing & Interior Design

Introduction

Department of Housing and Interior Design at the Chungbuk National University has its ultimate mission to create comfortable, convenient and healthy housing environment from residents' perspective. To serve the mission, the department's faculty members provide undergraduate and graduate education and research on a wide range of topics in housing including residential and community planning, indoor environment and housing sustainability, interior design and remodeling, housing welfare and policy to improve housing quality.

As a sole housing and interior design department at universities in Chungcheong-Do and Daejeon metropolitan area, the department plays an important role to meet professional needs in the areas. After graduation, students find their careers at public and private companies and offices of housing and urban research, housing planning and design, interior design, remodeling, residential marketing, residential property management, housing inspection, housing safety, environmental assessment, kitchen and bath design, furniture design, etc.

Credit requirements for graduation

Majors(90 Credits), Liberal education(30 Credits) and general electives. Total 140 credits are required for graduation.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E History of Western Housing & Interior Design(3) 1-1-E Drawing & Modeling(3)	1-2-R Introduction to Housing Planning(3) 1-2-E Ergonomics & Design(3) 1-2-E Color & Interior Design(3) 1-2-E Social and Cultural Aspects of Housing(3) 1-2-E CAD for Housing & Interior Design(3)
2-1-R Housing Welfare(3) 2-1-E Environmental Psychology & Behavior(3) 2-1-E Computer Graphic for Design(3) 2-1-E Design Theory & Practice of Spatial Form(3) 2-1-E Housing Structure and Construction(3)	2-2-R Theory of Housing Indoor Environment(3) 2-2-R Residential Interior Design(3) 2-1-E Theory of Housing & Site Planning(3) 2-2-E Materials of Housing & Interior Design(3) 2-2-E Special-Need Population Housing(3) 2-2-E House Equipment(3)
3-1-R History of Korean Housing(3) 3-1-R Housing Sustainability(3) 3-1-R Housing Market & Policy(3) 3-1-E Furniture Design(3) 3-1-E Commercial Interior Design(3)	3-2-R Multifamily Housing Management(3) 3-2-R Indoor Environment Evaluation(3) 3-2-E Capstone Design I (3) 3-2-E Facility Space Design(3) 3-2-E Education in Home Economics(3)

3-1-E Logic & Writing in Home Economics(3)
3-1-E Detached Housing Planning(3)

4-1-R Building Remodeling & Practice(3)
4-1-E Seminar in Community Planning(3)
4-1-E Capstone Design Ⅱ: Portfolio(3)
4-1-E Global Housing Issues(3)
4-1-General Elective Internship Ⅰ(3)

4-2-E Housing Product Development & Marketing(3)
4-2-General Elective Internship Ⅱ(3)

● Courses Abstract

History of Western Housing & Interior Design

Students will learn historical trends of western interior design styles and how to apply the historical design concepts in housing and interior design. In addition, students will be equipped with enhanced communication skill for team projects.

Drawing & Modeling

Students will learn skills to handle drawing instruments, express their design ideas on blueprints, and build models utilizing diverse materials.

Introduction to Housing Planning

Students will learn basic theories on social, psychological and cultural meanings of housing and have enhanced understanding on diverse housing culture worldwide.

Ergonomics & Design

Students will understand user-oriented housing and interior design based on knowledge of design factors including human body measurement and human physical/motional/sensitive characteristics with age.

Color & Interior Design

This course is on theories and application of color and interior design. Students will learn how to apply colors in the residential and surrounding environment based on understanding of the color theories.

Social and Cultural Aspects of Housing

Utilizing housing reflected in mass-media and the United States' housing cases, students will learn social and cultural trends and factors influencing housing and have ability to analyze and understand housing forms from diverse aspects.

CAD for Housing & Interior Design

Students will learn skills to use computer-aided design (CAD) software and utilize the program in design process. Students will practice 2- and 3-dimensional drawing and presentation.

Housing Welfare

Students will learn current housing issues threatening housing welfare and discuss housing policies and programs to improve the situation.

Environmental Psychology & Behavior

This course is on theoretical concepts of human perception, cognition and behavior on the residential environment, which affect environmental satisfaction level. Varied application of human-environmental stimulus and reaction to spaces would give students ability to understand and evaluate the space design process.

Computer Graphic for Design

Students will learn computer graphic techniques and presentation skills for layout model generation and color application.

Design Theory & Practice of Spatial Form

Students will have improved design skills for abstractive organization of design elements including points, lines, plane, and volume and visual presentation through study of fundamental design theories and practices. Ultimately, students will be equipped with solid basic skills to design and create their own housing space.

Housing Structure and Construction

This course focuses on types and principles of residential buildings, structural calculation methods, and overall construction planning and process of residential and interior construction.

Theory of Housing Indoor Environment

This course focuses on housing indoor environment affecting residents' health including thermal, air, light and sound environment, in the context of environment surrounding human beings. Also, students will learn passive control systems to control healthy indoor environment.

Residential Interior Design

Students will have enhanced understanding of meaning and process of residential space design and finishing materials. Students will conduct interior design projects and create design drawings and build models on the basis of the knowledge.

Theory of Housing & Site Planning

Students will learn methods, factors and process of housing and site planning. In addition, students will learn changes of housing and site planning theories based on transition of single-family house, farm house and multifamily house in Korea.

Materials of Housing & Interior Design

Students will learn structural, exterior, and interior materials for residential planning and interior design.

Special-Need Population Housing

This course focuses on housing problems of special-need population including persons with disabilities, elderly, children, single-parent households, and homeless.

House Equipment

Students will learn principles and technical trends of house equipments serving residents sanitariness, convenience and amenity.

History of Korean Housing

This course is on historic changes in Korean traditional housing from primitive era to Joseon dynasty. Students will have enhanced knowledge on spatial transformation of Korean housing and societal influences over the time to understand current housing.

Housing Sustainability

Students will learn concept, design elements, certification systems, and community cases on housing sustainability. By doing so, students will obtain the ability of planning and design in sustainable housing projects.

Housing Market & Policy

This course is on demand and supply of housing base on population, households and housing inventory. Students will learn housing policies supporting housing needs and standards.

Furniture Design

Students will learn types, function, materials and construction of furniture influenced by eastern and western culture, and design concepts of modern furniture. Also, students will learn theories for furniture design fitting future housing culture.

Commercial Interior Design

This is an advanced course for students to combine their accumulated knowledge on space design to create commercial spaces.

Logic & Writing in Home Economics

Prerequisite for teacher trainees. Students will have enhanced skill of logically thinking and writing to prepare to teach home economics.

Detached Housing Planning

Students will plan and design a single-family house on a site, utilizing knowledge on site analysis and interior/exterior spatial design. Considerations for living space, work space and sanitary space planning will be discussed. Students will have enhanced skill to express their design idea into drawings and models.

Multifamily Housing Management

This course is on multifamily housing management system: the policy, law and industry. This course includes apartment maintenance and management, field study, and discussion.

Indoor Environment Evaluation

This course focuses on the assessment of the physical environment in and around house and community. Students will learn methods and process to evaluate indoor thermal, air, light and sound environment and make suggestions to improvement to make more comfortable and healthier indoor environment based on the assessment results.

Capstone Design I

Students will learn overall qualitative and quantitative research methodologies in housing and interior design studies. Students will have enhanced understanding on selecting research topics, literature review, problem solving, selecting a proper research method, thesis writing, and article critiques.

Facility Space Design

This course focuses on design characteristics of facilities for special-need populations including nursery facilities, child facilities, elderly facilities, and facilities for disabilities. Through design projects, students will also learn facility design process.

Education in Home Economics

Prerequisite for teacher trainees. Students will learn the historical background and objective of the home economics, and curricula in middle and high schools.

Building Remodeling & Practice

Based on cases studies, students will understand current remodeling projects and conduct their own projects to polish their application skills.

Seminar in Community Planning

Students will understand components of community-making and resident participation and resident-professional-government cooperation methods for community vitalization. On-site case study will add students practical knowledge on physical planning and program development.

Capstone Design Ⅱ : Portfolio

Students will learn techniques to organize their own design works created throughout overall curriculum in preparation for employments. The result and process in this portfolio project will used as basic frame for professional career.

Global Housing Issues

Students study current global housing issues and ongoing policies and programs related to the issues from diverse perspectives. By completing this course, students will have enhanced understanding on influences on housing problems and their impacts on human life, and role of housing professionals in overcoming the problems.

Housing Product Development & Marketing

Through analyses of recent housing market changes and trends as well as user needs and preferences, students will practice housing product development meeting current market needs.

Internship I & II

These courses are internship programs in the design companies or research institutes, providing students with opportunity to experience professional works as future housing and interior design professionals.

Department of Consumer Science

Introduction

The department studies the overall theory and practice required to form a healthy consumer culture and protect the rights and welfare of consumers. It aims to produce experts that are needed in an consumer-oriented world.

Due to rapid economic progress and technological advancement, and changes in demographics, there is a growing interest in consumers and therefore this area of research can be said to be ahead of its times.

The fields of majors within the department are categorized into finance consumers and consumer finance, consumer trends and consumer behavior, consumer information, consumer education and counseling and consumer policy. Through courses that focus on individual consumers, the household and its financial transactions, consumer trend experts including finance designers are also produced. Through courses that help protect consumer rights, experts in consumer counseling and consumer education are formed. There are also programs for those who wish to become home economy teachers in middle or high school.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(33Credits), a major(81Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Consumer Decision Making(3)	1-2-R Introduction to personal Financial Planning(3)
1-1-R Household Economics(3)	1-2-R Theory & Practice of Consumer Information Management(3)
2-1-R Planning of Retirement & Inheritance(3)	2-2-R Theory of Consumer Education(3)
2-1-E Consumer & Market(3)	2-2-R Consumer Analysis & Start-up(3)
2-1-E Consumer law & Policy(3)	2-1-E Insurance Planning & Personal Risk Management(3)
2-1-E Digital Contents & Consumer(3)	2-2-E Consumers & Media(3)
2-1-E CRM & Consumer Information(3)	2-2-E Consumer Safety(3)
2-1-E Principle of Home Economics Education(3)	2-2-E Teaching Materials and Strategies in Home Economics(3)
3-1-R Theory & Practice of Consumer Trend Analysis(3)	3-2-R Theory & Practice of Research Method in Consumer Studies(3)
3-1-E Seminar in consumer credit & counselling(3)	
3-1-E Consumer & Service(3)	3-2-E Retailing for Consumer(3)
3-1-E Consumer Counseling(3)	3-2-E Presentation in Consumer Information(3)
3-1-E Personal Asset Portfolio(3)	3-2-E Consumer & Brand(3)
	3-2-E Seminar in Financial Consumers' Protection(3)
	3-2-E Practice of the TVM(3)

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
4-1-E Consumer Analysis Seminar(3)	4-2-E Seminar Ⅱ in Consumer Studies(3)
4-1-E Seminar I in Consumer Studies(3)	4-2-E Theory & Practice of Consumer Education for the Disadvantages(3)
4-1-E Prosumer Market & Prosumerism(3)	
4-1-E Seminar in Personal Financial Planning(3)	4-2-E Behavioral Economics(3)
4-1-E Internship I (3)	4-2-E InternshipⅢ(3)
4-1-E InternshipⅡ(3)	4-2-E InternshipⅣ(3)
4-1-E Consumer&Volunteering I (1)	4-2-E Consumer&Volunteering Ⅱ(1)

● Courses Abstract

Consumer Decision Making

This course examines and analyzes the consumer decision making process based on the consumer decision making theory. By analyzing the factors affecting rational and irrational consumers' decision making, the students will develop the abilities to become rational consumers.

Household Economics

This course is an introduction to the household economics. It presents an introduction to understanding of household income, expenditure, and saving within national economy circulation, and to understanding of strategies for household economic welfare.

Introduction to personal Financial Planning

This course is an introduction to the personal finance and practice. The students will develop their abilities that would reasonably carry out the personal finance plan for each step of family life cycle by learning the principles of personal finance related such as insurance, stocks & bonds, real estate as an investment, tools, housing, annuity, tax, etc..

Theory & Practice of Consumer Information Management

This course helps enhancing the abilities of collecting the data base of the consumer related information, and the abilities of making the data base of consumer information. Further this course will give students the abilities of planning and managing of collecting consumers' opinions.

Planning of Retirement & inheritance

With the context of long life of human being, this course gives the personal financial planning tips from retirement to death. That is, this course will deal with planning of retirement and inheritance.

Consumers & Market

Market conditions surrounding the consumers always change as time flows. In order to make consumers have the abilities of adapting to market changes, this

course concentrates on the understanding of modern market conditions, solution method of consumer's problems in decision-making process, consumption culture, consumption and environment conditions, and consumption conditions in the future as main topics.

Consumer Law & Policy

This course focuses on the government policy and the laws for consumer protection such as consumer protection law, fair transaction law, installment sale law, visiting sale law, and other laws related to contract and terms and how these are related to consumer welfare.

Digital Contents & Consumers

This course is about fundamental theories of digital economy and digital commerce practices through various case studies.

CRM & Consumer Information

Students will understand what is the customer relation management(CRM) and how it can be applied for consumer-centered management.

Principles of Home Economics Education

This course is for the students who want to be a secondary teachers. And this course is the introduction of principles and practices of teaching in Home Economics subject. \

Theory of Consumer Education

This course gives how the consumers, regardless of their age, manage their lives by adapting themselves in the context of constantly changing market (consumption) and cultivate consumer's abilities that would lead the market (consumption) conditions of our society into a proper direction at the same time.

Consumer Analysis & Start-up

Based on the knowledges about digital commerce from other subjects, students will learn how pro-consumers can create and develop small business or small family business.

Insurance Planning & Personal Risk Management

It is required for people to manage their financial condition so this course aims to study insurance against unexpected economic risks such as unemployment, disease, accident, retirement.

Consumers & Media

In this course, students understand the media that is an important information and communication tool. Students understand the principles of advertisement that influences consumers' decision. It helps that students develop the desirable consumer consciousness and rational consumer ability.

Consumer Safety

This course helps students understand consumers' risk patterns and actual conditions of consumer safety. And students will learn consumer safety policies and implementation process for consumer safety in the developed countries and in Korea.

Teaching Materials and Strategies in Home Economics

This course is for the students who want to be a secondary teachers. And students will learn how they make teaching materials and use those materials for the best teaching in Home Economics.

Theory & Practice of Consumer Trend Analysis

This course promotes students' abilities to grasp consumer cultures of the certain period of time or changes of consumer culture with time by research and analyzing consumption trend in a society, and to predict future consumption culture.

Seminar in Consumer Credit and Counselling

Most households use financial products for smoothing their unbalance of income and expenditure during their life time. They, however, may have hard time for making decision by themselves for personal finance and therefore, need counseling. This subject deals with counselling skills for personal finance as a expert.

Consumer & Service

Based on the knowledge about various service products and customer services, students will learn about consumer satisfaction and service quality management.

Consumer Counseling

The students will learn vital consulting knowledge and techniques to become an expert as a consumer consultant who is a needed in private consumer organizations, public institutions for consumer protection, and the center of consumer satisfaction of companies.

Personal Asset Portfolio

This is an essential course for the personal finance specialists. Students will learn indirect or direct investment ways of real estate in details.

Theory & Practice of Research Method in Consumer Studies

The students will learn how to review and evaluate previous literatures in Consumer Studies, and research methods and practice which are proper for specific researches. This course concentrates on the types of problem solving for the researches, deciding research subject, adequacy of research, method of literature review, thesis writing, and the practice and evaluation of term papers and thesis writing.

Retailing for Consumers

Students will understand the whole process from production to consumption of goods and services. Further, students will practice at the retailing companies.

Presentation in Consumer Information

Students will learn how consumer information is prepared and presented based on the knowledge of consumer information management.

Consumer & Brand

Branding is a very important strategy that determines value of the company and the product. In this course, students will learn about the methods of consumer rational decision making by understating brand strategies of companies.

Seminar in Financial Onsumers' Protection

Due to complicated financial product, the number of people who suffer from economic loss is increasing rapidly. To realize financial consumer protection, this course amis to study the concept, necessity, and related law and to analyze actual examples. And then, there will be time to discuss and announce about solution plan and prevention measure.

Practice of the TVM

This course is for the students who want to be a secondary teachers. And students will learn how they make teaching materials and use those materials for the best teaching in Home Economics.

Consumer Analysis Seminar

Understand characteristics of consumer types by demographic, socio-economic and psychographic backgrounds in terms of consumer needs and consumption patterns and analyze marketing strategies targeting each consumer types.

Seminar in Consumer Studies Ⅰ, Ⅱ

This course examines to a great depth the social and academic issues in the fields of consumer studies. This course is aimed at cultivating abilities in survey and analysis, research analyzing, logical thought, and thesis writing and thesis reporting abilities.

Prosumer Market & Prosumerism

In this course, students understand the historical background, status, and related researches about prosumerism in this society. Based on those, students could have abilities to define future direction and solve problems for desirable prosumerism.

Seminar in Personal Financial Planning

This course focuses on the personal finance of retirement period in the family life cycle. Students will learn how the elderly can prepare will, succession to property, financial management as well.

Theory & Practice of Consumer Education for the Disadvantages

Students will learn consumer education for the disadvantages such as the elderly, children, foreigners, and handicapped in the society.

Behavioral Economics

Students will learn theoretical concepts of human behaviors in terms of human psychology. And students will learn how those concepts could work in real world by appling to various real or research cases. Further, eventually students will predicts the consumers' behaviors through their psychology.

Internship I, III

Students will do their internship during semesters in the places for consumer counseling and personal finance consults

Internship II, IV

Students will do their internship during summer and winter vacations in the places for consumer counseling and personal finance consults.

Consumer & Volunteering Ⅰ, Ⅱ

This course, which is evaluated by Pass or Fail, aims to get 1 credit by volunteering at the beautiful store, which is one of socially responsible businesses, for 30 hours every semester.

▣ Department of Pre-veterinary Medicine

Introduction

Veterinary medicine is the profession dedicated to protecting the health of both animals and people through the prevention, diagnosis, and treatment of animal disease. The Chungbuk National University College of Veterinary Medicine has the Department of Pre-veterinary Medicine (2 years, 80 plus credits) and the Department of Veterinary Medicine (4 years, 160 plus credits) courses. The Department of Pre-veterinary Medicine operates its program of study to meet the objective of completing the requirements for promotion to the College of Veterinary Medicine. In first year, students study the basic liberal education requirements to be veterinarian. In second year, students study basic science and other course to take the major subjects in DVM course. Pre-veterinary medicine curriculum is to promote the basic feature and personality for satisfy the required morality and public benefit as veterinarian. The students completed pre-veterinary medicine course are advanced on the DVM course

Credit requirements for graduation

The pre-veterinary medicine curriculum has three components: Liberal education requirements (40 credits), a mandatory (37 credits), and electives (3 credits).

Curriculum :

Yr-Sem-M-R/E Course (Credit)	Yr-Sem-M-R/E Course (Credit)
2-1-R Organic Chemistry I (3)	2-1-R Basic Biochemistry (3)
2-1-R Introduction to Nutritional Science (3)	2-1-R Introduction to Veterinary Medicine I (2)
2-1-E Bioethics and Law (3)	2-1-E Cell Biology (3)
2-1-E History of Veterinary Medicine (3)	
2-2-R Organic Chemistry II (3)	2-2-R Introduction to Veterinary Medicine II (2)
2-2-R Biostatistics and Practice (3)	2-2-R Molecular Biology (3)
2-2-E Biomedical Engineering (3)	2-2-E Animal Behavior Science (3)
2-2-E Medical English (3)	

● Courses Abstract

Organic Chemistry I

This course helps students to understand the characteristics of basic principles and scientific phenomena of organic chemistry.

Basic Biochemistry

This course helps students to understand the characteristics of complex biochemical and biological basis.

Introduction to Nutritional Science

This course learn about the processes occurring in the intake, digestion, absorption, and metabolism of nutrients. Also, this course learn the role of food and nutrients in disease prevention and health maintenance, and it will acquire the essential knowledge of basic nutrition science.

Introduction to Veterinary Medicine

This course helps students to understand the characteristics of basic knowledge and skills in veterinary medicine. This course will provide the information on the introduction of veterinary medicine, veterinary profession, veterinary basic medicine, veterinary preventive medicine and veterinary clinical medicine.

Bioethics and Law

This course was designed to provide general information on bioethics and law. This course has turned the focus in biomedical ethics to human and applied ethics on animal research. And it will learn about the latest issues of research ethics and regulation.

