

□ Mandatory General Courses and Requirements

1. Mandatory General Courses

A. General Course Requirements

- 1) Mandatory general courses are common courses required for graduation and designated by each department (major). Students in the graduate course should complete at least one course or more (3 or more credits) from the mandatory general courses chosen by each department and major.
 - ※ The mandatory general courses may be different depending on the department.
 - ※ If students complete the mandatory general course in the master's program, they do not need to complete the same requirements in the PhD course. However, the departments (industry, material) designated the 'English Thesis Preparation Method' as the requirement for graduation in the PhD course, students should complete this course (applied from the new admittee in 2001).
- 2) The master's course requires the completion of the non-credit leadership lecture.

B. Opening and operation of leadership lecture for master's course

- This leadership lecture is offered to students in the master's program, and has been offered from 2002 with the purpose of encouraging students to comfortably take on leadership roles after graduation.
- Lecturers: CEOs from industry and other well known persons.
- Subject number and lecture: Lab: credit : CC010(1: 0: 0).
- Subject classification: mandatory general course (Students can graduate only after completion of this requirement).
- Target students: master's course students (This applies to new students beginning in or after 2002; general scholarship students, foreign students, and new students at College of Business are excluded).
- Graduation requirement and grade: The requirement of graduation is considered fulfilled if students attended these non-credit lectures a total of *at least* 5 times (from the autumn semester of 2003 the requirement changed from: 4 times, to: 5 times or more), and receive the "S" grade. If the "U" grade is given his requirement is not fulfilled.

C. Course of English Thesis Preparation Method

- This purpose of this course is to teach students the English writing for their professional lives as scientists and engineers. The requirements of this course are different depending on the department.
- Course number and subject name: CC500 English thesis preparation method (mandatory general course).
- Credit and grade: Lecture: Lab: Credit (3:0:3), a grade of S/U is given only.
- This course is managed by the School of Humanities and Social Sciences.

D. Course of Entrepreneurship and Management Strategy

- This course was opened in 2002 and has been offered for graduate students to help the students develop and heighten a "venture" mind, and enhance their entrepreneurial and leadership skills for starting up their own global venture company filled with growth and success.
- Subject classification and credit: mandatory general course (CC530), 3:0:3(3).
 - If a department has deemed this course mandatory, this course is classified as a mandatory general course.
 - If the department has not designated this course as mandatory, this course is recognized as an elective course.

- This course is applicable to students enrolled in graduate course in the year 2002 or after.

E. Course of Patent Analysis and Invention Disclosure

- This Course aimed at providing students in the master's/doctoral program with opportunities for theory and practice related to the investigation, analysis, and use of patent information necessary for scientists and engineers will be offered from spring 2007.
- Subject classification and credit: mandatory general course (CC531), 3:0:3(6).
 - If a department has deemed this course mandatory, this course is classified as a mandatory general course.
 - If the department has not designated this course as mandatory, this course is recognized as an elective course.

2. Required Common Courses Lists

Classification	Subject No.	Subject Name	Lecture:Lab.:Credit (Homework)	Remark
Mandatory General Courses	CC010	Special Lecture on Leadership	1:0:0	
	CC500	Science Writing in English	3:0:3(4)	
	CC510	Introduction to Computer Application	2:3:3(10)	
	CC511	Probability and Statistics	2:3:3(6)	
	CC512	Introduction to Materials and Engineering	3:0:3(3)	
	CC513	Engineering Economy and Cost Analysis	3:0:3(6)	
	CC522	Introduction to Instruments	2:3:3(8)	
	CC530	Entrepreneurship and Business Strategies	3:0:3(6)	
	CC531	Patent Analysis and Invention Disclosure	3:0:3(6)	

3. Descriptions of Mandatory Courses

CC010 Special Lecture on Leadership

This leadership lecture is given by invited CEOs of businesses and well-known people in the community to develop the students' leadership so that they can have the capacity for leadership after graduation, and serve as leaders in science and technology.

CC500 Science Writing in English

This is the course to discuss English presentation required for the professional activities of scientist or engineer. Topics include writing manuscript for international academic publication, presentation at an international academic conference, major seminar presentation, writing English research plan, preparation of a thesis or report and presentation skills.

CC510 Introduction to Computer Application

This course is designed to introduce the concept of programming and advanced programming languages such as FORTRAN, PASCAL and others, and to teach the basic knowledge of computer hardware and software. Through the conversation-type terminal practice, the method of file manipulation, text editor and others, students make their own programs to solve the problems in several fields to acquire the basis of using computers.

CC511 Probability and Statistics

This course is a basic course for science and engineering and discusses the probability and statistical bases required in research. Topics include experimental data analysis and processing, parameter estimation, hypothesis verification, regression analysis and others.

CC512 Introduction to Materials and Engineering

This course introduces industrial materials, principles of mechanical, chemical, electric and electronic properties of metals, polymer materials with its equity, status, dispersion and phase change theories, relationship of organization and property, practical use of several materials and the status of material engineering in Korea.

CC513 Engineering Economy and Cost Analysis

In this course about the industrial system, overall economic issues are addressed based on theories and techniques developed for analysis and evaluation, and this course handles the basic knowledge of economics, characteristics of industrial economic issues, time value of fund, current value and annual equivalent value analysis, depreciation, economics of public projects, facility replacement and others.

CC522 Introduction to Instruments

In this course, the basic experimental technique required for electric and electronic engineering is implemented. The topics include the experiment using the passive elements such as R,L,C. and the motion principle of the oscilloscope. Building on this experiment, basic analog experiment (an AC/DC power device, amplitude of a transistor, and an operation amplifier), a digital experiment (combinational sequential logic) and motion principle of the computer are taught in addition to a few application experiments (dimmer, motor position control and others).

CC530 Entrepreneurship and Business Strategies

Centering on the start up and management of global market oriented venture companies, entrepreneurship and management strategies are discussed and business case studies are introduced.

CC531 Patent Analysis and Invention Disclosure

This course deals with tools and methods for patent analysis and invention disclosure. Topics include patent classification, intellectual properties and protection, patent database and search engines, analysis tools and methodology, quantitative and qualitative analysis, invention disclosure and patent application, and patent portfolio strategy.