Faculty of Engineering
Department of Chemical and Environmental Engineering
www.eng.upm.edu.my
Master Of Environmental Engineering
INTRODUCTION

This programme is designed to equip professionals with knowledge on the problems of environmental pollution and its improvement for the good of mankind. It prepares professionals with knowledge and skills in environmental control and management and in the solution of environment-related problems.

PROGRAMME REQUIREMENTS

Credit Requirements for Graduation

Students enrolling under this programme must fulfill 40 credits of course work to graduate. The credit distributions for compulsory courses, elective courses and project are as follows:

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Compulsory Courses</td>
<td>25 credits</td>
</tr>
<tr>
<td>Elective Course</td>
<td>9 credits</td>
</tr>
<tr>
<td>Project</td>
<td>6 credits</td>
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</tbody>
</table>

Compulsory Courses

Students must take all the listed compulsory courses:

ECH 4102 Environmental Health Engineering 3 credits
ECH 4106 Toxic and Hazardous Waste Engineering 3 credits
ECH 5102 Principles of Environmental Engineering 3 credits
ECH 5103 Wastewater Treatment Design 3 credits
ECH 5104 Solid Waste Management and Design 3 credits
ECH 5404 Environmental Engineering Laboratory 1 credits
ECH 5501 Atmospheric Risk Management 3 credits
ECH 5513 Environmental Management Principles 3 credits
ECH 5804 Corrosion Engineering 3 credits

Elective Courses

Students must take three elective courses out of the listed courses:

ECH 4103 Air Pollution Engineering 3 credits
ECH 4105 Noise Pollution Control 3 credits
ECH 5502 Hazard Analysis and Risk Assessment 3 credits
ECH 5504 Applied Hazard and Operability Studies 3 credits
ECH 5505 Process Reliability and Maintainability 3 credits
ECH 5510 Disaster Management and Emergency Plan 3 credits
ECH 5955 Special Topics 3 credits

Identification on the elective courses for the student will be made by the program coordinator.

Project

Students are required to register ECH5989 - Project for 6 credits to fulfill the project requirement. This course is related to a research project work whereby student will select one appropriate topic and do literature review, data collection and analysis. The research scope will be determined by the supervisor based on the discussion with student. At the end of the semester, students are required to submit a written report. As part of graduation fulfillment, the students need to present their research output to a panel of examiners.
Course Synopsis

• ECH4102 • Environmental Health Engineering • 3 credits
This course covers water and air pollutions from various sources, solid and industrial wastes disposal and management and their effect to environment and human health.

• ECH4106 • Toxic and Hazardous Waste Engineering • 3 credits
This course covers the principles of toxic and hazardous wastes, hazardous waste management and monitoring, waste treatments and waste handling from cradle to grave.

• ECH5102 • Principles of Environmental Engineering • 3 credits
This course covers basic principles in environmental engineering required for operation, analysis, and modelling of natural and engineered systems in environmental engineering applications.

• ECH5103 • Wastewater Treatment Design • 3 credits
This course covers basic principles, methods and plant design in wastewater and sludge treatment from preliminary to primary stages in fulfilling current requirements.

• ECH5104 • Solid Waste Management and Design • 3 credits
This course covers type, source, composition and handling of municipal solid waste from management, processing to disposal and recovery.

• ECH5404 • Environmental Engineering Laboratory • 1 credit
This course covers practical exercises related to pollutants level determination and water, wastewater, air and noise pollution analysis.

• ECH5501 • Atmospheric Risk Management • 3 credits
This course covers the understanding of practice of performing and managing regulatory atmospheric risk assessments, the evaluation of the effects of air toxic emissions on human health.

• ECH5513 • Environmental Management Principles • 3 credits
This course covers environmental management principle and practice, management standards and monitoring as well as future approaches in handling national and global environmental changes.

• ECH5804 • Corrosion Engineering • 3 credits
This course covers principles, type, testing and prevention of corrosion for the purpose of handling corrosion problems economically and safely.

• ECH4105 • Noise Pollution Control • 3 credits
This course covers the introduction to physical phenomena related to sources of noise, vibrations and shock, physical aspects of environmental noise, noise control element, noise effect, and analysis.

• ECH5502 • Hazard Analysis and Risk Assessment • 3 credits
This course covers the interaction between process design and hazard identification. It examines ways for improving the safety of the plant at the process design stage.

• ECH5504 • Applied Hazard and Operability Studies • 3 credits
The course covers the use of HAZOP techniques in identifying any operational hazards in companies as well as formulation analysis on any occurrence and incident.

• ECH5505 • Process Reliability and Maintainability • 3 credits
This course covers plant availability and reliability, event probability and failure frequency analysis as well as management of layer protection analysis and maintainability.

• ECH5510 • Disaster Management and Emergency Plan • 3 credits
This course covers the management principles, planning and analysis of disaster and also emergency management for facing disaster and emergency situations in a more systematic and organized manner.

• ECH5595 • Special Topic • 3 credits
This course deals with selected chemical and environmental engineering field according to current development. The studies will be based on topics that are determined by the lecturer.
ADMISSION REQUIREMENTS

An applicant with a bachelor degree in engineering with CGPA 2.500/55%/Second Class Lower and at least three (3) years working experience in relevant field; or
An applicant with a bachelor degree in engineering with CGPA 2.750/60%/Second Class Lower
An applicant with a bachelor degree in science with CGPA 3.000/65%/Second Class Upper OR CGPA 2.750/60%/Second Class Lower and at least three (3) years working experience experiences in relevant field

* Please refer to programme coordinator for more information on admission requirements

FEES

<table>
<thead>
<tr>
<th>Fees</th>
<th>Master without thesis</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Malaysian Student</td>
</tr>
<tr>
<td>Basic Fees (1st semester)</td>
<td>1,200.00</td>
</tr>
<tr>
<td>Basic Fees (2nd and subsequent semester)</td>
<td>950.00</td>
</tr>
<tr>
<td>Credit Fees * subject to change</td>
<td>250.00 / credit hour</td>
</tr>
</tbody>
</table>

Language Requirement

* A Malaysian candidate must have obtained at least a credit in English at Sijil Pelajaran Malaysia level or have passed English courses conducted at the Diploma or Bachelor's Level.

* All international candidates from countries where English is not a medium of instruction must have obtained a minimum score of 550 for TOEFL or Band 6 for IELTS. This requirement is not applicable to candidates applying for admission into the Malay Language Studies.

* A candidate without the requisite minimum score for TOEFL or IELTS may be granted a provisional admission. Such candidate will be required to pass an English Placement Test conducted by the University.

* A candidate who has failed the English Placement Test will be required in the first semester to pass a prescribed English course. Should the candidate fail to obtain the prescribed minimum grade, the University may allow him to repeat the prescribed English course in the second semester.

* A candidate who fails after the second attempt will have his candidature suspended until he passes the English course before being allowed to continue with his Masters programme.

Application For Admission

Please apply online via http://www.sgs.upm.edu.my and send your application supporting documents to the address below:

Dean
School of Graduate Studies
Universiti Putra Malaysia
Zon 4, Off Jalan Stadium
43400 UPM Serdang
Selangor Darul Ehsan
Malaysia

Tel. : (603) 8946 4218/4223/4228
Fax. : (603) 8943 2509/8946 4232
Email : admission@putra.upm.edu.my
Website : http://www.sgs.upm.edu.my