Cell Biology

This course helps students to understand the characteristics of basic information on the cell biology, such as microstructure, cleavage, metabolism, and function of cells. Also, this course will provide information on formation and function of cells and development process of tissue, system and organs from cells.

History of Veterinary Medicine

The field of veterinary medicine was widely expanded to not only meat industry, ocean industry, and diversification of companion animals, but also human health, environmental protection, and new drug development using biotechnology. This course will provide creativity and applied direction according to the improvement of veterinary clinics.

Organic Chemistry Ⅱ

This course find out the properties and reactions of organic compounds including various functional group as continued lecture of Organic Chemistry Ⅰ.

Biostatistics and Practice

This course helps students to understand the characteristics of multivariate analysis and frequency distribution for the interpretation of experimental results and the understanding of life phenomena.

Molecular Biology

This course introduce the recombinant DNA technology, and helps to understand the establishment of concepts and understanding of life phenomena using the

recombinant DNA technology. Also, this course will provide new knowledge about the relationship between the disease and recombinant DNA

Biomedical Engineering

This course helps students to understand the characteristics of medical devices, artificial organs, and auxiliary equipment. This course will provide information about the useful of devices to solve problems throughout the human and animals.

Animal Behavior Science

This course was designed to research the causes and outbreak of behavior, learning, inheritance through exactly observation of animal behavior. The observation of animal behavior is applied on prevention and treatment of disease as graft animal behavior and clinical diseases. Also, the observation of animal behavior can use to research of mental disease of human. Animal welfare and productivity improvement are reached through the research of relationship between animal behavior and housing environment in livestock animal.

Medical English

This course was designed to improve the understanding of clinical practice and veterinary medicine as learn the english medical terminology, and english reading and writing ability. This course will provide the describable ability the scientific contents in English as veterinarian

▣ Department of Veterinary Medicine

Introduction

The veterinary medicine is 『the medicine work together in effort to improve both human and animal health and specifically focus on animal health and welfare. 』. It covers preventive medicine and treatment on overall animals such as industrial animals(mammalia, fowls, etc.), laboratory animals(dog, mouse, rat, guinea pig, rabbit, hamster, primates, etc.), companion animals(dog, cat, etc.), fish, wild animals and insects(bee, etc.).

A veterinary college student must complete the two-year(80 credits) pre-vet course and the four-year(160 credits) undergraduate courses of veterinary medicine.

As a undergraduate student, he/she need to complete the following subjects step-by-step: Basic veterinary medicine - veterinary anatomy(comparative and neuroanatomy), veterinary histology, veterinary embriology, veterinary biotechnology, veterinary physiology, veterinary immunology, veterinary biochemistry, etc.

Preventive veterinary medicine - veterinary pathology, veterinary pharmacology, veterinary toxicology, public health science(food and environmental hygiene), veterinary microbiology(bacteriology, virology), laboratory animal medicine, veterinary infectious diseases, veterinary parasitology, etc.

Clinical veterinary medicine - veterinary internal medicine, veterinary surgery, veterinary obstetrics, veterinary clinical pathology, veterinary diagnostic Imaging, diseases of fowls, aquatic animal diseases, zoo and wildlife animal disease, veterinary jurisprudence, etc. After completing the whole courses of study, you will be qualified to take the national veterinary board hosted by the Ministry of Agriculture and Forestry.

Once you achieve the veterinary license, you will become a professional veterinarian.

Credit requirements for graduation

The department curriculum has two components: a major(160Credits), and graduation thesis.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Vet. Basic Anatomy & Lab. (4) 1-1-R Vet. Embryology & Lab. I (2)	1-2-R Vet. Virology & Lab. (3) 1-2-R Vet. Embryology & Lab. II (2)

1-1-R Vet. Physiology & Lab. Ⅰ (4)	1-2-R Vet. Comparative Anatomy& Lab. (4)
1-1-R Vet. Biochemistry & Lab. Ⅰ (4)	1-2-R Vet. Physiology & Lab. Ⅱ (4)
1-1-R Vet. Bacteriology & Lab. (3)	1-2-R Vet. Biochemistry & Lab. Ⅱ (3)
1-1-R Vet. Histology & Lab. Ⅰ (3)	1-2-R Vet. Histology & Lab. Ⅱ (3)
2-1-R Vet. Parasitology & Lab. Ⅰ (2)	2-2-R Vet. Parasitology & Lab. Ⅱ (3)
2-1-R Vet. Toxicology & Lab. Ⅰ (2)	2-2-R Vet. Toxicology & Lab. Ⅱ (2)
2-1-R Vet. Viral Infectious Disease & Lab. (3)	2-2-R Vet. Pathology & Lab. Ⅱ (4)
2-1-R Vet. Pathology & Lab. Ⅰ (4)	2-2-R Vet. Bacterial Disease & Lab. (3)
2-1-R Vet. Pharmacology & Lab. Ⅰ (3)	2-2-R Vet. Pharmacology & Lab. Ⅱ (3)
2-1-R Vet. Immunology (3)	2-2-R Lab. Animal Medicine & Lab. Ⅱ (2)
2-1-R Lab. Animal Medicine & Lab. Ⅰ (3)	2-2-R Food Hygiene & Lab. (3)
3-1-R Vet. Internal Medicine& Practice Ⅰ (4)	3-2-R Vet. Internal Medicine & PracticeⅡ (4)
3-1-R Vet. Surgery & Practice Ⅰ (4)	3-2-R Vet. Surgery & PracticeⅡ (4)
3-1-R Vet. Obstetrics & Practice Ⅰ (4)	3-2-R Vet. Obstetrics & PracticeⅡ (4)
3-1-R Vet. Laboratory Medicine & Practice Ⅰ (2)	3-2-R Vet. Laboratory Medicine& Practice Ⅱ (2)
3-1-R Vet. Radiology & Practice (2)	3-2-R Vet. Diagnostic Imaging& Practice (2)
3-1-R Vet. Aquatic Biomedicine Ⅰ (2)	3-2-R Vet. Aquatic Biomedicine Ⅱ (2)
3-1-R Avian Disease & Practice Ⅰ (2)	3-2-R Avian Disease & Practice Ⅱ (2)
4-1-R Environmental Hygiene & Lab. (3)	4-2-R Vet. Legislation & Affairs (2)
4-1-R Wild Animal Medicine & Practice (2)	4-2-R Veterinary Hospital Extern Ⅱ (3)
4-1-R Vet. Bioengineering (2)	4-2-R Zoonoses and Epidemiology (3)
4-1-R Veterinary Hospital Extern Ⅰ (1)	4-2-R Practice in Field ClinicⅡ (1)
4-1-R Practice in Field Clinic Ⅰ (1)	4-2-R Veterinary Dermatology Ⅱ (2)
4-1-R Veterinary Dermatology Ⅰ (2)	
	4-2-E Practice in Veterinary Basic Medicine Ⅱ (3)
4-1-E Practice in Veterinary Basic Medicine Ⅰ (3)	4-2-E Practice in Veterinary Preventive Medicine Ⅱ (3)
4-1-E Practice in Veterinary Preventive Medicine Ⅰ (3)	4-2-E Practice in Veterinary Clinical Medicine Ⅱ (3)
4-1-E Practice in Veterinary Clinical Medicine Ⅰ (3)	4-2-E Undergraduate Thesis in Veterinary Basic Medicine Ⅱ(6)
4-1-E Undergraduate Thesis in Veterinary Basic Medicine Ⅰ(6)	4-2-E Undergraduate Thesis in Veterinary Preventive Medicine Ⅱ(6)
4-1-E Undergraduate Thesis in Veterinary Preventive Medicine Ⅰ(6)	4-2-E Undergraduate Thesis in Veterinary Clinical Medicine Ⅱ(6)
4-1-E Undergraduate Thesis in Veterinary Clinical Medicine Ⅰ(6)	

● Courses Abstract

Vet. Basic Anatomy & Lab.

Vet. anatomy is intended to meet the needs of the veterinary student, providing first that general knowledge of mammalian structure that is indispensible to the understanding of the other basic sciences, and secondly the more detailed information that is directly applicable to the practice of veterinary medicine. The objective of this lecture is to get an anatomical knowledge about the cadaver specimen of dog through dissection, palpation and observation with the naked eyes.

Vet. Embryology & Lab. I

Science and experimental study of localizing early development of mammals (in particular livestock, man and laboratory animal(s) based on germ cell derived from reproductive organs.

The aim of this lecture is to understand the fundamental information of physiology and systemic anatomy as well as obstetrics, histology, pathology and the teratology in the veterinary medicine.

Vet. Physiology & Lab. I

Veterinary physiology is the study dealing with the normal function and regulation mechanism(s) of the animal body; it basically aims to understand principal living phenomena of an individual through the actual experimental approach on a variety of physiological events of the body including its various molecules in cells and organ systems, and the inter-relationships among them.

In brief, the scope of this curriculum refers to the followings; its major subjects are composed of "General Physiology, Hematology, Cardiovascular & Circulatory System, Respiration System etc."

Vet. Biochemistry & Lab. I

Lecture and laboratory exercise. Amino and nucleic acid metabolism, protein synthesis of genetic information, structure and function of electron carriers, enzymes, vitamins and their metabolism in the body.

Vet. Bacteriology & Lab.

Veterinary bacteriology is a science that studies about classification, structure, growth, metabolism, occurrence of disease, antibiotics, disinfection and sterilization of bacteria causing infectious disease in domestic animals.

Vet. Histology & Lab. I

Science and experimental study of localizing cell constituents in tissue sections based on biochemical reactions.

The aim of this lecture is to understand functional and biological mechanism of organ, cell, and tissue in the animals.

Vet. Virology & Lab.

Lectures on principles of animal virology with emphasis on viral genetics and replication, relationship with host, viral immunity and diagnosis.

Vet. Embryology & Lab.Ⅱ

Science and experimental study of localizing system, organ development and tissue differentiation based on the fundamental developmental knowledge of mammals and avian. Observation the tissue differentiation and organization by the developmental period, the aim of this lecture is to understand the post-implantation process of development.

Vet. Comparative Anatomy& Lab.

Vet. anatomy is intended to meet the needs of the veterinary student, providing first that general knowledge of mammalian structure that is indispensible to the understanding of the other basic sciences, and secondly the more detailed

information that is directly applicable to the practice of veterinary medicine. The objective of this lecture is to get a clear understanding about the comparative anatomical structure of the major domestic species such as horse, ox, pig, dog, cat, goat, chicken, etc.

Vet. Physiology & Lab. Ⅱ

Veterinary physiology is the study dealing with the normal function and regulation mechanism(s) of the animal body; it basically aims to understand principal living phenomena of an individual through the actual experimental approach on a variety of physiological events of the body including its various molecules in cells and organ systems, and the inter-relationships among them.

In brief, the scope of this curriculum refers to the followings; its major subjects are composed of "Digestive System, Renal System, Endocrine System, Reproductive System, Neuromuscular System, etc."

Vet. Biochemistry & Lab. Ⅱ

Continuation of Vet. Biochemistry I

Lecture and laboratory exercise. Structure and metabolism of carbohydrates, lipid and nitrogen. membrane, chemistry and function of hormones, digestion, acid and base balance. Clinical significance in veterinary practice. Comparative metabolism of domestic animals.

Vet. Histology & Lab. Ⅱ

Science and experimental study of localizing cell constituents in tissue sections based on biochemical reactions. The aim of this lecture is to fully understand the function of micro organism and intra cellular structure of each organs and learn the general mechanism.

Vet. Parasitology & Lab. Ⅰ

The target of Veterinary Parasitology and Laboratory work I, as Doctor of Veterinary Medicine, is to acquire the techniques of treatment and control against the veterinary important protozoa and arthropods and to lecture the morphology, infection routes and life-cycle of these protozoa and arthropods.

Vet. Toxicology & Lab. Ⅰ

Scientific and experimental studies on the toxicity of drugs, environmental pollutants, pesticides, and plant and animal toxins as well as the response of bodies. The aim of this lecture is to provide students with capability for the risk assessment of medicines and the protection against environmental biohazards.

Vet. Viral Infectious Disease & Lab.

Lectures on pathogenesis, epidemiology, clinical signs, diagnosis, treatment and prevention against viral infectious diseases.

Vet. Pathology & Lab. Ⅰ

The students are introduced to understand the basic concepts of etiology, pathogenesis and pathological results of general diseases occurring in animals.

Vet. Pharmacology & Lab. Ⅰ

Pharmacology is the study of the effects of chemical substances on the function of biological system in disease therapy. The aim of this subject is to understand pharmacological reaction and mechanism of drugs acting in peripheral and central nervous system, through lecture and experiments

.Vet. Immunology

Lectures on general concepts of immunology with emphasis on cells/organs involved in immune system, antigen-antibody reaction, activation of immune cells and regulation of immune responses.

Lab. Animal Medicine & Lab. Ⅰ

It lectures a heredity, breeding, comparative biology, propagation, hygienics, laboratory animal management and treatments of the Laboratory animals which are called 'living reagent' Also it introduces the methods of toxicity experiments of new drugs, foods, cosmetics and chemical substances etc.. and gives a good grounding that is important in research of Bio-science which uses the laboratory animals.

Vet. Parasitology & Lab. Ⅱ

The target of Veterinary Parasitology and Laboratory work II is to acquire the basic knowledge of the morphology, infection routes, pathogenesis and life-cycle of internal parasites(helminthes ; Nematodes, Trematodes, Cestodes) and to train the ability of treatment and control against these helminthes.

Vet. Toxicology & Lab. Ⅱ

Scientific and experimental studies on the diagnosis and emergency treatment of casualties from adverse-effects of drugs, environmental contamination, pesticides poisoning, and intoxication of plant and animal toxins. The aim of this lecture is to provide students with capability for the detection of biohazards, performance of countermeasures and management of casualties, and thereby enhance public health.

Vet. Pathology & Lab. Ⅱ

The students are introduced to understand the special features of etiology, pathogenesis and pathological results for diagnosis of special diseases classified organs or systems.

Vet. Bacterial Disease & Lab.

Veterinary bacterial infectious disease is a science that research about etiology, occurrence, clinical signs, gross lesion, prevention and diagnosis of important animal infectious disease.

Vet. Pharmacology & Lab. Ⅱ

The aim of this subject is to understand pharmacological reaction and mechanism of drugs acting in digestive, cardiovascular, respiratory and urinary system, and modulating autacoids and hormones and chemotherapeutics, through lecture and experiments.

Lab. Animal Medicine & Lab. Ⅱ

It is the safety and effectiveness evaluation using the laboratory animal that is the base of the bio-industry which produces the product necessary to the health improvements, disease prevention, disease diagnoses and a disease treatment of the mankind, using the function and information of living things. Consequently, this lecture gives the fundamentals of the nutrition and feed, disease and hygiene, the facility and work of breeding management and animal experiment which is involved in the details of laboratory animal called the 'living reagent', therefore, you can acquire the knowledge and experimental techniques of bio-science research and the evaluation of safety and effectiveness of medicines.

Food Hygiene & Lab.

Lecture and Laboratory practice for veterinary public health including food poisoning, food contaminants, slaughter inspection, animal food hygiene, etc.

Vet. Internal Medicine& Practice I

This lecture will be focused on the basic understanding in a variety of diseases including respiratory, cardiovascular, gastrointestinal, endocrine, metabolic, renal, hematological, toxicological, nutritional, neoplstic, dermal, parasitic, nervous system and immunological diseases in the field of veterinary internal medicine.

Vet. Surgery & Practice I

This lecture provides a basic outline and introduction to clinical inflammation, wound healing and therapy in animals for veterinary students.

Vet. Obstetrics & Practice I

Lecture and practice on pregnancy diagnosis and delivery in domestic and pet animals as well as etiology, clinical sign, treatment and prevention about reproductive disturbances in both male and female animals.

Vet. Laboratory Medicine & Practice I

Lectures and laboratory sessions will provide instruction in the theory and practice of laboratory examination for determination and treatment of disease and animal experiment.

Vet. Radiology & Practice

Introduction to physical property of X-ray, x-ray contrast study, biologic reaction of radioactivity, film reading etc.

Vet. Aquatic Biomedicine Ⅰ

Aquatic animals are maintained, bred and provided for th purpose of research, aquaculture, and environment. It is necessary to control aquatic animals with profound knowledge of veterinary medicine for the animal welfare and reliable researches. The aim of this lecture is to understand anatomy and histology of aquatic animals, aquaculture techniques, and diagnostic methods of fish bacterial and viral pathogens.

Avian Disease & Practice Ⅰ

This course will provide etiology, epidemiology, laboratory diagnosis, regulatory control and preventive medicine aspects of the viral infectious diseases of poultry.

Vet. Internal Medicine & Practice Ⅱ

This lecture will be mainly focused on the diagnosis and treatment of diseases including respiratory, cardiovascular, gastrointestinal, endocrine, renal, hematological, neoplstic, infectious, nervous system and immunological diseases in the field of small animal internal medicine.

Vet. Surgery & Practice Ⅱ

This lecture provides a basic outline and introduction to veterinary surgery of respiratory, digestive, urogenital, locomotive, sensory, and skin diseases in animals.

Vet. Obstetrics & Practice Ⅱ

Lecture and practice on reproductive physiology and obstetrics including endocrine system related to pregnancy and parturition, embryonic and fetal development, and caring of dam and new born.

Vet. Laboratory Medicine& Practice Ⅱ

Lectures and laboratory sessions will provide instruction in the theory and practice of laboratory examination for determination and treatment of disease and animal experiment.

Vet. Diagnostic Imaging& Practice

Clinical application of survey radiography, ultrasonography, computed tomography, magnetic resonance imaging in small animal practice will be taugh

Vet. Aquatic Biomedicine Ⅱ

Aquatic animals are maintained, bred and provided for th purpose of research, aquaculture, and environment. It is necessary to control aquatic animals with profound knowledge of veterinary medicine for the animal welfare and reliable researches. The aim of this lecture is to understand viral, bacterial, fungal, parasitic, toxic, and environmental diseases of aquatic animals.

Avian Disease & Practice Ⅱ

This course will provide etiology, epidemiology, laboratory diagnosis, regulatory control and preventive medicine aspects of the bacterial infectious diseases and

nutritional disease of poultry.

Environmental Hygiene & Lab.

Lecture and Laboratory practice for veterinary public health including epidemiology, zoonosis, environmental hygiene, safety evaluation, etc.

Wild Animal Medicine & Practice

Lectures and practice will provide instruction in control, diagnosis, treatment, and prevention of wild animal disease.

Vet. Bioengineering

With the accumulation of knowledge and increased experience with modern molecular biological techniques, the aim of this lecture is to understand the fundamental knowledge and applications of veterinary biotechnology.

Veterinary Hospital Extern I

Characteristics of clinic course with an emphasis on practical training for students who complete third grade of regular course. The students will learn how to diagnose, treat and assess the disease of the patients. Clinical rotation is mandatory. Each rotation will be supervised by a chief of each section.

Practice in Field Clinic I

Supervised clinical field work in the university hospital for animals. Students can participate in clinical rotation and learn empirical study and practice in various fields. It is kinds of full time system, thus this lecture begins on every vacation.

Veterinary Dermatology I

Veterinary dermatology is one of clinical subjects and deals with diagnosis, therapy, and prevention of various skin problems in animals. In this subject, veterinary students will study basic knowledge and practical exercise which are needed for diagnosis and treatment of skin diseases. More specifically, basic knowledge about structure, function, and physiology of normal skin, definition of lesions and symptoms, specific diagnostic methods, and therapeutic drugs will be provided. Based on this, students will study pathophysiology, clinical signs, diagnosis, and treatment of inflammatory, hypersensitive, autoimmune, congenital, seborrheic and keratinized, and neoplastic disorders.

Practice in Veterinary Basic Medicine I

The aim of this lecture is to understand laboratory concept and method of the fundamental study where becomes the foundation in clinical application as the clinical veterinarian and the veterinary science researcher after graduate.

Practice in Veterinary Preventive Medicine I

The students are trained to present seminar on recent scientific information, to perform various experimental works on infectious diseases, and thereafter to describe the final reports for graduation.

Practice in Veterinary Clinical Medicine I

This lecture is designed to give students practical experience and new technology in the fields of veterinary medicine, science and industry. And the goal of this lecture is to provide students with ability to adapt themselves to the various fields immediately after graduation. Each student belongs to each department of his/her academic adviser. The students will carry out some experiments in the lab, as well as they will participate in clinical practice. Finally, the graduation thesis(including case report) will be written under the supervision of adviser.

