INTRODUCTION
This programme is designed to prepare professionals with a comprehensive approach towards monitoring, controlling and managing environmental waste resources systematically in line with future visions of the country. It encompasses topics related to various kinds of environmental pollution such as water and wastewater, land, solid, sound and air pollution. Emphasis on health and industrial safety aspects will also be discussed.

PROGRAMME REQUIREMENTS

Credit Requirements for Graduation

Students enrolling under this programme must fulfil 41 credits of course work to graduate. The credit distributions for compulsory courses, elective courses and dissertation are as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Compulsory Courses</td>
<td>6</td>
</tr>
<tr>
<td>Core Courses</td>
<td>19</td>
</tr>
<tr>
<td>Elective Courses</td>
<td>6</td>
</tr>
<tr>
<td>Dissertation</td>
<td>10</td>
</tr>
</tbody>
</table>

Compulsory Courses

Students must take both compulsory courses as below:

- ECH5100 Research Methodology 3 credits
- ECH5513 Environmental Management Principles 3 credits

Core Courses

Students must take all the listed courses below:

- ECH5101 Environmental Health Technology 3 credits
- ECH5104 Solid Waste Management & Design 3 credits
- ECH5404 Environmental Engineering Laboratory 1 credits
- ECH5501 Atmospheric Risk Management 3 credits
- ECH5510 Disaster Management and Emergency Plan 3 credits
- ECH5511 Safety, Health and Environmental Protection 3 credits
- ECH5512 Water Management 3 credits

Elective Courses

Students must take only two elective courses (6 credits) out of the listed below:

- ECH5103 Wastewater Treatment Design 3 credits
- ECH5105 Noise Pollution Engineering 3 credits
- ECH5108 Ecotoxicology 3 credits
- ECH5109 Advanced Air Pollution Engineering 3 credits
- ECH5502 Hazard Analysis and Risk Assessment 3 credits
- ECH5503 Design for Safe Handling of Industrial Chemicals 3 credits
- ECH5804 Corrosion Engineering 3 credits
- ECH5955 Special Topic 3 credits

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

Dissertation

Student must take one project course which will be carried out in two consecutive semesters.

ECH5990 Dissertation 10 credits
Course Synopsis

- **ECH5100** • Research Methodology • 3 credits
  This course covers best practices in research such as research methodology, design and ethics as well as academic writing and oral presentations.

- **ECH5103** • Environmental Management Principles • 3 credits
  This course covers environmental management principles and practice, management standards and monitoring as well as future approaches in handling national and global environmental changes. The role of stakeholders in environmental management are assessed. Development activities are related to the environmental conditions

- **ECH5101** • Environmental Health Technology • 3 credits
  This course covers planning on public health measures and preparedness against emerging environmental, health and safety related issues. Effects of water and air pollution are related to infectious diseases. Health problems from various sources, disposal and management of solid, toxic and hazardous wastes are identified. The effects to human health, environment and economy are evaluated.

- **ECH5104** • Solid Waste Management & Design • 3 credits
  This course covers assessment on basic principles of existing and emerging technologies for municipal solid waste treatment and product recovery from wastes. Characterization of municipal solid waste in accordance with the integrated solid waste management is examined. Principles of scientific and sustainable solid waste management in solving practical municipal solid waste management challenges are applied.

- **ECH5105** • Noise Pollution Engineering • 3 credits
  This course covers an assessment on noise pollution propagation models to the environment outside and inside. Noise pollution control methods and isolators are related to noise and vibration pollution control.

- **ECH5106** • Water Management • 3 credits
  This course covers planning on appropriate methods for water treatment. Issues related to water quality, pollution, management and control are described. The use of groundwater for water supply is assessed.

- **ECH5107** • Corrosion Engineering • 3 credits
  This course covers measurement on rate and types of corrosion testing methods. The applicability of the metal or alloy in the environment is described. Material selection and appropriate environment for corrosion control are implemented. Suitability of control methods and corrosion prevention are assessed.

- **ECH5108** • Ecotoxicology • 3 credits
  This course covers relationship between risk assessment strategies with risk assessment of toxic agents in environment. Principles of environmental toxicology are related with the exposure sources, disposition, distribution and fate of toxicants in the environment and effects of toxicants upon organic life. Toxic fate and transport in environment using life cycle approach are assessed. Contemporary issues pertaining the emerging of environmental toxicants on health and the environment are explained.

- **ECH5109** • Dissertation • 10 credits
  This course involves a research or study by a student on a specific topic. It is carried out in two semesters and covers literature review, methodology, data collection and analysis. The scope of research or study will be determined by the supervisor in consultation with the student. At the end of the first semester, the student needs to submit a preliminary report and at the end of the second semester, the student needs to submit a final report. The student is also required to present the findings of the research or study to a panel of assessors.

For further information

Please contact:

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http://msee-etm@eng.upm.edu.my
ADMISSION REQUIREMENTS

The minimum requirement to enrol in this program are as follow:

a) Bachelor in the field of Engineering or Engineering Technology with a CGPA of 2.750/Second Class Lower; or

b) Bachelor in the field of Engineering or Engineering Technology with a CGPA of 2.500/Second Class Lower with at least three (3) years of working experience in the field of study that is being applied for; or

c) Bachelor in any related field of Science or Technology with a CGPA of 3.000/Second Class Upper; or

d) Bachelor in any related field of Science or Technology with a CGPA of 2.750/Second Class Lower with at least three (3) years of working experience in the field of study that is being applied for; or

e) A qualification equivalent to a Bachelor's degree recognized by the professional bodies and MQA

Note:
* When candidates with Bachelor of Science or Technology degrees or their equivalents are admitted, prerequisite modules in Engineering, i.e Remedial Course must be offered to adequately prepare them for their advanced study

FEES

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<thead>
<tr>
<th></th>
<th>Master without thesis</th>
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<tbody>
<tr>
<td></td>
<td>Malaysian Student</td>
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<tr>
<td>Basic Fees (1st semester)</td>
<td>RM1250</td>
</tr>
<tr>
<td>Basic Fees (2nd and subsequent semester)</td>
<td>RM1000</td>
</tr>
<tr>
<td>Credit Fees</td>
<td>RM250/Credit Hour</td>
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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 Paper-based Test (Academic Version); or Band 6.0 for IELTS (Academic Training); or 79-80 for TOEFL Internet-based Test (Academic Version).

• 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://sgsportal.upm.edu.my:8080/sgsportal/
Tel. : (603) 9769 4218/4223/4228
Website : http://www.sgs.upm.edu.my/prospective_students-2964