

# *SYLLABUS*

2017

Common Subjects of Faculty of Engineering



Kyoto University, Faculty of Engineering

# Common Subjects of Faculty of Engineering

## Common Subjects of Faculty of Engineering

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**Introduction to Engineering**

工学序論

【Code】 21080 【Course Year】 1st year 【Term】 【Class day &amp; Period】 【Location】 【Credits】 1

【Restriction】 No Restriction 【Lecture Form(s)】 【Language】 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

<b>Theme</b>	Class number of times	<b>Description</b>
	1~2	
	6	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

# Engineering Ethics

## 工学倫理

【Code】 21050 【Course Year】 4th year 【Term】 2017 first semester 【Class day & Period】 Thu 3rd 【Location】 Research Bldg. No.8, 3F, NS Hall

【Credits】 2 【Restriction】 No Restriction 【Lecture Form(s)】 Lecture 【Language】 Japanese

【Instructor】 Dean of the Faculty of Engineering

Graduate School of Energy Science, Professor, Toshihiko HOSHIDE

Graduate School of Engineering, Professor, Makoto OHSAKI

Graduate School of Engineering, Junior Associate Professor, Ryosuke MATSUMOTO

【Course Description】 Modern ethics based on engineering aspect are becoming essential to present engineers and scientists. Instructors from various faculties give lectures about ethics in their research fields.

【Grading】 Class participation and reports.

【Course Goals】 The goal of this class is to understand engineering ethics, and to develop the ability to judge by yourself when you encounter ethical issues.

【Course Topics】

Theme	Class number of times	Description
Ethics for technologists(4/13)	1	
Manufacturing and ethics(4/20)	1	
Engineering ethics as applied ethics (4/27)	1	
Basic theory of ethics associated with engineering ethics (5/11)	1	
Ethics for news reports(5/18)	1	
Ethics for engineers and scientists(5/25)	1	
Ethics for architectural engineers(6/1)	1	
Patents and ethics (1/2)(6/8)	1	
Patents and ethics (2/2) (6/15)	1	
Ethics in chemistry and molecular biology(6/22)	1	
Ethics and problems involved in public works tender (6/29)	1	
Ethics for advanced science(7/6)	1	
Ethics in biotechnology (7/13)	1	
Design of technologies intended for living creatures and society I (7/20)	1	
Design of technologies intended for living creatures and society II (7/27)	1	

【Textbook】 Lecture materials will be distributed.

【Textbook(supplemental)】北海道技術者倫理研究会編「オムニバス技術者倫理」(第2版), 共立出版(2015)、中村収三著「新版実践的工学倫理」, 化学同人(2008)、林真理・宮澤健二 他著「技術者の倫理」(改訂版), コロナ社(2015)、川下智幸・下野次男 他著「技術者倫理の世界」(第3版), 森北出版(2013)

【Prerequisite(s)】

【】

【Web Sites】

【Additional Information】 The class order is subject to change.

**Engineering and Economy(in English)**

工学と経済（英語）

【Code】22210 【Course Year】2nd year and above 【Term】2017 first semester 【Class day &amp; Period】Tuesdays 5th-6th

【Location】工学部総合校舎 1 1 1 講義室 【Credits】2 【Restriction】 【Lecture Form(s)】 【Language】English 【Instructor】,

【Course Description】The purpose of this course is to teach economy from an engineer viewpoint. The course especially contains such economic topics which engineer can use to solve practical engineering economy problems. The course is consisted of lectures and additional exercises, of which the student should complete five (5) written short reports and five (5) 60 minutes laboratory session attendances. The laboratory sessions are held weekly after the lecture, and consist of interactive group work tasks. Laboratory sessions are held weekly from 18 to 19 o'clock.// The course is aimed for both Japanese and Foreign nationals.// The course starts on April 11th.

【Grading】Test, reports, laboratory performance.

【Course Goals】This course will provide tasks for engineering students to be able to understand relationships between engineering and engineering economy. Students will learn solving economic problems related to engineering project at various levels. The course also prepares the students to write engineering related economic topics in English as well as verbally express themselves of these subjects.