Undergraduate Thesis in Veterinary Basic Medicine I

Guide the procedures of experimental design, performing experiment, result derivation and result analysis for write paper of Veterinary Basic Medicine field, to make a graduation thesis.

Undergraduate Thesis in Veterinary Preventive Medicine I

Guide the procedures of experimental design, performing experiment, result derivation and result analysis for write paper of Veterinary Preventive Medicine field, to make a graduation thesis.

Undergraduate Thesis in Veterinary Clinical Medicine I

Guide the procedures of experimental design, performing experiment, result derivation and result analysis for write paper of Veterinary Clinical Medicine field, to make a graduation thesis.

Vet. Legislation & Affairs

The lecture deal with veterinary medical and animal governmental law including principle of sanitary control for livestock products.

Veterinary Hospital Extern II

Characteristics of clinic course with an emphasis on practical training for students who complete third grade of regular course. The students will learn how to diagnose, treat and assess the disease of the patients. Clinical rotation is mandatory. Each rotation will be supervised by a chief of each section.

Zoonoses and Epidemiology

This subject is to instruct the characteristics and prevention of zoonoses that are diseases occurring in both animals and humans. In addition, this subject is to teach the knowledgement and methodology of epidemiology for occurrence of zoonoses.

Practice in Field Clinic II

Supervised clinical field work in the university hospital for animals. Students can participate in clinical rotation and learn empirical study and practice in various fields. It is kinds of full time system, thus this lecture begins on every vacation.

Veterinary Dermatology II

In this subject, veterinary students will study pathophysiology, clinical signs, diagnosis, and treatment of ear and claw diseases as well as skin disorders related with neurologic, alopecic, neoplastic, and behavioral problems. More specifically, basic knowledge about the structure, function, physiology of ear, vestibule, and neurologic system, and the specific diagnostics and therapeutic drugs will be provided.

Practice in Veterinary Basic Medicine Ⅱ

The aim of this lecture is to understand laboratory concept and method of the fundamental study where becomes the foundation in clinical application as the clinical veterinarian and the veterinary science researcher after graduate.

Practice in Veterinary Preventive Medicine Ⅱ

The students are trained to present seminar on recent scientific information, to perform various experimental works on infectious diseases, and thereafter to describe the final reports for graduation.

Practice in Veterinary Clinical Medicine Ⅱ

This lecture is designed to give students practical experience and new technology in the fields of veterinary medicine, science and industry. And the goal of this lecture is to provide students with ability to adapt themselves to the various fields immediately after graduation. Each student belongs to each department of his/her academic adviser. The students will carry out some experiments in the lab, as well as they will participate in clinical practice. Finally, the graduation thesis(including case report) will be written under the supervision of adviser.

Undergraduate Thesis in Veterinary Basic Medicine Ⅱ

Guide the procedures of experimental design, performing experiment, result derivation and result analysis for write paper of Veterinary Basic Medicine field, to make a graduation thesis.

Undergraduate Thesis in Veterinary Preventive Medicine Ⅱ

Guide the procedures of experimental design, performing experiment, result derivation and result analysis for write paper of Veterinary Preventive Medicine field, to make a graduation thesis.

Undergraduate Thesis in Veterinary Clinical Medicine Ⅱ

Guide the procedures of experimental design, performing experiment, result derivation and result analysis for write paper of Veterinary Clinical Medicine field, to make a graduation thesis.

▣ Department of Pharmacy

Introduction

The department aims to foster talented individual with expert knowledge on drug discovery and development, the production of pharmaceuticals, and clinical application through a systematic curriculum. It also aims to foster leadership to improve national healthcare.

Credit requirements for graduation

The department curriculum has required major courses (64 credits) and major selection (96 credits).

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Pharmaceutical Physics I (2) 3-1-R Pharmaceutical Analysis I (3) 3-1-R Pharmacognosy I (3) 3-1-R Pharmaceutical Biochemistry I (3) 3-1-R Industrial Pharmaceutics (3) 3-1-E Introduction to Pharmacy (2) 3-1-E Human Anatomy and Physiology I (2) 3-1-E Environmental Chemistry (2) 3-1-E Prevention of Drug Abuse (2)	3-2-R Pharmaceutical Physics Ⅱ (2) 3-2-R Pharmaceutical Analysis Ⅱ (2) 3-2-R Pharmacognosy Ⅱ (3) 3-2-R Pharmaceutical Biochemistry Ⅱ (3) 3-2-E Human Anatomy and Physiology Ⅱ (2) 3-2-E Pharmacy Management (2) 3-2-E Medicinal Plants (2) 3-2-E Drug Information (2)
4-1-R Pharmaceutical Microbiology I (2) 4-1-R Organic Pharmaceutical Manufacturing Chemistry I (2) 4-1-R Pharmacology I (3) 4-1-R Laboratory in Drug Resources (1) 4-1-E Molecular Biology (3) 4-1-E Public Health (2) 4-1-E Pathophysiology I (2) 4-1-E Medicinal Natural Products (2) 4-1-E Endocrinology (2)	4-2-R Pharmaceutical Microbiology Ⅱ (3) 4-2-R Organic Pharmaceutical Manufacturing Chemistry Ⅱ (3) 4-2-R Pharmacology Ⅱ (2) 4-2-R Laboratory in Biological Pharmacy (1) 4-2-E Toxicology (3) 4-2-E Pathophysiology Ⅱ (2) 4-2-E Genetic Disease (2) 4-2-E Metabolic Regulation (2) 4-2-E Natural Products Chemistry (2) 4-2-E Development of Natural Resources (3)
5-1-R Pharmaceutics I (3) 5-1-R Therapeutics I (3) 5-1-R Preventive Pharmacy I (3) 5-1-R Laboratory in Drug Action (1) 5-1-E Pharmacotherapy I (2) 5-1-E Herbal Medicinal Formula (3) 5-1-E Drug Metabolism (2) 5-1-E Pharmacogenomic (2) 5-1-E Preparation for Prescriptions and Dispensing (2)	5-2-R Pharmaceutics Ⅱ (2) 5-2-R Therapeutics Ⅱ (3) 5-2-R Preventive Pharmacy Ⅱ (3) 5-2-R Laboratory in Pharmaceutics and Pharmaceutical Analysis (1) 5-2-E Pharmacotherapy Ⅱ (2) 5-2-E Laws and Ethics in Health and Medicine (3) 5-2-E Drug Development (2) 5-2-E Forensic Science (2) 5-2-E Human Hormone (2)
6-1-E Introduction to Pharmacy Practice (2)	6-2-R Pharmacy Capstone Design (3)

6-1-E Pharmacy Practice Ⅰ (18)	6-2-E Advanced Phamacy Practice Ⅰ (7)
6-1-E Pharmacy Practice Ⅱ (18)	6-2-E Advanced Phamacy Practice Ⅱ (7)
	6-2-E Advanced Phamacy Practice Ⅱ (7)

● Courses Abstract

Pharmaceutical Physics Ⅰ · Ⅱ

This lecture is associated with the area of pharmacy that dealt with the quantitative and theoretical principle of science as they applied to the practice of pharmacy such as the solubility, stability, absorption and action of chemical and biomacromolecular drugs.

Pharmaceutical Analysis Ⅰ · Ⅱ

This course will cover the basic principles of analytical chemistry including acid-base equilibria, solubility, the principle and applications of titrimetric analyses, gravimetric analysis, basic theory of electroanalysis. And it will cover the priciples and applications of instrumental analysis including chromatography, spectroscopic analysis, data treatments and sample pre-treatments.

Pharmacognosy Ⅰ · Ⅱ

This course will focus on the all aspects of natural products used as the pahrmaceuticals derived from plant, animals, microbes, and mineral origins. The chemistry, biosynthesis, and pharmacological activities of secondary metabolites will be covered. This course will also cover their sources, history, chemical and biological nature, extraction and purification, identification, including medicinal and pharmaceutical uses, or other uses.

Pharmaceutical Biochemistry Ⅰ · Ⅱ

Pharmaceutical biochemistry course will discuss the chemical basis of all life forms, and proceed to investigate the structure/function relationships of all the major biomolecule (proteins, carbohydrates, lipid, and nucleic acid) and their building blocks. It will be discussed the synthesis and metabolism of biomolecules and the related human disease.

Industrial Pharmaceutics

To educate the overall process in pharmaceutical industry, the course covers the understanding on the development, production, and marketing of the pharmaceutical products from the industrial viewpoint.

Human Anatomy and Physiology Ⅰ · Ⅱ

Human Anatomy and Physiology is to help students learn about the anatomical structures of the body and their functions. The lecture will be presented about the physiological functions of the body which is divided by each organ, the functional relationships between the tissues and organs, and the maintenance of

homeostasis between the levels of cells, tissues, organs and body systems.

Environment Chemistry

The importance of environment and health will be recognized, and the general knowledge of environment will be given by the lecture of environmental chemistry.

The environmental chemistry contains the environment and human; environmental pollution and preservation; status and movement of environmental pollution in Korea; air pollution and management; water pollution and management; waste management; environmental preservation policy.

Prevention of Drug Abuse

Drug abuse generally refers to chronic, excessive use of a drug, such that physical or other personal harm is very likely to occur. Drugs are abused because they cause strong feeling of euphoria or alter perception. However, repetitive exposure induces widespread adaptive changes in the brain. Drug abuse places an enormous burden in the world. harming health, family life, the economy, and public society, and threatening many other aspects of life. This will offer a holistic approach to planning and implementing drug abuse prevention.

Introduction to Pharmacy

This course provides an introduction to pharmacy and various fields of modern pharmaceutical practice. This course also cover the broad definition of pharmacy and discussion of the many areas of specialization which fall within the definition.

Pharmacy Management

The purpose of this course is improvement of the pharmacist's role and services for the community. It covers pharmacist's knowledges and attitude on the management of the drug store, and rule and laws about Korean pharmacy affairs.

Medicinal Plants

Lectures about recent technology related to application of medicinal plant will be given. In addition, medicinal plants are divided into family and the characteristics of each family and plant, such as external features, constituents, effects and uses will be also lectured.

Drug Information

This course is designed as an introduction to Drug Information Services, relevant resources used to provide informations, and associated professional responsibilities. In addition, the course will include information on study designes, biostatistics, and clinical literature evaluation. The application of timely and rigorously analyzed healthcare literature is essential to formulating and implementing drug therapy policy and decisions. This course will assist in developing skills needed to retrieve relevant literature, evaluate the merits of findings in the literature, and then

applying those found to be scientifically sound to the clinical management of patients. Drug Information class provide that pharmacy students learn various drug information knowledge such as journal review, communication skill for medical related questions with drug information services. Drug information service is to advance pharmaceutical care by providing timely, concise, thorough, patient-specific, and evidence-based responses to healthcare professionals' drug information requests. This course will provide students can handle a vast array of medical information questions pertaining to the safe and effective use of prescription and over-the-counter medications after completion of this course.

Pharmaceutical Microbiology Ⅰ· Ⅱ

This course will cover the essential knowledge of pathogenic microorganisms for pharmacists and microbes used to produce antibiotics and physiologically active constituents. The overall objective of this course is to promote an understanding of the pathophysiology of microbial infection and the use of anti-microbial agents. The program is mainly composed of multidisciplinary topics and lectures. Specific target areas include genetics and physiology of microbes, anti-microbial drug discovery and usage, pathophysiology of viral infection, vaccine, and understanding of immune system.

Organic Pharmaceutical Manufacturing Chemistry Ⅰ· Ⅱ

Based on fundamental organic reactions, this course covers the synthesis of drugs including global Top 100 pharmaceuticals, historically important compounds, and their structure-activity relationships.

Pharmacology Ⅰ· Ⅱ

The course concerns the study of general principles and mechanisms of drug action, and principles that influence drug absorption, distribution, metabolism and excretion. The clinical application, adverse effects and structure activity relationship will be also provided. This course will also address the rationale for their use as therapeutic agents on autonomic and central nervous system, and on cardiovascular, renal, endocrine and immune systems in addition to the pharmacology of antibiotic, chemotherapeutic and vitamins.

Laboratory in Drug Resources

This is an introductory undergraduate level course in Drug Resources and will provide a survey of target identification, hit compound findings from synthetic/natural compounds. By the end of this course, students will have a general understanding and working knowledge of how to use Drug Resources.

Molecular Biology

Lecture on molecular property of genetic materials, transcription and translation of the genetic information, and the control of these processes.

Public Health

A study of epidemiology, disease control and management, public health care, and population statistics. This course will focus on the disease prevention for establishing the healthy society and maintaining the improved life quality.

Pathophysiology I

Pathophysiology I is the scientific study of disease. It is concerned with the causes and mechanisms by which disease is approached, which diseases are produce, with the descriptions of the manifestations of disease and with its progress and sequals. It is therefore one of the important sciences on which the practice of clinical medicine and surgery is based. Students will understand the disease and ultimately learn how to use drugs to the patients.

Pathophysiology II

Students acquire more understanding of the pathophysiological processes involved from the basic understandings or theological concepts of pathophysiology. It is concerned with the causes and mechanisms by which 10 major diseases are produced, with the descriptions of the manifestations of disease and with its progress and sequels.

Medicinal Natural Products

This course will provide informative and scientific basis for the use of natural products in pharmacy and also describe the main characteristics of phytomedicines and neutraceuticals. The active compounds of natural products of medicinal use, its significance, therapeutic and pharmaceutical values will also be emphasized.

Endocrinology

Endocrinology course will provide comprehensive coverage of the fundamental concepts of hormone biological action. Two topics have been revised and edited to enhance clarify and understanding: first, the description of the salient features of specific hormone systems and of their target organs; and second, how these systems are integrated in maintaining homeostasis.

Laboratory in Biological Pharmacy

This course will provide the fundamental concepts of the basic technologies, which are used in biochemical, molecular biology, microbiological, and immunological assay.

Toxicology

The course concerns the study of adverse effects of chemical substances. This course includes toxicology in drug evaluation, metabolism, toxic mechanisms, organ and non-organ toxicology, environmental toxicology and risk assessment. The toxicology of medicine, environmental pollutants, and industrial toxic

substances will also be discussed.

Genetic Disease

Lecture on the basic principle of gene manipulation to understand the characteristics of biological drug and the major mutations of genetic disorder.

Metabolic Regulation

The aims of this course are to provide an understanding of: the fundamental molecular mechanisms of metabolic regulation; how the major pathways of energy metabolism are regulated in terms of the underlying molecular mechanisms; how whole body metabolism, i.e. the flow of metabolites within and between different organs of the body, is regulated in normal and disease states.

Natural Products Chemistry

This course will cover a comprehensive consideration of the chemistry and biosynthetic pathways of secondary metabolites derived from natural products such as carbohydrate, fatty acids and polyketides, aromatic compounds, terpenoids, steroids, alkaloids, and other related compounds. The course will also covered the methods of separation, purification, and identification of various classes of secondary metabolites.

Development of Natural Resources

Lectures of basic and applied information about natural resource in development of herbal medicine will be given. This course will provide the definition, strength/weakness, development process and analytical method/quality control related to herbal medicine. From a point of practical view, recent cases in development of medicine using natural resources will be also introduced and discussed based on scientific basis.

Pharmaceutics I · II

The purpose of this lectures is to introduce pharmacy students to the principles and technologies applied in the preparation of pharmaceutical dosage forms and drug delivery systems.

Therapeutics I

Therapeutics I provides the knowledges of treatment of disease through the administration of drugs. As such, it is considered part of the larger category of therapy. Pharmacists are experts in pharmacotherapy and are responsible for ensuring the safe, appropriate, and economical use of medicines. Therefore, pharmacy student must learn that the skills required to function as pharmacist require knowledge, training and experience in biomedical, pharmaceutical and clinical sciences after this course. As pharmacotherapy specialists in the future, student must learn that pharmacist have responsibility for direct patient care, often functioning as a member of a multidisciplinary team, and acting as the primary

source of drug-related information for other healthcare professionals. This course is specialized in administering and prescribing medication and require extensive academic knowledge such as adverse drug reaction, indication, disease status, drug interaction in pharmacotherapy for patients with cardiovascular disease or respiratory disease and general principle and care.

Therapeutics II

Therapeutics II provides the knowledges of treatment of disease through the administration of drugs. As such, it is considered part of the larger category of therapy. Pharmacists are experts in pharmacotherapy and are responsible for ensuring the safe, appropriate, and economical use of medicines. Therefore, pharmacy student must learn that the skills required to function as pharmacist require knowledge, training and experience in biomedical, pharmaceutical and clinical sciences after this course. As pharmacotherapy specialists in the future, student must learn that pharmacist have responsibility for direct patient care, often functioning as a member of a multidisciplinary team, and acting as the primary source of drug-related information for other healthcare professionals. This course is specialized in administering and prescribing medication and require extensive academic knowledge such as adverse drug reaction, indication, disease status, drug interaction in pharmacotherapy for patients with gastrointestinal disease or endocrinology diseases and special care such as nutritional support, women's health, gericatric, and pediatrics.

Preventive Pharmacy I

A study of general health care, physical environmental factor, environmental contamination and evaluation of toxic chemicals, and chemical toxicology. This course will include the role of pharmacist in public health, pesticides, organic contaminants and endocrine disrupters, the risk of air and soil pollutions, evaluation assays for chemical safety, chemical dynamics in humans, toxicities of heavy metals.

Preventive Pharmacy II

A study of nutrients and health, and food hygiene. This course will include disease management toward food and nutrients, energy metabolism, food poisoning, food additives, food administration and regulation.

Laboratory in Drug Action

This course covers experiments related to health functions and safety (toxicity) as well as the action mechanisms of pharmaceutics at the levels of in vitro and in vivo studies. The objectives of this course is to acquire the knowledge regarding preclinical studies during the process of drug development.

Pharmacotherapy I

Pharmacotherapy I provide the knowledges of treatment of disease through the administration of drugs. As such, it is considered part of the larger category of therapy. Pharmacists are experts in pharmacotherapy and are responsible for ensuring the safe, appropriate, and economical use of medicines. Therefore, pharmacy student must learn that the skills required to function as pharmacist require knowledge, training and experience in biomedical, pharmaceutical and clinical sciences after this course. As pharmacotherapy specialists in the future, student must learn that pharmacist have responsibility for direct patient care, often functioning as a member of a multidisciplinary team, and acting as the primary source of drug-related information for other healthcare professionals. This course is specialized in administering and prescribing medication and require extensive academic knowledge such as adverse drug reaction, indication, disease status, drug interaction in pharmacotherapy for patients with psychiatric disorders, neurologic disorders, or infection diseases.

Pharmacotherapy II

Pharmacotherapy II provides the knowledges of treatment of disease through the administration of drugs. As such, it is considered part of the larger category of therapy. Pharmacists are experts in pharmacotherapy and are responsible for ensuring the safe, appropriate, and economical use of medicines. Therefore, pharmacy student must learn that the skills required to function as pharmacist require knowledge, training and experience in biomedical, pharmaceutical and clinical sciences after this course. As pharmacotherapy specialists in the future, student must learn that pharmacist have responsibility for direct patient care, often functioning as a member of a multidisciplinary team, and acting as the primary source of drug-related information for other healthcare professionals. This course is specialized in administering and prescribing medication and require extensive academic knowledge such as adverse drug reaction, indication, disease status, drug interaction in pharmacotherapy for patients with arthritic disorders, eye and ear disorders, renal disesases, dermatologic disorders, neoplastic and hematopoietic disorders.

Herbal Medicinal Formula

Lectures of basic and applied information about traditional herbal medicine will be given. This course will provide the definition, concept, strategy and botanical information related to traditional herbal medicine. From a point of practical view, commonly used herbal formula will be also introduced and discussed based on scientific and practical basis.

Drug Metabolism

Drug metabolism will provide the biochemical modification of pharmaceutical

substances by living organisms, usually through specialized enzymatic systems. It informes up-to-date with the latest and most important developments in drug absorption, metabolism, distribution and excretion. It also provide an enzyme induction and inhibition, drug-drug interactions, enzyme kinetics; pharmacokinetics and toxicokinetics, species scaling and extrapolations, and interindividual variability in drug metabolism.

Pharmacogenomic

Pharmacogenomics deals with the influence of genetic variation on drug response in patients by correlating gene expression or single-nucleotide polymorphisms with a drug's efficacy or toxicity. It aims to develop rational means to optimize drug therapy, with respect to the patients' genotype, to ensure maximum efficacy with minimal adverse effects. It approaches promise the advent of "personalized medicine"; in which drugs and drug combinations are optimized for each individual's unique genetic makeup.

