

MASTER DEGREE PROGRAM IN ENVIRONMENTAL ENGINEERING

(INTERNATIONAL PROGRAM)

ACADEMIC PROGRAM:	TWO YEAR PROGRAM BOTH THESIS AND NON-THESIS PROGRAMS OFFERED CLASS CONDUCTED ON SAT. & SUN. TERM BEGINS JUNE
ACADEMIC STAFF:	KASETSART STAFF AND VISITING PROFESSORS FROM OVERSEAS
QUALIFICATION:	B.ENG. IN ANY FIELD, OR B.Sc. IN RELATED FIELDS.
APPLICATION DATE	Now until March 2, 2012
ENTRANCE WRITING EXAM AND INTERVIEW:	March 3, 2012
RESULTS ANNOUNCED:	March 9, 2012
REGISTRATION:	March 17, 2012

FOR MORE INFORMATION, CONTACT:

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Master Degree Program in Environmental Engineering (International Program)

The master degree program in environmental engineering (International Program) in the department of environmental engineering, Kasetsart University, was established under close connection with several internationally recognized overseas academic institutions in Australia, Canada, Japan and United States of America.

Guest professors together with local department staffs provide technical knowledge in various aspects of environmental engineering including water and wastewater treatment, solid and hazardous waste management, air pollution control, environmental impact assessment, environmental modeling, etc.

The study period in this program is two years. English is used as the medium of instruction. The lectures will be mainly provided during Saturday and Sunday. The expense in the program is estimated to be around 240,000 Baht (for 2 years) or 60,000 Baht per semester in average.

Qualification of Applicants

1. An applicant must hold a bachelor degree in Engineering in any field, or
2. Bachelor of Science
3. Undergraduate GPA of not less than 2.00

Course Curriculum (Plan A)

Total credit for master degree program in environmental engineering is 36. Structure of the program is shown below

Description	Plan A (Thesis)
1. Major courses	24
- Compulsory	16
- Electives	6
- Seminar	2
2. Thesis	12
Total	36

In addition, the students have to attend and pass English class, unless they have passed the English test of Kasetsart University.

Admission to the program

An applicant must submit the following documents during his/her application.

1. A completed application form
2. Three 1-inch sized photographs
3. Two copies of official transcript from the institution previously attended
4. Two copies of bachelor's degree certificate
5. Two copies of official identity card
6. Two copies of household registration
7. An original medical certificate

Application form can be obtained from the secretary room or downloaded from <http://www.pirun.ku.ac.th/~fengsup/>

Estimated expenses for the 4-semester Program

Item	Amount (Baht)
Registration Fee for Faculty of Engineering 9,000 baht/semester	36,000
Registration Fee for Department of Environmental Engineering 9,000 baht/semester	36,000
Tuition Fee 36 credits @ 5,000 baht/credit	180,000
Registration Fee for the university 5,290 baht/semester	21,160
Other	10,200
Estimated total	283,360

Study plan

International Master's Degree Program in Environmental Engineering

Plan A2

First year - first semester		Credit
01210551	Chemistry in Environmental System	2(2-0)
01210552	Advanced Water Supply Engineering Process	2(2-0)
01210553	Advanced Wastewater Engineering Design	2(2-0)
01210561	Advanced Air Pollution Control	2(2-0)
01210571	Pollution Control Management	2(2-0)
	Elective subject	2(2-0)
	total	<u>12</u>

First year – second semester		Credit
01210562	Solid Waste Engineering and Management	2(2-0)
01210563	Hazardous Waste Management and Site Remediation	2(2-0)
01210572	Global Environmental Change and Management	2(2-0)
01210591	Research Methods in Environmental Engineering	1(2-0)
01210597	Seminar	1(2-0)
	Elective subject	2(2-0)
	Elective subject	2(2-0)
	total	<u>12</u>

Second year – first semester		Credit
01210597	Seminar	1
01210599	Thesis	<u>6</u>
	total	<u>7</u>

Second year – second semester		Credit
01210599	Thesis	<u>6</u>
	total	<u>6</u>

Courses list

a. major course		not less than	24	credits
	- Seminar	2		credits
01210597	Seminar		1,1	
	- Compulsory major		16	credits
01210551	Chemistry in Environmental System		2(2-0-4)	
01210552	Advanced Water Supply Engineering Process		2(2-0-4)	
01210553	Advanced Wastewater Engineering Design		2(2-0-4)	
01210561	Advanced Air Pollution Control		2(2-0-4)	
01210562	Solid Waste Engineering and Management		2(2-0-4)	
01210563	Hazardous Waste Management and Site Remediation		2(2-0-4)	
01210571	Pollution Control Management		2(2-0-4)	
01210572	Global Environmental Change and Management		1(1-0-2)	
01210591	Research Methods in Environmental Engineering		1(0-3-2)	
	- Elective major (choose from the following list)	6		credits
01210554	Environmental Quality Assessment		2(1-3-4)	
01210555	Membrane Technologies in Water and Wastewater Treatment		2(2-0-4)	
01210556	Advanced Wastewater Treatment Technologies		2(2-0-4)	
01210564	Emerging Pollutants in Environment		1(1-0-2)	
01210565	Noise Pollution and Vibration Management		2(2-0-4)	
01210566	Radioactive Waste Management		2(2-0-4)	
01210573	Fate and Transport of Pollutants		2(2-0-4)	
01210574	Mathematical Modeling Concept for Environmental Engineers		2(2-0-4)	
01210575	Environmental and Health Risk Assessment		2(2-0-4)	
01210576	Industrial Pollution and Management		2(2-0-4)	
01210577	Water Quality Modeling		2(2-0-4)	
01210596	Selected Topics in Environmental Engineering		1-3	
01210598	Special Problems		1-3	
b. Thesis		not less than	12	credits
01210599	Thesis		1-12	

