

□ 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.
- 2) Ethics and Safety I(IAU) in their first semester should be taken for graduation. Take one time between master's program and doctoral programs. (applicable to all graduate students presently studying at KAIST starting in March, 2009.)
- 3) 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.

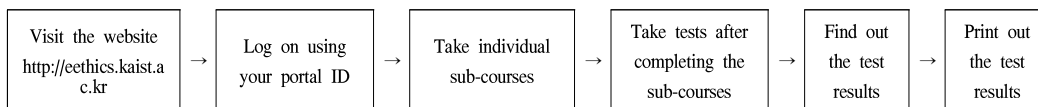
C. Course of Ethics and Safety

- This course is for graduate students which includes Research Ethics, Lab Safety, and Leadership. It is especially to educate prevention of research misconducts and safety regulations since academic circles at home and abroad has recently paid greater attention to research ethics and safety.
- Course Number & Course Name: CC020(CC), Ethics and Safety I
- Target students: All graduate students should take Ethics and Safety I in their first semester in order to graduate(take one time between master's program and doctoral programs) However, if not taken in their first semester, grade "U" is not given but they must take it next semester.
- Students do not have to register for the course but go to the web-site(<http://eethics.kaist.ac.kr>), complete the course.
- Examination : Take the test online and should get the grade "S" by satisfying the criteria below.

| Year | Criteria | Notes |
|------|---|---------------------------|
| 2009 | 60 or higher in all of the 3subjects (Research Ethics, Lab Safety and Leadership) | Total 100 in each subject |
| 2010 | 60 or higher in all of the 3subjects (Research Ethics, Lab Safety and Leadership) | |
| 2011 | 60 or higher in all of the 3subjects (Research Ethics, Lab Safety and Leadership) | |

- Exam period: From the beginning of each semester through the final exam period (One may take exams by up to ten times per each sub-course during the period)

- Exam-taking process



- Required Courses by Department (those marked with 'x' are not mandatory)

| College | Department | Research Ethics | Lab Safety | Leadership |
|----------------------------------|---|-----------------|------------|------------|
| Natural Science | Physics | 0 | 0 | 0 |
| | Mathematical Sciences | 0 | X | 0 |
| | Chemistry | 0 | 0 | 0 |
| | Graduate School of Nanoscience & Technology | 0 | 0 | 0 |
| Life Science & Bioengineering | Biological Sciences | 0 | 0 | 0 |
| | Bio and Brain Engineering | 0 | 0 | 0 |
| | Graduate School of Medical Sciences & Engineering | 0 | 0 | 0 |
| Engineering | Mechanical Aerospace & Systems Engineering | | | |
| | Mechanical Engineering | 0 | 0 | 0 |
| | Aerospace Engineering | 0 | 0 | 0 |
| | Ocean Systems Engineering | 0 | 0 | 0 |
| | Civil and Environmental Engineering | 0 | 0 | 0 |
| | Chemical and Biomolecular Engineering | 0 | 0 | 0 |
| | Materials Science & Engineering | 0 | 0 | 0 |
| | Nuclear and Quantum Engineering | 0 | 0 | 0 |
| - | Graduate School of EEWS | 0 | 0 | 0 |
| | School of Innovation | | | |
| | Management Science | 0 | X | 0 |
| | Graduate School of Innovation & Technology Management | 0 | X | 0 |
| Cultural Science | Master of Intellectual Property | 0 | X | 0 |
| | Graduate School of Culture Technology | 0 | X | 0 |
| | Graduate Program of Science and Technology Policy | 0 | X | 0 |
| Information Science & Technology | Master of Science Journalism | 0 | X | 0 |
| | Electrical Engineering | 0 | 0 | 0 |
| | Computer Science | 0 | X | 0 |
| | Information and Communications Engineering | 0 | X | 0 |
| | Industrial & System Engineering | 0 | X | 0 |
| | Knowledge Service Engineering | 0 | X | 0 |
| | Industrial Design | 0 | X | 0 |
| - | Graduate School of Technology Management and Innovation | 0 | X | 0 |
| | IT Business | 0 | X | 0 |
| Business | Management Engineering | 0 | X | 0 |
| | Techno-MBA | 0 | X | 0 |
| | Executive-MBA | 0 | X | 0 |
| | IMBA | 0 | X | 0 |
| | Finance-MBA | X | X | X |
| | Information & Media Management | 0 | X | 0 |
| Interdisciplinary Program | | 0 | X | 0 |

D. Course of Scientific Writing

- 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 Course name: CC500 Scientific Writing (mandatory general course).

* The course name changed from "Science Writing in English" to "Scientific Writing" starting in Spring 2009.