Preparation for Prescriptions and Dispensing

Provides a broad overview of the field to develop an understanding of the principles of pharmacotherapy and role of pharmacist. A discussion of pharmaceutical processes, equipment and materials used for the preparation and evaluation of selected prescription for major diseases.

Laboratory in Pharmaceutics and Pharmaceutical Analysis

Experiments on basic titrimetry and pharmaceutical analyses related with the contents in 'Pharmaceutics and Pharmaceutical'

Laws and Ethics in Health and Medicine

A study of governmental status, rules, and regulations that affect pharmacy practice and selected aspects of general law and ethics. This course will emphasize on the interpretation of those laws affecting the practice of community and institutional pharmacy.

Drug Development

Drug development will provide the process of bringing a new drug to the market once a lead compound has been identified through the process of drug discovery. It includes pre-clinical research (efficacies and toxicities in microorganisms/animals) and clinical trials (on humans) and includes the step of obtaining regulatory approval to market the drug.

Forensic Science

This course covers handling of evidences related to criminal cases or social conflicts, principles and methods for analyses and case study throughout the forensic science. The objectives of this course is to acquire professional knowledge regarding forensic chemistry, analytical chemistry, molecular biology and genetics,

emphasize on the necessities of forensic science as the diversity of occupational choice of pharmaceutical field, and establish the educational basis for professionals who play roles in achieving social justice.

Human Hormone

Human hormone will provide the fundamental concepts of the biological action of hormone in human. This course will cover the description of endocrine organs, endocrine cells, hormone synthesis, and biological action of hormone in human. This course will also provide the basic mechanism of hormonal diseases in human.

Introduction to Pharmacy Practice

In this course, student will notice basic information about pharmacy practice. Lectures for a pharmacist at a drug store, hospital, pharmacteutical company and administration fields will be given. This course will also provide the definition, role, attitude of a pharmacist and other basic information related to further pharmacy practice.

Introduction to Pharmacy Practice

This course is to introduce students to the fundamentals of pharmacy practice in hospital or community pharmacy, pharmaceutical industry and pharmacy administration setting. Students will be familiarized with the responsibilities and professional attitude of a pharmacist, basic skills and knowledge of pharmacy practice experiences which will help students to prepare for the Advanced Pharmacy Practice course.

Pharmacy Practice I,II

In this course students participate to gain actual practice experience in various settings of pharmacy practice. Students are assigned to rotate practice sites including community pharmacy, hospital pharmacy and industrial settings. This course is designed to have students participate in service learning, community practice, and institutional practice under the supervision of qualified preceptors.

Advanced Pharmacy Practice I,II,III

This course is designed to provide students with in-depth experiences during their last year of school. This course allows students to explore and develop abilities in an area of interest within the healthcare settings, industry or research, academic part of pharmacy. This course provides students to integrate, apply and advance the knowledge, skills and attitudes developed through previous Pharmacy Practice courses.

Pharmacy Capstone Design

This comprehensive course is to foster creative individuals with problem-solving skills, ability to cooperate, and practice skills fulfilling the requirements from

industries. Students will experience teamwork for a project in designing, performing and analyzing based upon the knowledge gained in classroom from 3rd to 5th year of pharmacy school.

▣ Department of Manufacturing Pharmacy

Introduction

The department aims to foster talented individual with expert knowledge on Industrial pharmacy including the production of pharmaceuticals as well as clinical application through a systematic curriculum. It also aims to foster leadership to improve national healthcare.

Credit requirements for graduation

The department curriculum has required major courses (64 credits) and major selection (96 credits).

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
3-1-R Physical Pharmacy I (2)	3-2-R Physical Pharmacy II (3)
3-1-R Pharmaceutical Analysis I (3)	3-2-R Pharmaceutical Analysis II (3)
3-1-R Pharmacognosy I (3)	3-2-R Pharmacognosy II (2)
3-1-R Pharmaceutical Biochemistry I (2)	3-2-R Pharmaceutical Biochemistry II (3)
3-1-R Industrial Pharmaceutics (3)	3-2-E Pharmaceutical Statistics (2)
3-1-E Immunology (3)	3-2-E Inorganic and Radiopharmaceuticals (3)
3-1-E Molecular Structure and Pharmacy (2)	3-2-E Biopharmaceutics (2)
3-1-E Organic Pharmaceutical Chemistry (2)	3-2-E Heterocyclic Chemistry (2)
3-1-E Pharmacy Administration (2)	3-2-E Cell Biology (2)
	3-2-E Pharmaceutical Policy (2)
4-1-R Pharmaceutical Microbiology I (3)	4-2-R Pharmaceutical Microbiology II (3)
4-1-R Pharmacology I (3)	4-2-R Pharmacology II (2)
4-1-R Pharmaceutical Synthetic Chemistry I (3)	4-2-R Pharmaceutical Synthetic Chemistry II (3)
4-1-R Laboratory in Biological Pharmacy (1)	4-2-R Laboratory in Drug Resources (1)
4-1-E Pharmacokinetics (3)	4-2-E Social Pharmacy (3)
4-1-E Bio-Organic Chemistry (2)	4-2-E Pharmaceutical Engineering (2)
4-1-E Instrumental Analysis (2)	4-2-E Clinical Pharmaceutics (2)
4-1-E Unit Operation in Pharmaceutics (2)	4-2-E Pharmaceutical Physics (2)
4-1-E Bioanalytical Chemistry (2)	
5-1-R Pharmaceutics I (3)	5-2-R Pharmaceutics II (3)
5-1-R Therapeutics I (2)	5-2-R Therapeutics II (3)
5-1-R Hygienic Pharmacy I (3)	5-2-R Hygienic Pharmacy II (2)
5-1-R Laboratory in Pharmaceutics and Pharmaceutical Analysis (1)	5-2-R Laboratory in Drug Action (1)
	5-2-E Medicinal Chemistry II (2)
5-1-E Medicinal Chemistry I (2)	5-2-E Quality Control of Pharmaceuticals (3)
5-1-E Biopharmaceuticals (2)	5-2-E Clinical Pharmacokinetics (2)
5-1-E Biomacromolecules (2)	5-2-E Infection Therapeutics (2)
5-1-E Drug Delivery Systems (2)	5-2-E Drug Design (2)
5-1-E Analysis of Pharmaceutical Preparations (2)	
6-1-E Introduction to Pharmacy Practice (2)	6-2-R Pharmacy Capstone Design (3)
6-1-E Pharmacy Practice I (18)	6-2-E Advanced Pharmacy Practice I (7)

6-1-E Pharmacy Practice Ⅱ (18)	6-2-E Advanced Pharmacy Practice Ⅱ (7) 6-2-E Advanced Pharmacy Practice Ⅱ (7)

● Courses Abstract

Physical Pharmacy Ⅰ· Ⅱ

This lecture is associated with the area of pharmacy that dealt with the quantitative and theoretical principle of science as they applied to the practice of pharmacy such as the solubility, stability, absorption and action of chemical and biomacromolecular drugs.

Pharmaceutical Analysis Ⅰ· Ⅱ

This course will cover the basic principles of analytical chemistry including titrimetric (volumetric) and gravimetric analyses covering acid-base, non-aqueous, precipitation, redox and chelatometry And it will cover basic theory of electroanalysis. the priciples and applications of instrumental analysis including chromatography, spectroscopic analysis, data treatments and sample pre-treatments.

Pharmacognosy Ⅰ· Ⅱ

Lectures about general information about pharmacognosy such as definition, history, collection, cultivation, storage, quality control and biosynthesis of secondary metabolite will be given. Natural medicinal resources will be classified based on the parts used, and the origin, medicinal effect, uses will be also lectured.

Pharmaceutical Biochemistry Ⅰ· Ⅱ

The major objective of pharmaceutical biochemistry is the complete understanding, at the molecular level, of all of the chemical processes associated with living cells. To achieve this objective, pharmaceutical biochemistry I has sought to understand 1) structures and functions of proteins and enzymes, and 2) bioenergetics and the metabolism of carbohydrates and lipids. Pharmaceutical biochemistry II has sought to understand 1) metabolism of proteins and amino acids, 2) structure, function and replication of informational macromolecules, and 3) biochemistry of extracellular and intracellular communication.

Industrial Pharmaceutics

To educate the overall process in pharmaceutical industry, the course covers the understanding on the development, production, and marketing of the pharmaceutical products from the industrial viewpoint.

Immunology

The study of the immune system is a body's defense system essential for the

survival of vertebrates. This lecture will be focused on the understanding of basic concepts of modern immunology including cell-cell interactions in the humoral and cellular immunity. Then, the mechanisms underlying immune-associated diseases will be discussed in detail for each immune-associated disease.

Molecular Structure and Pharmacy

Pharmaceuticals are molecules. The property of a molecule including solubility, membrane transfer, and binding to other biological molecules comes from its 3-dimensional molecular structure, The lecture is focused on the understanding microscopic world of atomic and molecular structure, and the effect of a drug from a viewpoint of the structure.

Organic Pharmaceutical Chemistry

This course includes the physical and chemical properties, preparation methods, and uses of inorganic and organic substances. It also refers to the reactions of organic compounds as well as the stereoisomers, carbanion, carbonium, eletrophile, and aromatic substitutions.

Pharmacy Administration

The course covers essential health administration affairs for pharmacist in Korea. The public health system, services, the role of the Ministry of Health and Welfare of Korea, pharmaceutical society, distribution structure of medicine, role of pharmacist, medical insurance and policy for public health in Korea will be dealt in the lecture.

Pharmaceutical Statistics

This course is designed to introduce statistical design and analysis techniques needed to perform pharmaceutical researches and evaluate articles in medical literatures. This course will cover basic principles and methodology of statistics, descriptive statistics, sampling methods, statistical inference and analysis of experimental data.

Inorganic and Radiopharmaceuticals

The course covers the basic theory about inorganic substances, and syntheses, purifications of such substances. Focused on the high-quality pharmaceutical usage of inorganic drugs. Radiopharmaceuticals are drug product that contain a biological moeity and a radioactive element. The lecture is focused on a patient-oriented service that embodies the scientific knowledge and professional judgement required to improve and promote health through the safe and efficacious use of radioactive drug for diagnosis and therapy.

Biopharmaceutics

Lectures on comprehensive course dealing with the principles of the absorption,

distribution, metabolism and elimination following drug administration. The course will give lectures on the absorption in the gastrointestinal tract, carrier mediated transport, drug transporter, metabolic enzymes, renal and biliary excretion.

Heterocyclic Chemistry

This course covers the heterocyclic aromatic chemistry including synthetic methods, properties, and uses of drugs, fungicides, insecticides, and herbicides

Cell Biology

This course covers the functions and structure of cell consisting of life in the planet and includes molecular understandings on the macromolecules such as DNA, RNA, proteins, polysaccharides, and lipids.

Pharmaceutical Microbiology Ⅰ· Ⅱ

This course will cover the essential knowledge of pathogenic microorganisms for pharmacists and microbes used to produce antibiotics and physiologically active constituents. The overall objective of this course is to promote an understanding of the pathophysiology of microbial infection, the use of anti-microbial agents. The program is mainly composed of multidisciplinary topics and lectures. Specific target areas include genetics and physiology of microbes, anti-microbial drug discovery and usage, pathophysiology of viral infection, vaccine, and understanding of immune system. Topics will cover: introduction to the structures and functions of the DNA; basic principles and applications as well as historical perspectives of recombinant DNA technology.

Pharmacology Ⅰ· Ⅱ

The course concerns the study of general principles of drug action and the mechanism of drug action including the principles that influence its absorption, distribution and excretion. The clinical application, adverse effects and structure activity relationship will also be provided. This course will also address the rationale for their use as therapeutic agents on autonomic and central nervous system. In addition, pharmacology of cardiovascular, renal, endocrine and immune systems, antibiotic, chemotherapeutic and vitamins are involved.

Pharmaceutical Synthetic Chemistry Ⅰ· Ⅱ

Based on fundamental organic reactions, this course covers the synthesis of drugs including global Top 100 pharmaceuticals, historically important compounds, and their structure-activity relationships.

Laboratory in Biological Pharmacy

This course will provide the fundamental concepts of the basic technologies, which are used in biochemical, molecular biology, microbiological, and immunological assay.relationships.

Pharmacokinetics

Lectures on comprehensive course dealing with preclinical pharmacokinetics of the absorption, distribution, metabolism and elimination following drug administration. The course will give lectures on the compartment modeling, pharmacokinetic parameters, physiological pharmacokinetics and moment analysis.

Bio-Organic Chemistry

This course provides a contemporary authoritative treatment of the molecular logic of the chemistry of life. The major classes of small molecules found in primary metabolic pathways are introduced.

Instrumental Analysis

This lecture covers basic instrumental principles and application of spectroscopy for the structure identification of drug chemicals. This course provides physicochemical methods of drug analysis to attain qualitative and quantitative information on target drugs. Indeed, three main spectroscopy including infrared spectroscopy, nuclear magnetic resonance spectroscopy and mass spectrometry will be learned with practical experimental chart spectrum data. From this lecture, students will learn how to identify or elucidate the unknown structure of drug candidates.

Unit Operation in Pharmaceutics

Lectures on comprehensive course dealing with principles for drug manufacturing and its process such as milling, sieving, mixing, drying and coating. The course will give lectures on the theory of comminution, energy for milling, sieving efficiency, instruments for mixing, the theory of tablet and coating.

Bio-Organic Chemistry

This course provides a contemporary authoritative treatment of the molecular logic of the chemistry of life. The major classes of small molecules found in primary metabolic pathways are introduced.

Laboratory in Drug Resources

This is an introductory undergraduate level course in Drug Resources and will provide a survey of target identification, hit compound findings from synthetic/natural compounds. By the end of this course, students will have a general understanding and working knowledge of how to use Drug Resources.

Social Pharmacy

The course covers essential social pharmacy for pharmacist in Korea and also covers the improvement of the pharmacist's role and services for the community. The public health system, services, the role of the Ministry of Health and Welfare of Korea, distribution structure of medicine, medical insurance and policy for public health in Korea will be dealt in the lecture. Furthermore, It covers pharmacist's knowledges and attitude on the management of the drug store, and

rule and laws about Korean pharmacy affairs.

Pharmaceutical Engineering

This lecture covers the basic principles of facilities and methods for drug manufacturing process. Especially, the studies on thermodynamics and fluid mechanics for manufacturing managers will be preferentially provided. This lacture also will show how to operate and to know the working principles for the maintenance of manufacturing equipments.

Clinical Pharmaceutics

Lectures on comprehensive course dealing with pharmaceutical dosage formulations for the clinical use of modern drugs in hospital pharmacy. The course will give lectures on the biological half life, liquid formulations, stability test and clinical drug delivery systems.

Pharmaceutical Physics

This course is for the intensive understanding of properties of drug molecules which should be utilized as theoretical bases for successful drug development. Focused on the physicochemical properties such as sturcture, solubility, dissociation constant, partition coefficient, polarity, chirality and disintegration products.

Pharmaceutics Ⅰ· Ⅱ

The purpose of this lectures is to introduce pharmacy students to the principles and technologies applied in the preparation of pharmaceutical dosage forms and drug delivery systems.

Therapeutics Ⅰ

Therapeutics I provides the knowledges of treatment of disease through the administration of drugs. As such, it is considered part of the larger category of therapy. Pharmacists are experts in pharmacotherapy and are responsible for ensuring the safe, appropriate, and economical use of medicines. Therefore, pharmacy student must learn that the skills required to function as pharmacist require knowledge, training and experience in biomedical, pharmaceutical and clinical sciences after this course. As pharmacotherapy specialists in the future, student must learn that pharmacist have responsibility for direct patient care, often functioning as a member of a multidisciplinary team, and acting as the primary source of drug-related information for other healthcare professionals. This course is specialized in administering and prescribing medication and require extensive academic knowledge such as adverse drug reaction, indication, disease status, drug interaction in pharmacotherapy for patients with cardiovascular disease or respiratory disease and general principle and care.

Therapeutics II

Therapeutics II provides the knowledges of treatment of disease through the administration of drugs. As such, it is considered part of the larger category of therapy. Pharmacists are experts in pharmacotherapy and are responsible for ensuring the safe, appropriate, and economical use of medicines. Therefore, pharmacy student must learn that the skills required to function as pharmacist require knowledge, training and experience in biomedical, pharmaceutical and clinical sciences after this course. As pharmacotherapy specialists in the future, student must learn that pharmacist have responsibility for direct patient care, often functioning as a member of a multidisciplinary team, and acting as the primary source of drug-related information for other healthcare professionals. This course is specialized in administering and prescribing medication and require extensive academic knowledge such as adverse drug reaction, indication, disease status, drug interaction in pharmacotherapy for patients with gastrointestinal disease or endocrinology diseases and special care such as nutritional support, women's health, gericatric, and pediatrics.

Hygienic Pharmacy I

A study of health care, factors for physical environment contamination and evaluation of toxic chemicals, and chemical toxicology. This course will include statistics related to health, epidemiology, management and prevention of diseases, environmental factors regarding air-, water- and soil polutions, risk assessment, occupational disease factors, toxicities as well as their mechanisms induced by heavy metals, pesticides, organic contaminants and endocrine disrupters, toxicodynamics of chemicals in humans.

Hygienic Pharmacy II

A study of nutrients- and food hygiene-related human health. This course will include disease management regarding carbohydrate, lipid, protein, vitamins and essential minerals for maintaining sound health, balance of energy metabolism, food poisoning, food additives, functional food, regulation related to commercial foods and their processing.

Laboratory in Pharmaceutics and Pharmaceutical Analysis

Experiments on basic titrimetry and pharmaceutical analyses related with the contents in 'Pharmaceutics and Pharmaceutical'

Laboratory in Pharmaceutics and Pharmaceutical Analysis

Experiments on basic titrimetry and pharmaceutical analyses related with the contents in 'Pharmaceutics and Pharmaceutical'

Medicinal Chemistry I·II

From the viewpoint of the chemical profiles and the structures of drugs, this course describes the molecular mechanisms of drugs including their indication and

the pharmacological profiles of drugs.

Biopharmaceuticals

The course will provide comprehensive coverage of the fundamental concepts of biopharmaceuticals, recombinant pharmaceuticals, vaccine, tissue engineering drugs, gene therapy, biological diagnostics, and blood products. I will also cover the characteristics, manufacturing, quality control, and licensing procedure of biopharmaceuticals.

Biomacromolecules

The structural characteristic and biological role and structure determination method for biomacromolecules including proteins and nucleotides (RNA/DNA).

Drug Delivery Systems

Drug Delivery Systems is a formulary that a nation standardizes for the novel drug delivery systems for the optimum drug effects. Lectures on comprehensive course dealing with controlled released dosage forms, theory of targeting of the drugs, various drug carriers and transport of drugs into the tissues of the body.

Analysis of Pharmaceutical Preparations

The course provide comprehensive management of pharmaceuticals, which cover analytical methodology of various dosage forms, data treatment, method validation, fundamentals of the QA/QC of pharmaceutical preparations.

Laboratory in Drug Action

This course covers experiments related to health functions and safety (toxicity) as well as the action mechanisms of pharmaceutics at the levels of in vitro and in vivo studies. The objectives of this course is to acquire the knowledge regarding preclinical studies during the process of drug development.

Quality Control of Pharmaceuticals

New and Better drugs of safe and therapeutically active formulations, whose performance is consistent and predictable, are being produced. Quality control refers to the sum of all procedures undertaken to ensure the identity and purity of pharmaceuticals. Activities extend to good laboratory management practices, models, certificate of analysis and so others. All Requirements governing the QC of pharmaceuticals in accordance with the KFDA, and USP guidelines are discussed.

Clinical Pharmacokinetics

Clinical Pharmacokinetics is a formulary that a nation standardizes for the pharmacokinetic techniques for clinical situation in the pharmacy. Lectures on comprehensive course dealing with dose interval, infusion of the drug, multiple dose schedule, theory of drug monitering and brief patient case examples so the students can practice the use of pharmacokinetic equations.

Infection Therapeutics

The primary focus of this lecture is the antimicrobial agents used currently in clinic. The action mechanisms, drug interactions, side effects and toxicity, structure-activity relationship and resistance mechanisms will be discussed for the drug of choice antimicrobial agents for each infectious disease.