## 【Course Topics】

Theme	Class number of times	Description
Student orientation, Introduction to engineering economy	1	Course introduction; Principles of engineering economy
Cost concept	1	Cost terminology; Competition; Total revenue function; Breakeven point
Design economics	1	Cost-driven design; Making vs. purchasing; Trade-offs
Cost estimation techniques I	1	Integrated approach and WBS; Index, unit, and factor techniques
Cost estimation techniques II	1	Parametric estimating; Power-sizing technique; Learning curve; Cost estimation, bottom-up, top-down, target costing
The time value of money I	1	Simple interest; Compound interest; Equivalence concept; Cash-flow diagrams
The time value of money II	1	Present and future equivalent values of single cash flows
The time value of money III	1	Uniform series cash flows; Deferred annuities; Uniform gradient cash flows; Nominal and effective interest rates
Evaluation of a single project I	1	Determining minimum attractive rate of return (MARR); The present worth method; Bond value; Capitalized-worth method
Evaluation of a single project II	1	The future worth method; The annual worth method; The internal rate of return method; The external rate of return method
Comparison and selection among alternatives I	1	Basic concepts; The study (analysis) period; Useful lives are equal to the study period
Comparison and selection among alternatives II	1	Useful lives are unequal to the study period; Repeatability; Cotermination; The imputed market value technique
Income taxes and depreciation	1	Concepts and terminology; Depreciation; Straight-line method; Declining-balance method; Income taxes; Marginal tax; Gain or loss on the disposal of an asset; After-tax economic analysis
Final test	1	The test is based on the above topics

【Textbook】Sullivan, Wicks, Koelling; Engineering Economy, 15th Ed. 2012, Chapters 1-7.

【Textbook(supplemental)】

【Prerequisite(s)】Note:

- Interactive lessons (discussion), Small group working method
- This course is held in English.

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【Web Sites】None

【Additional Information】If you have any questions or need further information, feel free to contact at 090aglobal@mail2.adm.kyoto-u.ac.jp.

**Global Leadership Seminar I**

G L セミナー (企業調査研究)

【Code】24010 【Course Year】 【Term】 【Class day &amp; Period】 【Location】 【Credits】1 【Restriction】

【Lecture Form(s)】 【Language】Japanese 【Instructor】 ,

【Course Description】

【Grading】

【Course Goals】

【Course Topics】

Theme	Class number of times	Description
	1	
	2~3	
	2~3	
	12	
	3~4	
	1	
	1	

【Textbook】

【Textbook(supplemental)】

【Prerequisite(s)】

【 】

【Web Sites】

【Additional Information】

**Global Leadership Seminar II**

G L セミナー (課題解決演習)

**【Code】** 25010 **【Course Year】** 2nd year or higher **【Term】** FY2017, 2nd semester, intensive**【Class day & Period】** Intensive course **【Location】** Announced elsewhere **【Credits】** 1**【Restriction】** Restriction in number to around 20 selected students **【Lecture Form(s)】** Lecture and exercise**【Language】****【Instructor】** Faculty of Engineering, J. Assoc. Prof., Yoshinori Tanaka

Faculty of Engineering, J. Assoc. Prof., Ryuichi Ashida

Faculty of Engineering, J. Assoc. Prof., Aiko Takatori

Faculty of Engineering, J. Assoc. Prof., Tadao Mizuno

Faculty of Engineering, J. Assoc. Prof., Ryosuke Matsumoto

Related professors

**【Course Description】** This course is a small-group workshop program where students are supposed to extract or set up challenges by themselves aiming at creating new social values. In concrete, abilities of planning and problem-solving are trained through group works in residential training and skills of presentation and communication are enhanced through oral presentations regarding contents of the proposal at each step of the process from a preliminary draft to its completion.**【Grading】** It is required to join the residential training. A report meeting is held and comprehensive evaluation concerning abilities in group discussion to extract or set up challenges and to propose solutions for achieving a goal is made through presentation of the proposal as well as a submitted report.**【Course Goals】** Ability of planning, from extraction or setting up challenges to proposal of solutions aiming at creating new social values, is trained through group works.**【Course Topics】**

Theme	Class number of times	Description
Orientation	1	A brief overview and a schedule of the course are explained and working groups are organized.
Lectures	2	Lectures by experts are given.
Group works	3	Setting up challenges, extraction of problems, collecting information, and group works are done.
Residential training	7	Through intensive group works based on discussion, a proposal for solving problems is planned, a draft report is made, and a few presentations are made.
Preliminary review meeting	1	A preliminary review meeting is held and discussions are made.
Report meeting	1	Final presentations are made and reports are submitted.

**【Textbook】** Will be indicated as necessary.**【Textbook(supplemental)】** Will be indicated as necessary.**【Prerequisite(s)】****【】****【Web Sites】****【Additional Information】** Course open period: October to January

How to register the course will be instructed.