- Credit and grade: Lecture: Lab: Credit (3:0:3), a grade of S/U is given only.
- This course is managed by the Department of Humanities and Social Sciences.
- The departments below have deemed this course mandatory; therefore, this course is classified as a mandatory general course.
 - Mathematical Sciences, Chemistry, Graduate School of Nanoscience & Tech., Biological Sciences, Bio and Brain Eng., Graduate School of Medical Sciences & Eng.g, Mechanical Eng., Ocean Systems Eng., Industrial Design, Chemical and Biomolecular Eng., Materials Science & Engineering, Nuclear and Quantum Eng., Graduate School of EEWS, Electrical Eng., Industrial & System Eng., Knowledge Service Eng., Graduate School of Tech. Management and Innovation, Graduate School of Culture Tech., Interdisciplinary Program(Polymer Science and Eng.g, Nono Science and Tech.y, Robotics, Culture Tech., Semiconductor Tech. Educational, Biomedical Science and Eng., Telecommunication Eng., Environmental and Energy Tech., eML, Space Exploration Eng.), Graduate Program of Science and Tech. Policy
- Foreign students are allowed to take HSS586 (Introductory Korean for Foreigners I) instead; students from non-English-speaking countries are recommended to complete CC500 and HSS586.

E. 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.
- Course 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.
 - Departments deeming it mandatory : Mathematical Sciences, Chemistry, Graduate School of Nanoscience & Tech., Biological Sciences, Bio & Brain Eng.. Graduate School of Medical Sciences & Eng.g, Mechanical Eng., Aerospace Eng., Ocean Systems Eng., Chemical and Biomolecular Eng., Materials Science & Engineering, Nuclear and Quantum Eng., Graduate School of EEWS, Electrical Eng., Computer Science, Industrial & System Eng., Knowledge Service Eng., Graduate School of Tech. Management and Innovation, Graduate School of Culture Tech., Interdisciplinary Program(Biomedical Science and Eng., Polymer Science and Eng.g, Nono Science and Tech., Robotics, Culture Tech., Semiconductor Tech. Educational, Biomedical Science and Eng., Telecommunication Eng., Environmental and Energy Tech., eML, Space Exploration Eng.), Graduate Program of Science and Tech. Policy
- This course is applicable to students enrolled in graduate course in the year 2002 or after.

F. 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.
- Course 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.

- Departments deeming it mandatory : Chemistry, Graduate School of Nanoscience & Tech., Biological Sciences, Graduate School of Medical Sciences & Eng.g, Bio and Brain Eng., Industrial Design, Chemical and Biomolecular Eng., Materials Science & Engineering, Nuclear and Quantum Eng., Graduate School of EEWS, Electrical Eng., Industrial & System Eng., Knowledge Service Eng., Graduate School of Tech. Management and Innovation, Graduate School of Culture Tech., Interdisciplinary Program(Culture Tech., Biomedical Science and Eng., eML), Graduate Program of Science and Tech. Policy

G. Course of Collaborative System Design and Engineering

- This Course aimed at providing students in the master's/doctoral program with opportunities for systematic design-thinking, offering from spring 2009 as a mandatory course of Renaissance Program.
- Course classification and credit: mandatory general course (CC532), 4:0:4.
 - 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.
 - Departments deeming it mandatory: Mathematical Sciences, Graduate School of Nanoscience & Technology, Biological Sciences, Aerospace Eng., Ocean Systems Eng., Civil & Environmental Eng., Industrial Design, Chemical & Biomolecular Eng., Materials Science & Eng., Nuclear & Quantum Eng., Electrical & Electronic Eng., Computer Science, Industrial & Systems Eng., Knowledge Service Eng.
 - * Mechanical Eng., deemed this course mandatory only to the students in Renaissance Program.
- All students in Renaissance Program should take this course.

2. Required Common Courses Lists

| Classification | Course No. | Subject Name | Lec:Lab.:Credit (Homework) | Department |
|------------------------------|------------|---|-------------------------------|---------------------------------|
| Mandatory General Courses | CC010 | Special Lecture on Leadership | 1:0:0 | Counseling & Students Dev. Ctr. |
| | CC020 | Ethics and Safety I | 1AU | Education Innovation Team) |
| | CC500 | Scientific Writing | 3:0:3(4) | Humanities & Social Sciences |
| | CC510 | Introduction to Computer Application | 2:3:3(10) | Computer Science |
| | CC511 | Probability and Statistics | 2:3:3(6) | Mathematical Sciences |
| | CC512 | Introduction to Materials and Engineering | 3:0:3(3) | Material Science & Eng. |
| | CC513 | Engineering Economy and Cost Analysis | 3:0:3(6) | Industrial & Systems Eng. |
| | CC522 | Introduction to Instruments | 2:3:3(8) | Electrical Eng. |
| | CC530 | Entrepreneurship and Business Strategies | 3:0:3(6) | Industrial & Systems Eng. |
| | CC531 | Patent Analysis and Invention Disclosure | 3:0:3(6) | Bio and Brain Eng. |
| | CC532 | Collaborative System Design and Engineering | 4:0:4 | Mechanical Eng. |

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.

CC202 Ethics and Safety I

It is more highlighted than ever to educate prevention of research misconducts and safety regulations since academic circles at home and abroad has recently paid greater attention to research ethics and safety. This course broadly introduces and encompasses research ethics, safety management and leadership to educate students to be an excellent leader in the future.

CC500 Scientific Writing

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.

CC532 Collaborative System Design and Engineering

The course aims to integrate Systems engineering and Design theory so as to be executable in knowledge creation cycles with the aid of collaborative creativity in teamwork based on systems thinking. In order to achieve this goal, the course will deal with three major areas: 1) Fundamentals of Systems Engineering, 2) Collaborative Creativity and Knowledge Creation, and 3) Design Principles and Design Methods.