Drug Design

This course presents the strategy underpinning the design of pharmaceutical molecules used to diagnose and treat diseases and illnesses. It focuses on the design of drug molecules, with emphasis on the shape and structure. This course discusses drug-like property and drug development process covering Hit to Lead and Lead to Candidate.

Introduction to Pharmacy Practice

In this course, student will notice basic information about pharmacy practice. Lectures for a pharmacist at a drug store, hospital, pharmacteutical company and administration fields will be given. This course will also provide the definition, role, attitude of a pharmacist and other basic information related to further pharmacy practice.

Introduction to Pharmacy Practice

This course is to introduce students to the fundamentals of pharmacy practice in hospital or community pharmacy, pharmaceutical industry and pharmacy administration setting. Students will be familiarized with the responsibilities and professional attitude of a pharmacist, basic skills and knowledge of pharmacy practice experiences which will help students to prepare for the Advanced Pharmacy Practice course.

Pharmacy Practice I,II

In this course students participate to gain actual practice experience in various settings of pharmacy practice. Students are assigned to rotate practice sites including community pharmacy, hospital pharmacy and industrial settings. This course is designed to have students participate in service learning, community practice, and institutional practice under the supervision of qualified preceptors.

Advanced Pharmacy Practice I,II,III

This course is designed to provide students with in-depth experiences during their last year of school. This course allows students to explore and develop abilities in an area of interest within the healthcare settings, industry or research, academic part of pharmacy. This course provides students to integrate, apply and advance the knowledge, skills and attitudes developed through previous Pharmacy Practice courses.

Pharmacy Capstone Design

This comprehensive course is to foster creative individuals with problem-solving

skills, ability to cooperate, and practice skills fulfilling the requirements from industries. Students will experience teamwork for a project in designing, performing and analyzing based upon the knowledge gained in classroom from 3rd to 5th year of pharmacy school.

▣ Department of Premedicine

Introduction

The department of premedicine offers preparatory course for medical school. This is a two-year mandatory course for the student before entering the College of Medicine. The course aims at fostering good character needed to be a good medical scientist or medical doctor. Students get acquainted with basic courses of liberal arts and natural sciences before majoring in medical science.

Upon successful completion of the premedical courses, students are admitted to the College of Medicine.

Two years of pre-medical studies is followed by 4 years of medical studies, attaining a license, internship, residency plus further specialization training, which in the end lead to medical practice in a hospital or in a private office, or into research and academic fields.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(28Credits), a major(54Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Pre-Medicine Seminar (3)	1-2-R Basic Medical Research Seminar (3)
1-1-R Medical Physics (3)	1-2-R Core Biology Ⅱ (3)
1-1-R Core Biology Ⅰ (4)	1-2-E Humanity and Ethics (3)
1-1-E Reading Seminar (1)	1-2-E Introduction to Organic Chemistry (2)
2-1-R Biostatistics (2)	2-2-R Introduction to Medical Devices and Systems (3)
2-1-R Society Service (3)	
2-1-R Medical Biochemistry Ⅰ (4)	2-2-R Medical Psychology (3)
2-1-R Medical Ethics (1)	2-2-R Introduction to Medicine and Terminology (3)
2-1-R Practice of Medical Research Ⅰ (3)	
2-1-E Physiology Practice for Exercise (2)	2-2-R Medical Biochemistry Ⅱ (4)
	2-2-R Practice of Medical Research Ⅱ (3)
	2-2-E Organic Chemistry (2)

● Courses Abstract

Pre-Medicine Seminar

This course helps students to adapt to the college life and establish their values

and view of life as preliminary doctor. Medical college professors, senior doctors from various areas are invited and have lectures and discussions to help the students get the ideas for the effective college life and future course as doctor.

Medical Physics

Medical physics covers the core knowledge of physics to prepare the premed student for the medical courses.

Core Biology I

Core biology 1 is designed for students who major in premedicine and is introductory course of biology. Core biology 1 covers the chemical and cellular basis of life, energy transformations, cell biology, and genetics. Core biology 1 is required for completion of premed course in college of medicine.

Reading Seminar

Reading the books of various topics, discussing about the books with peers and writing by themselves with their own text, increase the critical thinking power. Through the understanding the content and deep discussion, cultivate the communicative and empathizing ability and humanistic knowledge.

Basic Medical Research Seminar

Preparing the premed students to read and understand the medical journal and to raise the ability to interpret and criticize the journals as medical scientist.

Core Biology II

Core biology 2 is advanced course of biology for premed students. Core biology 2 covers development, evolution, physiology, neurobiology, and behavior. Core biology 2 is required for completion of premed course in college of medicine.

Humanity and Ethics

Study the theoretical prerequisite ethics for practical ethics. Major subjects are ethical theories of Plato, Aristotle, Hume, Bentham, Mill, Kant, Rawls.

Introduction to Organic Chemistry

The basic electronic structure and conformation, stereochemistry, and the reaction mechanisms related with simple organic chemicals are introduced.

Biostatistics

Biostatistics is the branch of statistics responsible for the proper interpretation of scientific data generated in the biology, public health and other health sciences. This course provide instruction in the theory and application of statistical science to analyze public health problems and to further biomedical research.

Society Service

Students experience the life of persons in social welfare organs and understand their situation and get compassion for them while serving them. These experience will help students to learn the good physician's attitude of consideration, warmth,

treating the patient as a whole person.

Medical Biochemistry I , II

This course covers basic understanding of the principles how our body works at the biochemical and molecular levels. Students will learn the cellular components, their physiological functions and their biochemical mechanisms in an integrative manner. This should form the solid ground for understanding of the pathological states. To attend this course, completion of the courses of biology and general chemistry is required.

Medical Ethics

This course provides the ethical principles that can be used to critically assess the various aspects of ethical issues. These issues include the ethical decision making in cinical medicine and the issues related to the advancement of medical science and technology.

Practice of Medical Research I, II

Encouraging the students to get basic knowledges about medical research by participating them into activities of medical research laboratories. The students can obtain planning, method, activity, critics and application of medical researches. Through this course they can learn about the interaction between medical knowledge and medical research, be equipped with basic knowledges for the medical development as doctor.

Physiology Practice for Exercise

This course provides health and fitness skills to improve physical activity and pursues an understanding on the structure and function of the human body. Students will acquire overall basic knowledge in human physiology through actual practice.

Introduction to Medical Devices and Systems

To understand basic knowledges on configurations, functions, and operation principles of hardware/software of medical devices and systems applicable under clinical environments as a doctor.

Medical Psychology

Psychological theories are studied which can be useful for medical practice and research. Personality theory is introduced for basic understanding of a human, theories of study and cognition are provided for understanding of the principle of behavior. Psychological studies for patients′ behavior and applications in medicine are also introduced.

Introduction to Medicine and Terminology

Medical Terminology is a system-based course to introduce the structures of the medical language to premedical students. It covers all the body systems plus terminology related to Pharmacology, Radiology and Oncology. This course

facilitates the understanding of the medical nomenclature largely based on Latin or Greek roots. This is to arm the students with basic tools to understand the medical language as they progress to the 4 years of clinical studies.

Organic Chemistry

The electronic structure and conformation, stereochemistry, and the reaction mechanisms related with simple organic chemicals are introduced.

【College of Medicine】

Chungbuk National University have the founding principles of truth, justice and pioneer. Truth is an eternal task of study, justice is an indicator of proper life, pioneer is a spirit of creation preparing a new era. Chungbuk National University is leading the development of the study based on this spirit, nurturing the democratic citizens seeking the common good, making a commitment to pioneering the future of state and society.

Chungbuk National University, while the effort for the realization of the common goal of development of the nation and human society education, to the development of a distinctive community culture caught academic community as a place to Chungbuk Province is devoting force.

Chungbuk National University College of Medicine, founded in 1985 in accordance with these principles in spite of the short history of the University has an excellent student and a talented professor is now a high level of effort results in mid University College of Medicine have settled down.

First, Chungbuk National University College of Medicine has a favorable location that makes Osong Life Sciences Complex and the linkages emerge as the World University runs a research leader in the healthcare field.

Second, Chungbuk National University College of Medicine is leading the medical field information. It has a wealth of facilities for medical education and university education as multimedia information has started most early in the research field and is located within the National Science Foundation is the only university medical research specifying the information center in the country. Classroom and university hospital directly parallel cyber medical education and training carried out by an iterative learning is done.

Third, the students themselves to solve the problem by introducing a new medical education techniques and to train doctors capable of actual care. Several courses are organically related to each other and have a combined integrated education and problem-solving education through the center of the small group discussions. The number of students per professor has the most favorable conditions in the most timely because the nation from the National Medical College of the river, as well as clinical practice. Students receive direct transfer of skills to solve clinical cases from professors and the faculty will equip their qualities as a community doctor in charge of primary care after graduation.

Chungbuk National University College of Medicine will pay everything in your power fiery passion and ambition are based on an innovative curriculum competent doctors will lead the new century through the training.

▣ Department of Medicine

Introduction

Purpose of education

Based on the founding ideals that are truth, justice, and pioneering, the purpose of education of Chungbuk National University College of Medicine / Medical School is to cultivate creative leaders with a spirit of service and global competitiveness as a medical doctor that contribute to the community.

Goals of education

1. Based on the basic medical knowledge, students equip the medical thinking skills and qualities.
2. Students have a primary care capacity to contribute to the health of the community.
3. Having values to respect for life and love human, on the basis of mutual understanding and respect, students foster the ability to communicate.
4. Students respond creatively to the medical and social environments that change through continuous learning and research and pioneer a new future.

Graduate outcome

1. To use basic medical knowledge to medical treatment
2. To decide adequately by interpretation of the clinical data and medical deduction
3. To exhibit the ability of primary care medical doctor in medical treatment
4. To raise performance ability for health and medical treatment in a community
5. To possess an attitudes and a values as considered medical doctor in a society
6. To communicate smoothly to a patient, the family and other health workers
7. To study continuously by oneself and to understand a changing medical environment

Credit requirements for graduation

The department curriculum has only one components: A major(161Credits)

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Structural Basis of Human Body(6)	1-2-R Pathology(3)
1-1-R Microstructure of Human Cell and Tissue(1)	1-2-R Mechanisms of Microbial Disease Ⅱ(5)
1-1-R Neuroanatomy(2)	1-2-R Pulmonology Ⅱ(3)
1-1-R Medical Biochemistry of Metabolism(2)	1-2-R Endocrinology and Metabolism Ⅱ(3)

1-1-R Nervous System(2)	1-2-R Nephrology and Urology Ⅱ(4)
1-1-R Principles of Drug Action(2)	1-2-R Understanding human and pain(1)
1-1-R Human Body Function(3)	1-2-R Understanding related disciplines seminar(1)
1-1-R Immunology(1)	1-2-R Test for basic medical knowledge(0)
1-1-R Health and Society(1)	1-2-R Basic medical knowledge seminar(1)
1-1-R Planning a life in medicine(0)	
2-1-R Allergy & Immunology(2)	2-2-R Maternal-Fetal and Neonatal Medicine(3)
2-1-R Musculoskeletal System Ⅱ(2)	2-2-R Woman's Medicine(3)
2-1-R Cardiovacular Medicine(4)	2-2-R Clinical Neuroscience Ⅰ(4)
2-1-R Gastroenterology(4)	2-2-R Psychiatry Ⅰ(3)
2-1-R Hematology & Oncology(3)	2-2-R Health Policy and Management(1)
2-1-R Opthalmology, Otorhinolaryngology and Dermatology Ⅱ(3)	2-2-R Preventive Medicine(3)
2-1-R Communication Skill(1)	2-2-R Communication Seminar(1)
2-1-R Introduction to Clinical Basic Procedure Ⅰ(1)	2-2-R Introduction to Clinical Basic Procedure Ⅱ(1)
3-1-R Internal Medicine Clerkship Ⅰ(8)	3-2-R Neurology Clerkship(2)
3-1-R Pediatrics Clerkship(5)	3-2-R Psychiatry Clerkship(3)
3-1-R Obstetrics & Gynecology Clerkship(5)	3-2-R Internal Medicine Clerkship Ⅱ(4)
3-1-R Introduction of Pediatrics(1)	3-2-R Radiology Clerkship(2)
3-1-R Clinical diagnosis and basic skills(1)	3-2-R Emergency Medicine Clerkship(1)
3-1-R Medical Ethics(1)	3-2-R Surgery Clerkship(5)
3-1-R Evidence based medicine(1)	3-2-R An introduction to surgery(1)
	3-2-R Elective Clerkship Of Surgery(2)
	3-2-R Understanding Health and Medical Industry(0)
	3-2-R Test for Clinical performance(0)
4-1-R Health Policy and Management(1)	4-2-R Objective Structured Clinical Examination(1)
4-1-R Forensic Medicine and Medical Laws(1)	4-2-R Clinical Performance Examination(1)
4-1-R Comprehensive Clinical Medicine(1)	4-2-R Comprehensive Medical Clerkship Ⅰ(1)
4-1-R Preventive Medicine Ⅲ(1)	4-2-R Comprehensive Surgicla Clerkship Ⅱ(1)
4-1-R Preventive Medicine Ⅳ(1)	4-2-R Subinternship Elective(1)
4-1-R OSCE · CPX Ⅰ(Objective Structured Clinical Examination & Clinical Performance Examination Ⅰ(1)	4-2-R Planning a life after graduation(1)
4-1-R Professionalism in medicine(1)	
4-1-E Clinics in Family Medicine(1)	
4-1-E Clinics in Anesthesiology and Pain Medicine(1)	
4-1-E Clinics in Radiation Oncology(1)	
4-1-E Clinics in Urology(1)	
4-1-E Clinics in Plastic Surgery(1)	
4-1-E Clinics in Neurosurgery(1)	
4-1-E Clinics in Ophthalmology(1)	
4-1-E Clinics in Otolaryngology(1)	
4-1-E Clinics in Laboratory Medicine(1)	
4-1-E Clinics in Orthopedic Surgery(1)	
4-1-E Clinics in Rehabilitation Medicine(1)	
4-1-E Clinics in Dentistry(1)	
4-1-E Clinics in Dermatology(1)	
4-1-E Thoracic and Cardiovascular Surgery & Clinical experience(1)	
4-1-E Clinics in Nuclear Medicine(1)	

● Courses Abstract

Structural of Human Body

This course is a system-based, integrated course involving the study of both gross and microscopic anatomy of the body. Students receive didactic lectures as

well as practical claof regional dissection and microscopic examination of tissues of the body. A learning checklist prescribes the core curriculum to facilitate the understanding of the medical nomenclature both in English and Korean for each body system. The course forms the foundation onto which the pathological and clinical components of the medical course can be built.

Microstructure of Human Cell and Tissue

Microstructure of Human Cell and Tissue is the study about the normal microscopic structure and function of human cells and tissues (epithelium, connective tissue, muscular tissue, bone, cartilage and skin). Students can obtain the fundamental knowledge about the microstructure of the human body ahead of learning pathology.

Neuroanatomy

Neuroanatomy is a subject to study gross and microscopic morphological features of the central and peripheral nervous system. Students will achieve the knowledge of the structure, function, and embryology of each parts of the nervous system. Further, knowledge of neural connections with different parts of the nervous system will provide anatomical basis for clinical neuropathologic conditions.

Medical Biochemistry of Metabolism

This course covers understanding of metabolism of the cellular components and their dysregulation which leads to metabolic diseases. Students will learn the detailed metabolic processes and how they are integrated at the cellular and organ levels.

Nervous System

This course helps students to understand the function of human nervous system and practise human nervous system by sensory, motor, and higher brain function. By learning this course, students can understand the basic pathophysiology of human neurological disorders.

Principles of Drug Action

This course helps the students to understand in vivo action mechanisms of xenobiotics, which are foreign chemicals entering into and exerting biological effects on human body. After this course, the students are expected to acquire basic knowledge for proper and effective use of therapeutic drugs in clinical situations.

Human Body Function

This course helps students to understand the basic principles of therapeutic treatment for cardiovascular diseases on the basic background of anatomy, physiology, pharmacology and pathology in cardiovascular system.

This course also provide students with a clinical background in urogenital, digestive, respiratory and endocrine systems and to this end this course include knowledge of the human anatomy and physiology as well as understanding of the principles of pathogenesis and pharmacological therapeutics in urogenital, digestive, respiratory and endocrine systems.

Immunology

Based on the understanding of immunologic system organs and cellular and molecular immune mechanisms students develop the clinical ability of diagnosis and treatment of immunologic diseases.

Health and Society

The purpose of this course is to analyze the various phenomenons related to health care and to understand the interaction between health care and socioeconomic environment.

Planning a Life in Medicine

This course helps students to think and understand 'what is good doctor' and 'what is the vision of Chungbuk National Univesity Medical School', and to plan and systemize his/her life according to individual goals from medical students until the end of life. So this course endeaver to foster medical students into becoming primary physicians with brilliant medical competence, noble professionalism and creative self-development capability.

Pathology

The course helps students to understand the pathogenesis of various diseases in the viewpoint of morphology, molecular biology, and genetics. The course also helps students to understand the definitions and classification systems of diseases.

Mechanisms of Microbial Disease Ⅱ

Students study the structure, physiology, pathogenesis, epidemiology, clinical diseases, diagnosis, treatment, prevention of pathogenic bacteria, viruses, fungi and parasites.

Pulmonology Ⅱ

This course helps medical student to understand the anatomy and physiology of the human respiratory system. And it also give the knowledge of the pathophysiology, diagnosis, treatment and prevention of respiratory diseases. The student will have the ability to take primary care of the patients with respiratory diseases.

Endocrinology and Metabolism Ⅱ

Endocrinology course helps medical student to understand the normal function of

the endocrine organs, metabolism of their hormones, and their effects on the body. Based on the understanding of endocrinologic system, student understand pathophysiology, diagnosis and treatment of various endocrinologic disorders.

Nephrology and Urology Ⅱ

This course helps students to understand the pathophysiology, diagnosis and management of renal and urologic disease, acid-base and electrolyte disorders.

Understanding Human and Pain

Understanding doctor-patient relationship, this course helps students to broaden the understanding of human and human pain and sufferings. Also this course helps students to realize that the patients should be managed, based on the knowledge and love for human, to know that the patents have the right to be freed from the pain and sufferings, and to be able to do the roles with good attitudes and clear methods as doctors' obligation afterwards.

Understanding Related Disciplines Seminar

This course helps students to understand medicine related disciplines including medical engineering, nursing, alternative medicine, traditional oriental medicine, animal research, literature, fine arts, music, movies and media.

Test for Basic Medical Knowledge

At the end of the basic medicine course students take the summative evaluation test for the whole basic medical knowledge.

Basic Medical Knowledge Seminar

Help the students summarize the core knowledge of basic medicine, integrate and rearrange various parts of basic medicine, experience practice questions to prepare the summative evaluation test and also develop problem solving power for clinical cases based on the scientific-concept and principle-centered.

Allergy & Immunology

These lectures present a concise overview of the immune system and cover most of the spectrum of allergy, immunology and rheumatology, including pathogenesis, symptomatology and treatment.

Musculoskeletal System Ⅱ

This course helps students to understand the diagnosis and treatment of musculoskeletal system disease by education about orthopaedic surgery and rehabilitation medicine.

Cardiovacular Medicine

The course (or lecture) offers integrated understandings of structure/function of cardiovascular system and pathophysiology/treatment of cardiovascular disease, and offers advanced application on clinical practice.

Gastroenterology

This course helps medical students to understand the anatomy and physiology of the human digestive system. And it also gives the knowledge of the pathogenesis, diagnosis, treatment and prevention of gastroenterology diseases. The student will have the ability to take primary care of the patients with gastroenterology diseases.

Hematology & Oncology

This course helps students to understand the pathophysiology, diagnosis, treatment, and prevention of blood disease (hematology) and cancer (oncology). The student will have the ability to take primary care of the patients with benign and malignant disorders of the blood and lymphatic organs as well as for patients with most types of solid tumors.

Opthalmology, Otorhinolaryngology and Dermatology Ⅱ

This course helps students to study the basic knowledge and clinical characteristics of Opthalmology, Otorhinolaryngology and Dermatology, so those who study in this course understand the diagnostic and treatment methods about the sensory organs.

Communication Skill

The students study general communication technique, the psychology of doctor, the psychology of patients, patient - doctor relationship, the psychology of patients in internal medicine, the psychology of patients in surgery, and the medical communication.

Introduction to Clinical Basic Procedure I

The course is designed to introduce the medical procedure which used in internal medicine, orthopedics, opthalmology and dermatology to students and help them to acquire the basic medical procedural skills.