Course description

01210551	Chemistry in Environmental System Chemical principles and theory involving in reactions in the environment, essential knowledge of organic chemistry and biochemical processes for environmental engineers, chemical reactions and processes of concern of aquatic, atmospheric and soil environments, types, changes and impact of major contaminants on the environment.	2(2-0-4)
01210552	Advanced Water Supply Engineering Processes Water quality standards for different purposes, analysis of coagulation and flocculation, sedimentation, filtration and disinfection processes, adsorption, ion exchange, desalination process.	2(2-0-4)
01210553	Advanced Wastewater Engineering Design Principle in selection of wastewater treatment processes, detailed design of activated sludge process and sludge treatment system.	2(2-0-4)
01210554	Environmental Quality Assessment Principles of qualitative and quantitative chemical analyses, analytical methods include conventional and instrumentation, laboratory practices on chemical analyses of major contaminants and environmental index parameters in accordance with APHA standard methods, analysis of laboratory results and interpretation in environmental engineering aspects.	2(1-3-4)
01210555	Membrane Technologies in Water and Wastewater treatment Classification of membrane processes, theory of membrane filtration, membrane fouling, efficiencies of membrane processes, application of membrane process in water treatment, application of membrane process in wastewater treatment and wastewater treatment, membrane bioreactor.	2(2-0-4)
01210556	Advanced Wastewater Treatment Technologies Physico-chemical treatment processes, electrochemical treatment process, adsorption, membrane process, ion exchange, advanced oxidation process, nutrient removal, water and wastewater reuse.	2(2-0-4)
01210561	Advanced Air Pollution Control Principles of air pollution control, particle, gas and vapour emission control technology, air pollution control system design, maintenance and potential evaluation of air pollution control system.	2(2-0-4)
01210562	Solid Waste Engineering and Management Current trend of solid waste management, solid waste minimization, solid waste management at sources, solid waste collection and transportation, solid waste transformation, final disposal of solid wastes, case studies.	2(2-0-4)
01210563	Hazardous Waste Management and Site Remediation Hazardous waste characteristics, source management, environmental regulations, waste treatment and disposal, contaminated site remediation systems.	2(2-0-4)

01210564	Emerging Pollutants in Environment	1(1-0-2)
	Pollutant glossary, characterization and classification of environmental pollutants, occurrence of emerging pollutants, risks and hazardous effects of emerging pollutants, available technologies for treatment of emerging pollutants, environmental forensics for detection of emerging pollutants, case studies.	
01210565	Noise Pollution and Vibration Management	2(2-0-4)
	Sources of noise pollution and vibration, sound wave behavior, instrument and guideline for noise measurement, impact of noise pollution and vibration on human health and environment, law and regulation for noise pollution control, noise pollution control, noise pollution control design, noise pollution problems in industry.	
01210566	Radioactive Waste Management	2(2-0-4)
	Radioactivity and radiation, biological effects of ionizing radiation, radiation exposure, radiation protection, types of waste, management of high and low-level radioactive waste, long-term management and containment.	
01210571	Pollution Control Management	2(2-0-4)
	Environmental problems, environmental audits, environmental life cycle concepts, environmental performance evaluation, environmental management system.	
01210572	Global Environmental Change and Management	1(1-0-2)
	Study of global climate and environmental change, effects of biodiversity loss, natural resources and renewable energy management. Environmental management in national and international levels. Legal, economic and society tools for Environmental Management	
01210573	Fate and Transport of Pollutants	2(2-0-4)
	Environmental Chemistry, biogeochemical cycle, transport by advection and dispersion, chemical distribution among phases, mass balance in control volume.	
01210574	Mathematical Modeling Concepts for Environmental Engineers	2(2-0-4)
	Concepts for formulation and application of environmental models; matrices; finite difference method, finite element method; formulation of water quality models and hydrodynamic models, model calibration and verification, sensitivity analysis.	
01210575	Environmental and Health Risk Assessment	2(2-0-4)
	Source and impact of wastes, toxic substances, infectious microorganisms on human health and environmental quality, regulation, international standard, toxicology, principle and methodologies of health and environmental risk assessment, hazard identification, exposure assessment, dose-response assessment, risk characterization, risk management, risk communication.	

01210576	Industrial Pollutant and Management	2(2-0-4)
	Sources of pollution in industry, laws and regulation involved in pollution control from industry, pollution evaluation and prevention in industry, environmental management control system design for industry.	
01210577	Water Quality Modeling	2(2-0-4)
	Development of models for computation of pollutant dispersion in surface water and groundwater; biochemical oxygen demand and dissolved oxygen model for a stream, phytoplankton and nutrient interactions models, eutrophication model, water quality management model; application of a water quality, case studies.	
01210591	Research Methods in Environmental Engineering	1(0-3-2)
	Principles and research methods in environmental engineering, problem analysis for research topic identification, data collection for research planning, identification of samples and techniques. Analysis, interpretation and discussion of research result; report writing for presentation and publication.	
01210595	Independent Study	3
	Independent study at the master's degree level in environmental engineering; compile and present the individual study report.	
01210596	Selected Topics in Environmental Engineering	1-3
	Selected topics in environmental engineering at the master's degree level. Topics are subjected to change each semester.	
01210597	Seminar	1
	Presentation and discussion on current interesting topics in environmental engineering at the master's degree level.	
01210598	Special Problems	1-3
	Study and research in environmental engineering at the master's degree level and compile into a written report.	
01210599	Thesis	1-36
	Research at the master's degree level and compile into a thesis.	