\*It depends on divisions which students belong to whether the earned credits are admitted as credits required for graduation. Please refer to the syllabus of your division.

**International Internship of Faculty of Engineering I**

工学部国際インターンシップ 1

**【Code】** 24020 **【Course Year】** Junior and Senior students **【Term】** Through the academic year**【Class day & Period】** Intensive course **【Location】** Defined in each internship program. **【Credits】** 1**【Restriction】** Defined in each internship program **【Lecture Form(s)】** Exercise **【Language】** English, et al.**【Instructor】** Chairperson of Foreign Students and International Academic Exchange Subcommittee, Faculty members in charge of educational affairs of the undergraduate school the registrant belongs to.**【Course Description】** Acquisition of international skills with the training of foreign language through the internship programs hosted by the University, the Faculty of Engineering, or the undergraduate school the applicant belongs to.**【Grading】** Merit rating is done based on the presentation or reports after each internship program. Each Department responsible to identify if the credit earned by this subject to be included as mandatory ones or not. If the credit is not included in the undergraduate school in which the participant belongs to, the credit is granted by the Global Leadership Education Center as a optional credit. The number of credits, either 1 or 2, will be determined depending on the contents and the duration of the program that the participant has participated in.**【Course Goals】** The acquisition of international skills with the training of foreign language through the to internship programs hosted by the University is the major expectation to the students.**【Course Topics】**

<b>Theme</b>	<small>Class number of times</small>	<b>Description</b>
Overseas Internship	1	The contents to be acquired should be described in the brochure of each internship program.
Final Presentation	1	A presentation by the student is required followed by discussion among participants.

**【Textbook】****【Textbook(supplemental)】****【Prerequisite(s)】** Described in the application booklet for each internship program. The registrant is requested to have enough language skills for the participation.**【】****【Web Sites】****【Additional Information】** It is required for students to check if the internship program to participate in could be evaluated as part of mandatory credits or not and could earn how many credits before the participation to the undergraduate school or educational program the student is enrolled. If the credit could not be treated as mandatory ones, get in touch with the Global Leadership Engineering Education Center.

## International Internship of Faculty of Engineering 2

工学部国際インターンシップ2

【Code】 25020 【Course Year】 Junior and Senior students 【Term】 Through the academic year

【Class day & Period】 Intensive Course 【Location】 Defined in each internship program. 【Credits】 2

【Restriction】 Defined in each internship program. 【Lecture Form(s)】 Exercise 【Language】 English, et al.

【Instructor】 Chair of Foreign Students and International Academic Exchange Subcommittee, Faculty members of the Undergraduate School the registrant belongs to.

【Course Description】 Acquisition of international skills with with the training of foreign language through the participation to the international internship programs held by the Faculty of Engineering or its subsidiary bodies.

【Grading】 Marit rating is done based on the presentation or reports after each internship program. Each Department responsible to identify if the credit earned by this subject to be included as mandatory ones or not. If the credit is not included in the undergraduate school in which the participant belongs to, the credit is granted by the Global Leadership Education Center as a optional credit. The number of credits, either 1 or 2, will be determined depending on the contents and the duration of the program that the participant has participated in.

【Course Goals】 The acquisition of international and foreign language skills through the participation to international programs is expected. Detailed objectives of the participation should be identified by each program.

### 【Course Topics】

Theme	Class number of times	Description
Overseas Internship	1	The contents to be acquired should be described in the brochure of each internship program.
Final Presentation	1	A presentation by the student is required followed by discussion among participants.

### 【Textbook】

### 【Textbook(supplemental)】

【Prerequisite(s)】 Described in the application booklet for each internship program. The registrant is requested to have enough language skills for the participation.

### 【】

### 【Web Sites】

【Additional Information】 It is required for students to check if the internship program to participate in could be evaluated as part of mandatory credits or not and could earn how many credits before the participation to the undergraduate school or educational program the student is enrolled. If the credit could not be treated as mandatory ones, get in touch with the Global Leadership Engineering Education Center.

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デザイン 工学研究科附属情報センター

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- ・ [A] Global Engineering
- ・ [B] Architecture
- ・ [C] Engineering Science
- ・ [D] Electrical and Electronic Engineering
- ・ [E] Informatics and Mathematical Science
- ・ [F] Industrial Chemistry
- ・ オンライン版 <http://www.t.kyoto-u.ac.jp/syllabus-s/>

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