Maternal-Fetal and Neonatal Medicine

We discuss whole process of the fetal development, maternal physiologic changes during pregnancy, normal childbirth, aid for abnormal labor, and various maternal diseases during pregnancy. In addition, we discuss perinatal care for normal newborn and neonatal diseases.

Woman's Medicine

This course is designed to provide an opportunity to acquire the knowledge and skills to manage medical conditions unique to women, and ultimately promote women's health. This will be achieved by learning the anatomy and function of the female reproductive system and breasts, as well as studying the pathophysiology and treatment for the disorders and diseases of women.

Clinical Neuroscience I

This course helps students to understand the manifestation, diagnosis, and treatment of various neurological disorders on the basis of knowledge of neurophysiology, neuroanatomy and neuropathology.

Psychiatry I

This course is committed to preparing medical students to be competent in the identification of psychiatric disorders, their differential diagnoses by clinical and laboratory methods, their treatment by psychological or biological methods, and their prevention.

Health Policy and Management

This course helps students to be able to explain the main steps in formulating health policy, classify the basic management of functions, identify specificities of health management and gain skills in strategic and business planning.

Preventive Medicine

Preventive Medicine course consists two sections, Epidemiology and Environmental Medicine. This provides knowledge in epidemiology, toxicology, occupational health and global environmental health to prevent various disease in individual and populations.

Communication Seminar

This course helps students to remind communication skills they learned at previous course and practice skills in clinical simulated situations they make for themselves especially in the fields of internal medicine, general surgery, obstetrics and gynecology, and pediatrics.

Introduction to Clinical Basic Procedure Ⅱ

The course is designed to introduce the medical procedure which used in obstetrics, neurology and psychiatry to students and help them to acquire the basic medical procedural skills.

Internal Medicine Clerkship I

This clerkship will help you become competent at the assessment and management of common and important problems in internal medicine. You can get broad understanding of basic and clinical science, critical thinking and problem-solving, and exceptional professionalism and interpersonal skill.

Pediatrics Clerkship

The goal of this course is to provide students with the practical knowledge essential for pediatrics. In this course students will learn all diseased included in the pediatric area. and participate in the diagnosis, treatment and management of the pediatric patients.

Obstetrics & Gynecology Clerkship

Clerkship includes all aspects of human reproduction as well as preventive and

corrective care of diseases and conditions, benign and malignant, of the female reproductive organs. Preparation for participation in clinical activities within the specialty and the subspecialty areas of reproductive endocrinology-infertility, maternal-fetal medicine, and gynecologic oncology may be acquired through directed reading and scheduled discussions with faculty members.

Introduction of Pediatrics

This course helps students to understand basic principles and knowledge of pediatrics. Students learn about normal growth and development, pediatric nutrition, principle of pediatric treatment, fluid and electrolyte balance, homeostatsis, Preventive Pediatrics, genetics, metabolic disorder and immunology.

Clinical Diagnosis and Basic Skills

Student will learn and practice the strategic approach method to patients before the clinical relationship in hospital with this subject. The study is composed of medical history taking, physical examination, problem oriented medical record, basic clinical skills, student will have practical knowledge and skills for professional medical approach methods for patients.

Medical Ethics

This lecture helps the medical students to discuss the ethical principles in clinical environments and make the appropriate decision in the conflict of interest.

Evidence Based Medicine

Evidence-based medicine (EBM) is an approach to medical practice intended to optimize decision-making by emphasizing the use of evidence from well designed and conducted research (coming from meta-analyses, systematic reviews, and randomized controlled trials) patients.

Neurology Clerkship

In this course students watch neurological practices bedside and experience basic clinical skills of neurology. So those who study in this course can provide primary care of common neurological diseases.

Psychiatry Clerkship

This clerkship is to enhance students' understanding of the interplay between brain and behavior, and to introduce current clinical applications of modern neuroscience. The goal of this clerkship is to provide students with the psychiatric knowledge essential for the general practice of medicine.

Internal Medicine Clerkship Ⅱ

This clerkship will help you become competent at the assessment and management of common and important problems in internal medicine. You can get broad understanding of basic and clinical science, critical thinking and problem-solving, and exceptional professionalism and interpersonal skill.

Radiology Clerkship

In this course, students watch and experience radiological diagnostic and therapeutic process. So those who study in this course can understand the role of radiology department for clinical practice and learn the basic knowledge of radiologic imaging modality.

Emergency Medicine Clerkship

The aim of Emergency Medicine Clerkship aims to foster medical students with skillful training on emergency care through systematic educational programs. It helps students to understand the pathophysiology of emergency illness and learn the basic procedures for effective first aid. Finally, it contribute to accomplish expert knowledge for emergency management to reduce mortality and morbidity of emergency patients.

Surgery Clerkship

This course helps students to remind knowledge and skills on general surgery they learned at previous course and concretize them in real clinical situations. Students learn how to communicate, diagnose, make treatment plans, prepare to surgery, and monitor patients.

An Introduction to Surgery

This course helps students to understand basic principles and knowledge of general surgery. Students learn about post-traumatic responses, fluid and electrolyte balance, homeostatsis, shock, surgical infection, trauma, wound healing, surgical oncology, transplantation, postoperative complications, perioperative patient monitoring, cytogenetics, and molecular biology.

Elective Clerkship Of Surgery

The experience of several different surgeries is possible selecting one of neurosurgery, orthopedic surgery, urology and chest surgery.

Understanding Health and Medical Industry

This course provide the medical student with the direction by a master for health and medical service.

Test for Clinical Performance

In the end of third grade, this course is to estimate the knowledge for clinical medicine and practice.

Health Policy and Management

This course helps students to be able to explain the main steps in formulating health policy, classify the basic management of functions, identify specificities of health management and gain skills in strategic and business planning.

Forensic Medicine and Medical Laws

In forensic medicine, we study basic concepts about the autopsy of corpses and

the filling-in of death certificate. In medical laws we study not only basic medical laws but also specific laws including health insurance act, law for community health and infectious diseases prevention act.

Comprehensive Clinical Medicine

The purpose of this course is the preparation for the Korean Medical License Examination. The students should learn the definition, diagnosis and treatment of common diseases in Korea. The students can apply their clinical knowledge into the interpretation of common symptoms which primary-care physicians meet in their clinics. This course will also help the students with looking for answer of the sample questions from previous tests.

Preventive Medicine III

Preventive Medicine III (Epidemiology) is a study of the distribution and determinants of disease and injury in human populations. Students gain proficiency in study designs, measurement and inference to illuminate the distribution and determinants of health states—as they identify and evaluate strategies for the prevention and control of disease in human populations.

Preventive Medicine IV

Preventive Medicine IV (Environmental Medicine) is committed to understanding how environmental risks impact human health. This course provides necessary skills and knowledge in toxicology, occupational health and global environmental health to solve environmental health challenges locally and globally.

OSCE · CPX I (Objective Structured Clinical Examination & Clinical Performance Examination I)

OSCE and CPX has been established as an essential element of medical school curricula in line with medical education reform and clinical exam of korea medical licensing exam. This course aims to acquire clinical performance by students and evaluate them. OSCE education is focused on acquisition of basic medical procedures which are needed for medical examination, tests and treatments, CPX is to acquire clinical capacity for performance of health care professionals such as communication skills and ability to handle various actual patients.

Professionalism in Medicine

This course helps students to understand and discuss that focus on the professional development of physician and role of profession in medicine so that our medical schools are equipped with better professionals

Clinics in Family Medicine

Family medicine is the medical specialty which provides continuing, comprehensive health care for the individual and family, regardless of sex, age

and type of health problems. Family medicine aims to train as a specialist who can consult common health problems and diseases for patients, their family, and community and contribute to promote health.

Clinics in Anesthesiology and Pain Medicine

Students participate actively in both inpatient and outpatient care, working in operating rooms, recovery rooms, outpatient clinics, outpatient surgery centers, and intensive care units. Students are also active in the pain management.

Clinics in Radiation Oncology

This course helps students to understand the process and method of radiation treatment based on the principle of radiation oncology, to be equipped with the basic knowledge as a doctor and to raise their capability of utilizing it in the various field of cancer therapy and research.

Clinics in Urology

The aim is to comprehend the general urology by understanding basic urological disease and leaning essential urological practice.

Clinics in Plastic Surgery

This course helps students to understand the plastic surgery for the patient with congenital deformity, post-traumatic deformity, post-oncological defect, burn induced deformity and the need of aesthetic enhancement.

Clinics in Neurosurgery

Clinics in Neurosurgery is composed of several lectures about the pathophysiology, causes, diagnoses and treatments of neurosurgical diseases and spinal diseases. And through neurological examination drills and participation of surgeries and seminars, essential clinical knowledges about neurosurgical diseases will be earned.

Clinics in Ophthalmology

The aim of Clinics in Ophthalmology is to educate the general disease of eye, the ocular symptom of other department and primary management for eye.

Clinics in Otolaryngology

This course aims to foster talented individuals with basic knowledge and clinical performance on Otolaryngology - Head and Neck Surgery through a systematic curriculum. It also aims to prepare the students, so that proper practices are carried out in the future within the diseases of our field they may encounter.

Clinics in Laboratory Medicine

This course provide the medical student with the method of laboratory medicine and the interpretation of clinical laboratory data for diagnosis or treatment. Therefore, this subject support the medical care or clinical diagnosis to the patient.

Clinics in Orthopedic Surgery

Students will understand orthopaedic diseases and injuries by actively participating in direct patient care activities in surgery, outpatient, wards and emergency rooms. And they will acquire the knowledge and skills that contribute to effective diagnosis of musculoskeletal system.

Clinics in Rehabilitation Medicine

This course helps students to cultivate the ability to conduct basic physical therapy and therapeutic exercise.

Clinics in Dentistry

Dentistry is a branch of medicine that is involved in the study, diagnosis, prevention, and treatment of diseases, disorders and conditions of the oral cavity, commonly in the dentition but also the oral mucosa, and of adjacent and related structures and tissues, particularly in the maxillofacial (jaw and facial) area. Dentistry is widely considered important for overall health. This course helps students to understand the anatomy of oral and maxillofacial region and related diseases.

Clinics in Dermatology

As to primary care physicians who are responsible for learning the basic skills of dermatologic diagnosis and treatment, acquire clinical skills through reading an atlas of dermatology and attending the outpatient department.

Thoracic and Cardiovascular Surgery & Clinical Experience

Learning with clinical experience of general thoracic diseases and congenital and acquired cardiovascular diseases which need surgical management

Clinics in Nuclear Medicine

Learn and practice the nuclear medicine imaging and treatment.

Objective Structured Clinical Examination

The OSCE is designed for students to understand the most basic skills which useed in surgical procedures, and to learn to measure patients directly through lecture note and surgical atlas. In addition, It designed to improves student's medical manipulation capacity to be directly applied to the patient through training using clinical models.

Clinical Performance Examination

The OSCE/CPX is a versatile multipurpose evaluative tool that can be utilized to assess health care professionals in a clinical setting. It assesses competency, based on objective testing through direct observation. It is precise, objective, and reproducible allowing uniform testing of students for a wide range of clinical skills. Unlike the traditional clinical exam, the OSCE/CPX could evaluate areas most critical to performance of health care professionals such as communication

skills and ability to handle unpredictable patient behavior.

Comprehensive Medical Clerkship I

This course will provide students to achieve comprehensive core medical knowledges and basic clinical skills, which were trained during clerkships of internal medicine and pediatrics.

Comprehensive Surgical Clerkship II

This course helps students to provide an comprehensive skill by clinical basic procedure and basic knowledge of surgery clerkship and obstetrical & gynecological clerkship.

Subinternship Elective

This course helps students to have an good opprtunity to experience global medical environments and to learn about public health systems. Students can choose to go through any programs about medicine, pharmacy, public health, research laboratory and volunteer activities.

Planning a Life after Graduation

This course provides the factors to be considered in determining career after graduating from college of Medicine, the introduction of additional courses or training courses needed to fulfill the dream of individual students.

Department of Nursing Science

Introduction

The department aims to train professional nurses who contribute in enhancing health of the human race on the basis of humanism. The educational objectives of the Department are to provide substantial nursing education in order that students are equipped with excellent practical nursing abilities, co-operative minds and a sense of service to society, and grow to be nurses and nursing leaders who play dominant roles in diverse nursing fields and health and medical areas after graduation.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(32Credits), a major(110Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Nursing & English(2)	1-2-R Anatomy in Nursing(2)
1-1-R Microbiology in Nursing(2)	1-2-R Understanding Human Psychology(2)
	1-2-R Introduction to Professional Nursing(2)
	1-2-E Community Service(0)
2-1-R Pathology in Nursing(2)	2-2-R Pharmacology in Nursing(2)
2-1-R Interpersonal Relationship & Communication(2)	2-2-R Physiology in Nursing(3)
2-1-R Human Growth and Development(2)	2-2-R Understanding Human and Human Distress(2)
2-1-R Fundamental Nursing I(2)	2-2-R Fundamental Nursing II(2)
2-1-R Fundamental Nursing Practicum I(1)	2-2-R Fundamental Nursing PracticumII(1)
2-1-E Ethics and Professional in Nursing(2)	2-2-R Adult Health Nursing I(3)
2-1-E Health Assessment(1)	2-2-R Community Health Nursing I(2)
2-1-E Health Assessment & Practice(1)	2-2-E Introduction to Nursing Research(2)
	2-2-E Health Education(2)
	2-2-E Critical Thinking and Nursing Process(2)
3-1-R Adult Health NursingII(2)	3-2-R Adult Health NursingIII(2)
3-1-R Child Health Nursing I(2)	3-2-R Child Health NursingII(2)
3-1-R Women's Health Nursing I(2)	3-2-R Women's Health NursingII(2)
3-1-R Community Health NursingII(2)	3-2-R Nursing Management I(2)
3-1-R Psychiatric Mental Health Nursing I(1)	3-2-R Psychiatric Mental Health NursingII(2)
3-1-R Adult Nursing Practicum in Internal Medicine(2)	3-2-R Adult Nursing Practicum in Surgical Department(2)
3-1-R Child Health Nursing Practicum(2)	3-2-R Women's Health Nursing Practicum(2)
3-1-R Community Health Nursing Practicum(2)	3-2-R Operation & Emergency Care Practicum(2)
3-1-R Introduction to Clinical Nursing Skill(1)	3-2-R Introduction to Simulation Practicum(1)
3-1-E Nursing Research Seminar I(1)	3-2-E Nursing Research SeminarII(1)
	3-2-E Geriatric Nursing(2)
4-1-R Adult Health NursingIV(2)	4-2-R Medical Law(1)
4-1-R Nursing ManagementII(2)	4-2-R Child Health NursingIII(1)
4-1-R Women's Health NursingIII(2)	4-2-R Adult Health NursingV(2)
4-1-R Community Health NursingIII(2)	4-2-R Integrated Nursing(1)

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
4-1-R Psychiatric Mental Health NursingIII(2)	4-2-R Critical Care Nursing Practicum(2)
4-1-R Nursing Management Practicum(2)	4-2-R Psychiatric Mental Health Nursing Practicum(2)
4-1-R Integrated Nursing Simulation(2)	4-2-E Understand International Nursing(1)
4-1-R Life and Death(2)	4-2-E Transcultural Nursing(1)
4-1-E Career Guidance(0)	4-2-E Nursing Informatics(1)
4-1-E Geriatric Nursing Practicum(2)	4-2-E Complementary and Alternative Nursing(1)
	4-2-E Selective Nursing Practicum(2)

● Courses Abstract

Nursing & English

This course helps students to understand basic medical and nursing terminology.

Microbiology in Nursing

This course introduces students to the study of the basic concepts and current knowledge of medical microbiology.

Anatomy in Nursing

In this course, students will acquire comprehensive knowledge of human structure and physiologic functions through lectures and laboratory experiments.

Understanding Human Psychology

Human psychology seeks to understand how health professionals think, feel, and behave in healthcare settings. This course introduces major theories and topics of human psychology.

Introduction to Professional Nursing

The objective of this course is to provide an understanding of the nature of professional nursing in historical perspectives and considers influential historical events to the nursing profession and the philosophy of nursing.

Community Service

This course is designed to provide specialized community service opportunities to students for establishing basic concepts and attitudes towards community service in order for them to be nurtured as global leaders who will lead to enhancement and development of the public interest.

Pathology in Nursing

This course, students will acquire a comprehensive theoretical foundation of phenomena that produce alterations in human physiologic functions, etiologies of disease, and mechanism of disease process.

Interpersonal Relationship & Communication

This course provides students with the basic concepts of therapeutic communication and interpersonal relationships as the fundamental tools in nursing. The topics studied include: principles of self-understanding; therapeutic

communication; and therapeutic interpersonal relationships.

Human Growth and Development

This course is designed to enable students to obtain theoretical knowledge of human development, and physical/psychosocial aspects of each developmental stage. Students explore the concepts of health and illness and strategies of health promotion for each developmental stage.

Fundamental Nursing I

This course is designed to provide basic principles for professional nursing. The focus of this course is the study of human needs, concepts of health assessment.

Fundamental Nursing Practicum I

This course is designed to provide basic skills for professional nursing. The focus of this course is the study of basic nursing skills.

Ethics and Professional in Nursing

In this course, students will identify and discuss the problems of and alternatives to ethical dilemmas that nurses experience in health and nursing practice. Through the course, students will be able to elevate their moral levels as future nurses.

Health Assessment

The purpose of this course is to examine comprehensive health assessment principles and techniques. Emphasis is on the principles of assessment of health status of individuals across the lifespan and therapeutic communication.

Health Assessment & Practice

The purpose of this course is to examine comprehensive health assessment principles and techniques. Emphasis is on development and use of general and specialized assessment skills as a basis for clinical decision making.

Pharmacology in Nursing

This course will provide students with the theoretical basis of the physiologic actions, expected therapeutic effects, major side effects, and implications of drugs used in nursing.

Physiology in Nursing

In this course, students will acquire comprehensive knowledge of human structure and physiologic functions through lectures. The information obtained in the course will prepare students for courses in pathophysiology, pharmacology, and clinical nursing.

Understanding Human and Human Distress

This course investigates the relationship between human and human distress.

Fundamental Nursing Ⅱ

This course is designed to provide basic principles for professional nursing. The

focus of this course is the study of human needs, concepts of health assessment.

Fundamental Nursing Practicum Ⅱ

This course is designed to provide basic skills for professional nursing. The focus of this course is the study of basic nursing skills.

Adult Health Nursing Ⅰ

In this course, students will examine the risk factors, related diseases, and theoretical bases of adults' health and nursing problems so as to provide holistic nursing care. The physical, psychological, and social aspects of patients with gastrointestinal, or respiratory diseases are the main areas of study. In addition, nursing diagnoses and nursing interventions in the nursing process will be emphasized.

Community Health Nursing Ⅰ

This course emphasizes the theoretical background of community health nursing, health care system and health policies. Students will be able to formulate the community health nursing diagnosis as the basis for nursing intervention to maintain and promote health, prevent diseases, and evaluate the community health care with community partnership.

Introduction to Nursing Research

In this course, students will study the process of writing basic nursing research proposals in the fields of their interest and critique studies for application to the nursing practice.

Health Education

In this course, students will learn to teach health and health management to the general public.

Critical Thinking and Nursing Process

This course is an overview of the Nursing Process aimed at guiding the learner in the use of the process in planning care. Each step- assessment, diagnosis, planning, intervention, and evaluation- will be analyzed in relation to the nursing care plan based on critical thinking.

Adult Health Nursing Ⅱ

In this course, students will examine the risk factors, related diseases, and theoretical bases of adults' health and nursing problems so as to provide holistic nursing care. The physical, psychological, and social aspects of patients with cardiovascular, or hematologic diseases are the main areas of study. In addition, nursing diagnoses and nursing interventions in the nursing process will be emphasized.

Child Health Nursing Ⅰ

This course will focus on conceptualizing, organizing, and integrating knowledge

related to the nursing process of children and families in acute and ambulatory care settings. The application of concepts of growth and development of the child and the family will be emphasized.

Women's Health Nursing I

This course assesses physical, psychological and social health issues during a woman's life time.

Community Health Nursing Ⅱ

Utilizing the principles of health promotion, environmental health, and epidemiology, this course provides students with comprehensive knowledge of primary health care. Through the course, students will come to apply the nursing process to various groups and settings including maternal and child groups, chronic disease groups, and school and industrial populations.

Psychiatric Mental Health Nursing I

Study and application of selected theories and relevant research works for the nursing process of psychosocially deviated adult persons.

Adult Nursing Practicum in Internal Medicine

In this practicum course, students will acquire the knowledge, skills, and attitude needed to take care of adult patients who have problems with internal medicine. The practicum will take place in the University Hospital and most student activities will focus on the application of the nursing process to actual inpatients.

Child Health Nursing Practicum

This clinical course will focus on developing students' nursing intervention skills specifically for the nursing care of children in short-term and long-term health care settings. Students will practice the application of the nursing process to infants and children who are on the wellness-illness continuum.

Community Health Nursing Practicum

In this course, students will learn to apply the community health nursing process to families, communities, and aggregates of high risk populations. In addition, they will analyze and discuss the programs offered by community health clinics in order to suggest improvements.

Introduction to Clinical Nursing Skill

This clinical practicum course will focus on the development of students' clinical knowledge and nursing skills.

Nursing Research Seminar I

On the basis of the knowledge and skills acquired in Introduction of Nursing Research, students will formulate research problems, search for related literature, and conduct research in groups in this course so as to train themselves as future nursing scientists.

Adult Health Nursing Ⅲ

In this course, students will examine the risk factors, related diseases, and theoretical bases of adults' health and nursing problems so as to provide holistic nursing care. The physical, psychological, and social aspects of patients with musculoskeletal, neurological system, or sensory regulation diseases are the main areas of study. In addition, nursing diagnoses and nursing interventions in the nursing process will be emphasized.

Child Health Nursing Ⅱ

This course provides the student with knowledge of the management of complex acute and chronic illnesses in children from newborns through young adulthood. Emphasis is on integration of knowledge, theory, and research from a variety of disciplines into age appropriate assessment and treatment of children from diverse backgrounds.

Women's Health Nursing Ⅱ

In this course, students will study the nursing process specifically for the physical and psychosocial needs of childbearing and pregnant women and their families.

Nursing Management Ⅰ

In this course, student will study the principles and concepts of nursing management, the management process (planning, organizing, staffing), and the role of the nurse manager.

Psychiatric Mental Health Nursing Ⅱ

In this course, students will study and apply selected theories and principles relevant to the nursing process of psychosocially deviant adolescents, children, and the elderly.

Adult Nursing Practicum in Surgical Department

In this practicum course, students will acquire the knowledge, skills, and attitude needed to take care of adult patients who have surgical problems. The practicum will take place in the University Hospital and most student activities will focus on the application of the nursing process to actual inpatients.

Women's Health Nursing Practicum

In this course, students will clinically experience and demonstrate the role of the professional nurse for sexual and reproductive health of women.

Operation & Emergency Care Practicum

In this practicum course, students will acquire the knowledge, skills, and attitude needed to take care of adult patients who have surgical problems. Clinical classes will be held in the operating room and the emergency room of a teaching hospital.

Introduction to Simulation Practicum

This clinical practicum course will focus on the development of students' clinical knowledge and nursing skills in simulation situations.

Nursing Research Seminar Ⅱ

On the basis of the knowledge and skills acquired in Introduction of Nursing Research, students will formulate research problems, search for related literature, and conduct research in groups in this course so as to train themselves as future nursing scientists.

Geriatric Nursing

In this course, students will acquire gerontological nursing knowledgethrough lectures. Through lectures, they will learn the physical, psychological, and social characteristics of the elderly and the nursing process needed to improve or maintain the health status of the elderly.

Adult Health Nursing Ⅳ

In this course, students will examine the risk factors, related diseases, and theoretical bases of adults' health and nursing problems so as to provide holistic nursing care. The physical, psychological, and social aspects of patients with endocrine, or renal dysfunction, urinary elimination diseases are the main areas of study. In addition, nursing diagnoses and nursing interventions in the nursing process will be emphasized.

Nursing Management Ⅱ

In this course, student will study the principles and concepts of nursing management, the management process (decision-making, directing, and controlling, etc), and the role of the nurse manager.

Women's Health Nursing Ⅲ

Completes the framework for advanced practice nursing in women's health through development of skills in primary care, transcending reproductive care.

Community Health Nursing Ⅲ

This course will cover the principles of being a school nurse and community health nurse. They will then assess health issues as well as conduct and evaluate nursing plans.

Psychiatric Mental Health Nursing Ⅲ

This course provides students with a knowledge base in mental health assessment of clients across the life span within the context of the advanced psychiatric mental health nursing role. Emphasis is on the acquisition and analysis of relevant data for the development of a comprehensive and holistic mental health assessment and subsequent diagnoses.

Nursing Management Practicum

In this course, students will study and carry out he role of the nurse manager on the first, middle, and top levels in nursing organizations. In addition, they will learn to implement the nursing process and the nursing management process in the health care system.

Integrated Nursing Simulation

This course will focus on the development of students' clinical knowledge and nursing skills in simulation situations. In addition, they will increase clinical competence through selected critical thinking scenarios.

Life and Death

This course investigates the relationships between life and death. Through the course, students will come to understand about life and death.

Career Guidance

The objective of this course is to provide opportunities for students to gain the knowledge of nursing and to develop beginning their personal and professional career goals.

Geriatric Nursing Practicum

In this course, students will acquire gerontological nursing knowledge and skills through practicum. Through field practicum, students will practice the application of knowledge to practice. In addition, the course will address family and social welfare issues related to the elderly and emphasize a holistic nursing approach.

Medical Law

The purpose of this course is to introduce nursing students, especially those interested in health administration and management, to the legal issues they are likely to face in managing a health care organization and nursing practice.

Child Health NursingⅢ

This course provides the student with in-depth knowledge of the management of child health care, including treatment of specific health problems in children from newborns through young adulthood.

Adult Health NursingⅤ

In this course, students will examine the risk factors, related diseases, and theoretical bases of adults' health and nursing problems so as to provide holistic nursing care. The physical, psychological, and social aspects of patients with fluid and eletrolyte imbalance, shock, or oncological diseases are the main areas of study. In addition, nursing diagnoses and nursing interventions in the nursing process will be emphasized.

Integrated Nursing

In this course, students will examine the dynamic nature of nursing as an academic and professional discipline in national, international, political,

socioeconomic, and cultural terms.

Critical Care Nursing Practicum

This course provides theories and skills needed in identifying nursing problems with critical patients and their families. It includes timely interventions as well as skills to handle high-tech medical devices.

Psychiatric Mental Health Nursing Practicum

In this course, students will clinically apply the nursing process to psychiatric mental health nursing in diverse care settings—children's and adolescents' psychiatric wards, adults' psychiatric wards, and day hospitals.

Understand International Nursing

This course deals with a variety of issues about international nursing.

Transcultural Nursing

This course deals with a variety of issues about transcultural nursing.

Nursing Informatics

In this course, students will be introduced to the terms and concepts basic to nursing informatics as well as the Internet. In addition, an overview of the nursing uses of information systems will be provided. The course covers the most common applications of nursing informatics to clinical nursing practice, nursing education, nursing administration, and nursing research.

Complementary and Alternative Nursing

This course deals with a variety of issues about complementary and alternative nursing.

Selective Nursing Practicum

This course provides the student with knowledge of the management of complex acute and chronic illnesses in children from newborns through adult patients. Clinical classes will be held in the neonatal intensive care unit, pediatric ward, operating room, and the emergency room of a teaching hospital.

▣ Department of Fine Art

Introduction

Department of Fine Art aims to develop the special artists who are equipped with creative writer mind and qualifications by the education of whole personal fine art. Our department is to develop the individual creativity and expressiveness by a variety of practices and refinement education, and to raise the integrated thinking capability by understanding the organic correlations in overall fine arts. In addition, various and abundant experiments and researches of fine art contribute to develop critical view and to deepen the creativity. Especially, diverse educations art performed in the studios by specialties where are designed to meet the characteristics of fine art educations, so that the students can develop their own artistic world in the individual spaces. In the gallery of the department, the artistic exhibitions art frequently held to show the process and performances. Beside the regular curricula, we actively support to invite the famous domestic and international writers, cultural critics, artistic administrators, and so on by the programs such as seminars, workshops, and special lectures, so as to understand the trend of global culture and arts.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(33Credits), a major(72Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R History of Korean Art(3)	1-2-E Theory of Fine Arts I (3)
2-1-R History of Western Art(3)	2-2-E History of Western Art II (3)
2-1-E Theory of Fine Arts II (3)	2-2-E History of Oriental Art(3)
2-1-E Printmaking I (2)	2-2-E Printmaking II (2)
2-1-E 3D Modeling I (2)	2-2-E 3D Modeling II (2)
	2-2-E Color formative and drawing(2)
3-1-E Appreciation of Modern Art(3)	3-2-E Theory of Contemporary Art(3)
3-1-E Modern Sculpture Technique(2)	3-2-E Art Anatomy(3)
	3-2-E Logic and Discourse of Art Education(3)
4-1-R Aesthetics(3)	4-2-E Art Application(3)
4-1-E Art administration(2)	4-2-E Theory of Art Education(3)
4-1-E Teaching Method and Materials in Art Education(3)	

● Courses Abstract

History of Korean Art

The class focuses on the development of Korean culture & art in the future by studying creative expression and analyzing the past and the present.

Theory of Fine Arts I

The class offers fundamental understanding of plastic art through mobile access about basic concepts of plastic art and basic elements of it. The class also provides fundamental energy in creation and production. Based on theories, the class focuses on the broader application in practical works.

History of Western Art I · II

By approaching the history of art systematically, the class focuses on finding value and meaning of fine arts in depth as well as understanding essence and principle of art in developmental process of art.

Theory of Fine Arts

As a more advanced course than theory of fine arts I , the class is designed to help students understand the specific meaning and methods of fine arts by concentrating especially on art making, esthetic functions and Style.

Printmaking I

The class is an technical lecture of the printmaking that contributes to art from the middle age down to age of modernism. The class provides opportunities to discuss what the printmaking is and to learn about it. The class also aims to find meanings on the birth of the printmaking as well as study relationships between printing and printmaking. Printmaking I provides discussion on how copy technology has been together with modern art. The techniques are dry point, etching, collagraph, and a lithgraph.

3D Modeling I , II

Through the interpretation of hardware and software for using computer in visual design, the class aims to help students understand meaning and roles of computers on how to express technical functionality to visual design.

History of Oriental Art

By studying features of oriental art, the class aims to help students not only understand distinctive traits of oriental art and cultural flow but also through various appreciation consider relationship between creation and tradition.

Printmaking II

Modern art has complexity because of combination among various media. With many article techniques, Printmaking has contributed to modern art. Especially on the changes of painting forms, fusion of techniques that have different features

each other help to express different senses. Thus this class help students understand printmaking of post modern art by exploring works of many artists. This class also examines about meanings of advent of printmaking after 1950 and study about the images presented by the printmaking. The class also provides Indirect studies of anonymous methods. Techniques such as silk screen, block print, and monotype are used in this course.

Color formative and drawing

The class focuses on understanding spirit of modern times and the specific contexts of that development process by approaching flow of modern arts especially after Renaissance that has uplifted new human spirit.

Appreciation of Modern Art

The class focuses on understanding spirit of modern times and the specific contexts of that development process by approaching flow of modern arts especially after Renaissance that has uplifted new human spirit.

modern Sculpture Technique

The class provides introduction to overall methods of expression and materials of the modern sculpture. It helps students study specific techniques of modern sculpture.

Theory of Contemporary Art

This course designed to examine fundamental values of modern arts and learn about specific tendencies of the present through it.

Art Anatomy

By examining frames and muscles of human body and learning changes of it, the class helps students make human figure sculptures.

Logic and Discourse of Art Education

The class focuses on learning ability to express their thought logically by using formative art language. This is a course in teaching.

Aesthetics

Through the historical development of aesthetics, the class deals with concept and meaning of esthetics that mainly interested in philosophical reflection on emotion and art.

Art administration

This course helps students understand overall business on exhibition, management and advertisement. For having professional knowledge on relevant field, Students also learn about practical works in an art museums, galleries and alternative spaces through this course.

Teaching Method and Materials in Art Education

Based on art text books being used in theoretical education, The class aims to

make teaching materials to contribute improvement in quality of secondary education and open up new vistas of the future education of art.

Social Art Application

This class contains practicing course related in exhibition and some practical works for the position as an full time artist after graduation.

Theory of Art Education

This course helps students systematically understand features of art and education by studying various theories of art education. This course is in teaching.

Oriental Painting :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Basic Course of Oriental Painting I (2)	1-2-E Basic Course of Oriental Painting II (2)
1-1-E Oriental Painting Method I (2)	1-2-E Oriental Painting Method II (2)
2-1-R Study in oriental water color modeling practice I (2)	2-2-R Modern oriental painting technique I (2)
2-1-R Study in oriental water color modeling practice II (2)	2-2-R Modern oriental painting technique II 2)
2-1-E Study in color picture modeling practice I (2)	2-2-E Study in color picture modeling practice II (2)
2-1-E Study of modern drawing technique I (2)	
3-1-R Modern oriental painting technique III (2)	3-2-R Modern oriental painting technique V (2)
3-1-R Modern oriental painting technique IV (2)	3-2-R Modern oriental painting technique VI (2)
3-1-E Study in oriental painting material and technique I (2)	3-2-E Study in oriental painting material and technique II (2)
3-1-E Study in Oriental Painting I (2)	3-2-E Study in Oriental Painting II (2)
4-1-R Modern formative arts practice I (2)	4-2-R Modern formative arts practice III (2)
4-1-R Modern formative arts practice II (2)	4-2-R Modern formative arts practice IV (2)
4-1-E Study of oriental water color painting tecnique I (2)	4-2-E Study of oriental water color painting technique II (2)

● Courses Abstract

Basic Course of Oriental Painting I · II

The class aims to create new sense of beauty on modern art through the various expression and techniques of traditional Korean painting. The class also aims to help students learn roles of art as a universal language and human-centered emotional language expression

Oriental Painting Method I , II

The class aims to help students get essential techniques of Ink wash painting and literary painting and express various themes such as flower birds paintings, figure paitings, the four gracious plant paintings, and animal paintings.

Study in oriental water color modeling practice Ⅰ · Ⅱ

The class aims to help students improve their painting skills through the four gracious plant paintings that is the basic theme of Korean arts and express various themes by using korean ink. It is also help to elevate their mind.

Study in color picture modeling practice Ⅰ · Ⅱ

The class aims to help students paint creative korean colored pictures based on broad perspective by analyzing and examining various process in painting.

Study of modern drawing technique Ⅰ

The class focuses on respecting expression of poetic sensibility over the form, setting great important on artist's cultured dignity and expressing the inner world by using drawing as modern techniques.

Modern oriental painting technique I,II,III,IV.V.VI

This course helps students understand various formative principle and elements based on many techniques and ideas in the modern art.

Study in oriental painting material and technique Ⅰ · Ⅱ

The class aims to help students understand various materials and techniques on Oriental painting and explore formative elements. The class also help them experimental intuition through integrating materials.

Study in Oriental Painting Ⅰ · Ⅱ

The class focuses on considering styles of traditional ink wash painting and techniques as well as finding various formativeness. The class also puts emphasis on experiencing real problems by practical works and expressing modernization of oriental arts.

Study of oriental water color painting tecnique Ⅰ)

The class aims to help students understand features of formative principle and elements by exploring them. Based on it, the class also aims to express the

Modern formative arts practice I,II,III,IV

Through the formative principle of oriental painting, the class focuses on expressing various formativeness of modern painting.

Western Painting :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Basic Course of Western Painting Ⅰ (2)	1-2-E Basic Course of 1 Western Painting Ⅱ (2)
1-1-E Drawing Ⅰ (2)	1-2-E Drawing Ⅱ (2)
2-1-R Western painting Ⅰ-A(2)	2-2-R Western painting Ⅱ-A(2)
2-1-R Western painting Ⅰ-B(2)	2-2-R Western painting Ⅱ-B(2)
2-1-E Art and Media Ⅰ (2)	2-2-E Art and Media Ⅱ (2)
3-1-R Western painting Ⅲ-A(2)	3-2-R Western painting Ⅳ-A(2)

3-1-R	Western painting Ⅲ-B(2)	3-2-R	Western painting Ⅳ-B(2)
3-1-E	Study of Western Painting Techniques Ⅰ(2)	3-2-E	Study of Western Painting Techniques Ⅱ(2)
3-1-E	Study of Oil Painting Ⅰ(2)	3-2-E	Study of Oil Painting Ⅱ(2)
3-1-E	Digital Media Art(2)		
4-1-R	Western painting Ⅴ-A(2)	4-2-R	Western painting Ⅵ-A(2)
4-1-R	Western painting Ⅴ-B(2)	4-2-R	Western painting Ⅵ-B(2)
4-1-E	Study of Oil Painting Ⅲ(2)	4-2-E	Study of Oil Painting Ⅳ(2)

● Courses Abstract

Basic Course of Western Painting Ⅰ · Ⅱ

The class aims to help students have individual expressions by finding how basic construction and expression are represented in arts. The progress of this course depends on archvement of each students.

Drawing Ⅰ, Ⅱ

Through the expression of drawing, the class aims to help students improve their power of description and get basic formative elements in painting.

Western Painting Ⅰ(A,B) · Ⅱ(A,B) · Ⅲ(A,B) · Ⅳ(A,B)

The class provides opportunities to study about various expression and feeling of formative elements in painting and find modern techniques and concept. Students should experiment that concepts on their process of working.

Art and Media Ⅰ, Ⅱ

The class is a practical course that apply the basic application process of new media technology such as videos, sounds, and digital images and also provides opportunities to exhibit and direct their works.

Study of Oil Painting Techniques Ⅰ · Ⅱ

The class aims to help students analyze techniques on western paintings in the past and the present as well as study works that were made based on that techniques. Students should apply the techniques on their works.

Study of Oil Painting Ⅰ · Ⅱ

The class focuses on studying expression of formative elements in painting and helping them apply them into the process of their individual works. The process improves ability that can express students' own imagination more freely.

Digital Media Art

The class aims to help students improve their artistic creativity by using advanced media and learn various ways of expression through pictures, movies, videos, audios, computers, digital media.

Western painting Ⅴ(A,B) · Ⅵ(A,B)

The class provides opportunities to study about various expression and feeling of

formative elements in painting and find modern techniques and concept. Students should experiment that concepts on their process of working.

Study of Oil Painting Ⅲ

The class focuses on studying expression of formative elements in painting and helping them apply them into the process of their individual works. The process improves ability that can express students' own imagination more freely.

Study in Western Painting Ⅵ

Based on the interpretation on culture and art in the same period, the class aims to help students find a working forms fitted for contexts and concepts of each works as well as explore their own artistic point of view and possibility of new expression.

Sculpture :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-E Basic Course of Sculpture Ⅰ (2)	1-2-E Basic Course of 1 Sculpture Ⅱ (2)
1-1-E Fundamental Modeling Ⅰ (2)	1-2-E Fundamental Modeling Ⅱ (2)
	1-2-E Formative art and Portfolio(2)
2-1-R Study of formative human body Ⅰ (2)	2-2-R Study of formative human body Ⅲ (2)
2-1-R Study of formative human body Ⅱ (2)	2-2-R Study of formative human body Ⅳ (2)
2-1-E Sculpture Techniques Ⅰ (2)	2-2-E Sculpture Techniques Ⅱ (2)
3-1-R Study of formative solid body Ⅰ (2)	3-2-R Study of formative solid body Ⅲ (2)
3-1-R Study of formative solid body Ⅱ (2)	3-2-R Study of formative solid body Ⅳ (2)
3-1-E Study in formative medium practice Ⅰ (2)	3-2-E Study of Sculpture Techniques Ⅰ (2)
	3-2-E Study in formative medium practice Ⅱ (2)
4-1-R Study in art of formative solid body Ⅰ (2)	4-2-R Study in art of formative solid body Ⅲ (2)
4-1-R Study in art of formative solid body Ⅱ (2)	4-2-R Study in art of formative solid body Ⅳ (2)
4-1-E Study of Sculpture Ⅱ (2)	4-2-E Study of Sculpture Techniques Ⅲ (2)
4-1-E Study in formative medium practice Ⅲ (2)	

● Courses Abstract

Basic Course of Sculpture Ⅰ · Ⅱ

As a fundamental study, the aim of the class is studying basic modeling by observing heads of human and proportion of it.

Fundamental Modeling Ⅰ ,Ⅱ

The class focuses on teaching essential forms and sense of modeling in making sculpture.

Formative art and Portfolio

The class focuses on understanding major principles in the modern sculpture and flow of it. The class also helps students learn about various ways of expression by using new media and understand the process and the result of the working. Based on rich emotion and creativity, student should make formative works. Besides, portfolio about the process of the working is also needed.

Study of formative human body Ⅰ · Ⅱ · Ⅲ · Ⅳ

The class focuses on expressing the formativeness of human body based on anatomy and further transforming various works through the human body.

Sculpture Techniques Ⅰ · Ⅱ

Plastic art is establishing a 2D object in space. Plastic art set importance on finding elements and techniques of expression as well as concept about space and forms because unlike an object on plane, It creates a intended forms by material in space. This course help students raise their ability of expression through discussing on problems and expression of material or instruments represented in process of art working.

Study of formative solid body I,II,III,IV

The course aims to help students raise their sense of formative solid body and ways of expression that is the individual aesthetic consciousness. Students are needed to make their own works by using compatible material and improve their creative ability by hard studying and having experimental experiences.

Study of Sculpture Techniques I

The course focuses on training a technical parts of sculpture works. The course also helps students learn about characteristics of each material using in maiking sculptures by using them.

Study in formative medium practice Ⅰ , Ⅱ

The course aims to study modeling through media. The course also focuses on helping students practice modeling and learn about the techniques of working.

Study in art of formative solid body I,II,III,IV

The course aims to help students do experimental studies of media through the practical works and theories of formative solid body. The course aims to also help them have artistic sense fitted for these times.

▣ Department of Design

Introduction

The educational goal of the department of design is to foster expert designers who can lead the design culture of the future, by building their capacity in visual communication based on a thorough understanding of the basic theories and principles of design. The curriculum's goal is to foster intellectuals with insights and a sense of community who are also capable of creative thinking and application of design expertise. By doing so, a thought process that brings various areas together, strong leadership, artistic imagination and scientific problem-solving skills are nurtured.

Credit requirements for graduation

The department curriculum has three components: Liberal education requirements(36Credits), a major(84Credits), and electives.

Curriculum :

Yr-Sem-R/E Course (Credit)	Yr-Sem-R/E Course (Credit)
1-1-R Introduction to design I (3)	1-2-R Introduction to Design II(3)
1-1-E Two Dimensional Design I (2)	1-2-E Two Dimensional Design II(2)
1-1-E Three Dimensional Design I (2)	1-2-E Three Dimensional Design II(2)
1-1-E Form Analysis & Drawing I (2)	1-2-E Form Analysis & Drawing II(2)
2-1-R History of Design(3)	2-2-R Design Psychology & Visual Illusion(3)
2-1-R Typography(2)	2-2-R Typographic Design(2)
2-1-E Information Image Design I (2)	2-2-E Information Image Design II(2)
2-1-E Graphic Object Design I (2)	2-2-E Graphic Object Design II(2)
2-1-E Digital Image Workshop I (3)	2-2-E Digital Image Workshop II(3)
3-1-R Design Color Theories(3)	3-2-R Design Planning & Presentation(3)
3-1-R Theory & Practice in Video Design(2)	3-2-R Information Design II(2)
3-1-E Information Design I (2)	3-2-E Advertising Design II(2)
3-1-E Advertising Design I (2)	3-2-E Editorial Design II(2)
3-1-E Editorial Design I (2)	3-2-E Package Design II(2)
3-1-E Package Design I (2)	3-2-E Experimental Production in Video Design(2)
4-1-R Design Project & Solution(2)	4-2-R Graduation Workshop & Exhibition(2)
4-1-E Practices of Advertising Design (2)	4-2-E Study of Advertising Design(2)
4-1-E Practices of Editorial Design(2)	4-2-E Study of Editorial Design(2)
4-1-E Practices of Package Design(2)	4-2-E Study of Package Design (2)
4-1-E Video Media Design(2)	4-2-E Study of Video Design(2)
4-1-E Practices of Brand Design (2)	4-2-E Study of Identity Design(2)

● Courses Abstract

Introduction to Design 1

This is course open for the broad understanding for student that reaches on the questions of "what is design, why we need it, how we deal with it". The overall design, especially the areas of design elements and principles of visual design is introduced and learned from auxiliary exercises for sensing and feeling. Furthermore, it expands to the discussion of categorization of design industry, introduction of each discipline, mutual relationships and roles, design as professional. Also, it enables the participants to acquire the knowledge of design terminology, which is crucial for communicating for designers.

Two Dimensional Design I

This is the course to resolve the problems of basic design which engages in the range of two-dimensional design including dots, lines, and surfaces, in visual aspect through design principles and process. Design elements such as Shape, color, texture and design principles such as unity/change, equilibrium/harmony, symmetry/asymmetry, proportional/contrast are key aspects to be acknowledged to digest in quantitative and sensible ways for apply in practical situation. It aims to be accustomed to basic design capabilities and further develop them.

Three Dimensional Design I

This course practice methods and principles of three-dimensional elements, mainly in the formation-oriented. Comparing to the two-dimensional, it further expands to deeper understanding and basic concepts of three-dimension characteristics, starting from questions of how three-dimensional is different, how dots, lines, and surfaces should be specified and expressed in three-dimensional way. Also, it instills the participants to reach in different approach when dealing with subjects for multi-dimension logical thinking. This course includes not only adapting the basic principles and know-how of three dimensional design but also experiences of various instruments and materials which would lead to the growth of expressing potential.

Form Analysis & Drawing I

This is the course to develop the identification logical thinking on understanding the subject in mathematical and figurative ways and enable to express in certain rules, thus enabling to produce useful visual information about the subject. For above, this course systematically carry out basic study of various rules and methods including drawing figures and filling up the measurements to develop basic ability to logically deliver one's own perspective and objectively express.

Introduction to Design II

This is the course to backtrack the meanings of academics of design based on

Introduction to Design I course and strengthen the basic design knowledge by theories and practices. Also it enhances the level of understanding on design from the stories of different age and life such as Good Design by different design cases, value-addition of design, the roles and responsibility of design, publicness of design, transition of design paradigms, and design in sociocultural approach.

Two Dimensional Design Ⅱ

This is the consecutive course of Two Dimensional Design I. It strengthens the understanding of design elements and principles from what we learned from Two Dimensional Design I and enhances the thinking skills and ability to adapt in different expressions more efficiently when given the certain situation and conditions through experimental production approach.

Three Dimensional Design Ⅱ

This course is based on the contents of Three Dimensional Design I, and expands the realm of research and hands-on practices into the fields of texture and color tones. It explores more diverse relationships of three-dimensional structures and space and enhances the thinking skills and ability to adapt in different expressions more efficiently when given the certain situation and conditions through experimental production approach.

Form Analysis & Drawing Ⅱ

This course includes the process of reconfirming the contents of the course called Form Analysis & Drawing I, and puts the objective of "cultivating the free command of perspective drawing method to reproduce the three-dimensional structures and space. Furthermore, this course provides the learning of exceptional principles and methods to express contorted shapes such as counter-perspective drawing method. Overall, it aims to enhance expression of diverse forms and techniques of shape conversions.

History of Design

This is the course to understand the fundamental concepts and characteristics of design through the historical streams and incidents. From the occurrence of design, industrial revolution and contemporary society, it analyses and understands the phases of each age through the essential events, issues, and activities of central figures. On the basis of the above, it enables to grasp the context of modern contemporary design and further cultivate the vision and insights of predicting the future of design and making real pioneer designs.

Typography

Typography is the general term for all technical and empirical products which are essential to operate the fields effectively such as letter design. Thus, on the

basis of letters and words which are known as the key elements for the production and preservation of information, this course defines the relationship of shape, size, spacing and location between the elements and their details in efficient way to reflect on design through diverse hands-on practices. Further more, this education course is based on the theoretical grounds for hands-on practices such as beginning and history of letters, comparison of East and Western letters, theory of invention of Hangul, and basic typography.

Information Image Design I

This course aims for basic production training for TV, Internet news, newspapers, articles and other image data for the understanding of certain information. Also, during this course, you are able to study efficient methods and diverse expression techniques fundamental for creating the right visual language which matches with functionality and finality of media such as diagrams, maps, illustrations, charts, characters, timelines, news-graphics, and user manuals. It is meaningful to create the superior quality images to utilize in high-degree information design .

Graphic Object Design I

This is the course providing the expressing methods of three-dimensional objects which are characterized as mandatory and special in visual design realms. Through the material processing and fabrication methods such as stacking, piling, nesting, folding, punching and rolling, you are able to secure the efficiency of graphic object design productions. Also, this couse expands the expression and possibility of utilization through enhancing the logical understanding of three-dimensions by understanding the structures and applying on productions from diverse polyhedrons.

Digital Image Workshop I

This is the course that overreaches to the basic tool use of computer graphics including the expressing the ideas through computer programs or correction of images in its usage and purpose. You are able to systematically well-informed to the each basic fields by learning to express 2D graphic information and moving information such as motion graphics in parallel. Also, this course provides for your development by expanding the knowledge of computer softwares, hardwares, and peripheral devices.

Design Psychology & Visual Illusion

This course directs participants to explore the discovery of diverse clues to creative expression through the design psychology theories and practices essential to the gist of design studies such as gestalt psychology, perceptual psychology, and color psychology. By applying reverse modeling to the our visual perception

which is often confusing and mysterious and psychological curiosity, you are able to apprehend the true amusement of design. This course ultimately aims to develop your eye of insight and qualifications for expansion of expression realms through the plays of visual communication which is heart-moving and attractive.

Typographic Design

This is the consecutive course from Typography course. It implements effective typography which fulfills the function and logics based on theories and practices through the process of specifically covering the balance of organizational structure and elements between the letters. It reaches to the understanding the essential theories of expression and relationships of elements to find the optimal balance of composition such as font shapes for standing out the contents and meanings, size, letter-spacing, line-spacing, readability, and layouts.

Information Image Design Ⅱ

This is the consecutive course to reach in more professional way based on the contents of Information Image Design I. The diverse hands-on practices are throughly examined in consideration of specific details and nuances to produce the image information that are in accord with functionality and finality of media. This course develops the ability to respond more clearly to visual communication in each purpose and contents of media and invests on learning potential to produce the image in its optimal usage which can attract and appeal to the audience.

Graphic Object Design Ⅱ

This course, on the basis of the primary course of Graphic Object Design I, researches and practices on diverse and experimental three-dimension expression methods that are essential in visual design industry. It explores on research and development of variety of graphic objects on its function and usage such as paper knots, basic structures, three-dimensional puzzles, and pop-ups, thus ultimate potential of three-dimension expressions. Also, it seeks to better performing possibility as a new media by collaborating with different fields such as packaging designs.

Digital Image Workshop Ⅱ

This is the consecutive course of Digital Image Workshop I. It deepens the knowledge of application tools which we learned in previous course for production of information and videos. Further, it strengthens the knowledge of participants to be well-informed in various fields from professional camerawork for procuring work data to image correction and composite photography for praxis of data in its optimal usage. Thus, it enables students to actively ake a rold in major practice tests and learn in upcoming days.

Design Color Theories

This course is the process of strengthening the general understanding of colors as design majors. It reaches to the application of colors as a professional through the actual color practices with theories such as; properties of color and color theories, relationship of color with the color wheel, color contrasts and harmony, emotions and symbols of color, color psychology, color names and terminology, color coordination, influence and power of colors. Through the grasping of professional terminology of colors, it supports students to enable smooth communication from design activities and practices.

Theory & Practice in Video Design

This course is divided into two different parts. For theory part. it explores the numerous iedls based on basic aesthetic theories of digital image; the logical and sensible structure of digital image, expressin techniques, analysis tools, the transition of production forms due to the development of technology, and trends of contemporary digital image and sound. In practice part, students engage in technical and sensible experiences on producing images by learning computer graphics technology such as image creation, basic editing, and composite technology for production.

Information Design I

This course engages in the process of diversifying the ways of communication and heightening the efficiency for specific and practical visual communication based on information image design. In other words, the students seek various ways to perceive the roles of images and words by categorizing and to harmonize the collaboration and contrasting relationships between two elements. Furthermore, participants discuss and share the results by compositing the visual narratives which are systematic on the basis of information structures.

Advertising Design I

This course is the basis for learning theories and practices for introduction to advertising design. It analyses and deepens the cases of basic advertising theories and best cases of advertising for hands-on practices. Advertising is a key area of visual communication, using multiple information demanders, and diverse media. Thus, in this course, students engage in theoretical practices and expression abilities together for carrying out the best communication for its purpose and function.

Editorial Design I

This course is the process of learning the principles and methods of effectively designing the paper on its contents and meanings based on handling the letters. On the basis of basic theories of editorial design, this course provides the

fundamental ability to experiment and develop new and creative publications and designs by researching the relatoinships of image, contents, and composite structures in certain situations and conditions.

Package Design I

This course is centered to practice the package design (forms, structures and materials) as a vessel for placing and delivering the product, based on the basic theories of package design. Packaging is one of the five main elements of marketing, which indicates its core role and function in the market activities of a company. Its market is expanded to be equalized with the car industries. This course aims to understand and comprehensively grasp the current issues of contemporary package design such as protection of product, efficient management and distribution, sales promotion, handling of packaging waste. This course is interconnected with the course Package Design II.

Design planning & Presentation

Designers should not only be able to develop ideas, plan projects and complete in visual ways, but also should possess the ability to persuade the clients. In addition, as taking the roles of director to oversee the design-production process, one should be able to combine the knowledge and experience of the field. Thus, this course aims to strengthen the practical work ability by acquiring the presentation skills from proposal writing. Furthermore, students are able to experience the real production phase of design in actual production fields, and prepare a resume and portfolio for one's own career path.

Information Design II

This is the consecutive course of Information Design I. Through the characteristics and identification of symbols such as shapes, symbol marks, punctuation, signs, characters which contain its structural and color information, students acquire the hidden implications and symbolisms of information and apply into real production design phase. Through this, each participant is able to visually express values and identities of subjects - diverse categories of tangible and intanible objects such as products, companies, social phenomenon- in visual symbols. Also, it reaches to think about the potential applicability with identity designs or brand designs by systemization.

Advertising Design II

This is the course for deepening research on advertising theories and production methods to maximize the effect of the expression based on creative strategies of advertising design. The course engages in finding the right path for creative advertising design by actively applying the marketing techniques for advertising strategies and analyzing the main advertising media. Also, students are able to

acquire the production know-hows to meet the needs of clients and consumers by applying the diverse and unique communication methods depending on the varied media sources.

Editorial Design Ⅱ

This is the course engaging in tightening the theoretical backgrounds that researches and practices the dynamic and specific design for comprehensive harmony of design by: thinking the diverse application methods of grid, image and illustrations which are known to be crucial for actual production and challenges to experimental typography. Not only you can achieve smoother usage of tools but also you can solidify your foundation for editorial designs as creative and higher degree of completion in publication planning and design development.

Package Design Ⅱ

This is the consecutive course of Package Design I. This course engages in the discourse of how the package design should be processed in consideration of product identity, value confirmation, market penetration and growth, customer satisfaction and response. It oversees the overall procedures of thinking how one product is produced and utilized in package design perspective and solve the problems arising from it. This begins from the package identity which enhance the brand value of the product and efficient management of product line.

Experimental Production in Video Design

This course aims to provide the application tools of video for leveraging the digital media. On the one hand, this vitalizes the production of video contents from various data such as video, image, and sound and further reaches to the practical applications in the field. As the application areas of video is expanding with the development of digital technologies (advertising, film title sequences), the course provides various circumstances for enhancing the competitiveness: widening the existing video production technology and composite technology, training on state-of-the-art digital processing technologies through industrial cooperation, and exhibiting in various competitions.

Design Project & Solution

This course carries out to lay the groundwork for design consciousness by working on experimental design projects in the grounds of interests for future society, culture, knowledge and spirit of exploration. In other words, students can unravel and complete the variety of contemporary issues about design and environment, design and human, design and society from not only in design perspective, but also in the collaboration with different technologies and fields of study. Including universal design, silver design, social design, and public design, this course provides the research grounds of finding the daily problems we

encounter in both private and public aspects and looks for efficiently resolving the issues in both individual and comprehensive approach.

Practices of Advertising Design

This course is the process of comprehensively reviewing the practical works needed for advertising design. It allows for actual application in real on-site works by understanding and experiencing various aspects: planning and design phase, printing process, presentation techniques, relationships between advertising production partners to produce the advertisements which meets the needs of customers and clients. Also, individuals can develop the roles of director through the flow analysis and contemporary theories through research.

Practices of Editorial Design

This course practices the basic principles, processes and methodologies of publication of books based on the understanding and experiences in editorial design. Students can oversee the series of design process of publications in comprehensive approach from the planning phase to the delivery to the customers.

Practices of Package Design

This course handles the real problem of package design as the general design which oversees the distribution and consumption of products. Based on the course materials of package design I and II, this course is complementary to previous courses and provides learning for practical job performance and processing methods to function as holistic process.

Video Media Design

This course is the process of developing and producing the visual language that are applying multimedia and aims to learn the production planning abiilty and appropriate expression methods. The projects are planned to operate as workshop styles to integrate various media based on diverse technologies and artistic senses. Studnets can practice hands-on ability in the holistic process planning various multimedia applications, writing proposals, storyboard creations, and media design.

Practices of Brand Design

Brand Design is the series of activities that one finds the strengths from company's assets such as quality, trust, service which differentiates from others, and converses into spirit of the product. This course mainly proceed the development of brands based on the commercialization of a product and design works to integrate these images.

Graduation Workshop & Exhibition

This is the ultimate comprehensive course of the design department. Students

proceed in-depth research, design and produce various media such as posters, invitations, exhibition articles, badges needed to support the graduation exhibition by each topic. Also, students are given each responsibility to perform optimal teamwork by dividing their roles for exhibition planning and preparation, exhibition brochures production and distribution, PR and liaison, schedule programming and confirmation. The best graduation works are chosen to be awarded for its effort, also listed as main media design work to use as the introductory of the exhibition of that year. This course is mandatory for potential graduates of the design department

Study of Advertising Design

This course is comprised of research projects for those who are interested in taking advertising design career. It embraces various realms from finding the sources that can satisfy the client such as sensible idea, expressing sense, efficient media application. This course is one of the major selective courses, mandatory for graduation requirements.

Study of Editorial Design

This course is comprised of research projects for those who are interested in taking editorial design career. It embraces various realms of finding project that is planning for producing efficient information of publication media such as books, articles and newspapers. This course is one of the major selective courses, mandatory for graduation requirements.

Study of Package Design

This course is comprised of research projects for those who are interested in taking package design career. Package design as the comprehensive design that oversee all products' distribution and consumption is one of the eco-design and it embraces the realms of finding projects that can satisfy the roles and functions. This course is one of the major selective courses, mandatory for graduation requirements.

Study of Video Design

This course is comprised of research projects for those who are interested in taking video design career. It embraces the realms of finding projects that can maximize the characteristics of video design and message delivery by applying various methods of video design. This course is one of the major selective courses, mandatory for graduation requirements.

Study of Identity Design

This course is comprised of research projects for those who are interested in taking identity design career. It extracts the unique identity of tangible and intangible subject such as the brand, information and service of a enterprise,

public agencies and products. Then, students symbolize into visual ways and systematically converse into programmed version to use in design system. Thus, students study all procedures of image integration and usage guidelines. This course is one of the major selective courses, mandatory for graduation requirements.

◇ School of The Liberal Studies

Introduction

The School of Liberal Studies at Chungbuk National University was founded to create professionals for the knowledge-oriented society which requires a person of multifaceted talents. Students in the school undergo various academic subjects in relation to liberal arts and natural/social sciences in his/her freshman year and eventually decide what major might best suit not only his/her aptitude and personality but also their future vision. Tersely, the School of Liberal Studies is a place where freshmen autonomously search for his/her future academic direction on the basis of their volition, aptitude, and capacity to design their own future.

Requirements for Major Selection

- Students must fulfill more than two regular semesters
- Students have to achieve at least 36 credit hours
- Students should earn grades from such courses as Korean and Composition, English Reading & Discussion, Action English, Understanding of Humanity, and Understanding of the World.

Liberal Studies Major Curriculum

Course No.	Course classific-ation	Course Title	Credit Hr.s	Assessment type	Supervising Department
8800001	electives	Search for Academic Field	2-2-0	P/F	The Liberal Studies Major

Search for Academic Field(2-2-0)

the School of Liberal Studies is a place where freshmen autonomously search for his/her future academic direction on the basis of their volition, aptitude, and capacity to design their own future