Faculty of Engineering
Department of Civil Engineering
www.eng.upm.edu.my

Master of Water Engineering
INTRODUCTION

This programme is designed to offer opportunities to engineers and other professionals to enhance their expertise in water engineering, for them to use in developing, utilising and managing the world's water resources.

PROGRAMME REQUIREMENTS

Credit Requirements for Graduation

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

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory Courses</td>
<td>21</td>
</tr>
<tr>
<td>Elective Courses</td>
<td>9</td>
</tr>
<tr>
<td>Dissertation</td>
<td>10</td>
</tr>
</tbody>
</table>

Compulsory Courses

Students must take all the compulsory courses listed below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECV5100</td>
<td>Research Methodology</td>
<td>3</td>
</tr>
<tr>
<td>ECV5411</td>
<td>Surface Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>ECV5412</td>
<td>Flow in Closed Conduits</td>
<td>3</td>
</tr>
<tr>
<td>ECV5413</td>
<td>Water Quality Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECV5414</td>
<td>Open Channel Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>ECV5415</td>
<td>Design of Water and Wastewater Treatment</td>
<td>3</td>
</tr>
<tr>
<td>ECV5416</td>
<td>Hydraulic Structures</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses

Students must also take at least 9 credits from the elective courses listed below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECV5417</td>
<td>Groundwater Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>ECV5418</td>
<td>Sediment Transport</td>
<td>3</td>
</tr>
<tr>
<td>ECV5419</td>
<td>Coastal and Port Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ECV5420</td>
<td>Water Resources Modelling</td>
<td>3</td>
</tr>
<tr>
<td>ECV5421</td>
<td>Fluvial Flood Risk Assessment</td>
<td>3</td>
</tr>
<tr>
<td>ECV5514</td>
<td>GIS for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ECV5702</td>
<td>Project Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Dissertation

Students are required to take the course ECV5990 - Dissertation in two consecutive semesters, with 4 credits registered in the first semester and 6 credits in the second semester. This course requires a student to work individually on a specific topic under a supervision of a lecturer. The student will be assessed based on a written report and oral presentation at the end of each semester.
Synopsis of Courses

• ECV5100  • 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

• ECV5411  • Surface Hydrology  • 3 credits
This course covers materials that lead to the computation of discharges that are useful for design of water related structures. It also covers aspects of flow routing and the development of model for hydrologic simulation

• ECV5412  • Flow in Closed Conduits  • 3 credits
This course covers analysis of steady and unsteady flow in closed conduits that are required for design of water distribution and drainage as well as sewerage systems

• ECV5413  • Water Quality Engineering  • 3 credits
This course contains analysis of the sources and types, and fate and transport pollutants in surface and groundwater systems, as well as their impacts on human and ecological health. It also covers design of prevention, remedial, and mitigation techniques for water pollution

• ECV5414  • Open Channel Hydraulics  • 3 credits
This course covers principles and applications of flow in open channels by using the concepts of specific energy and momentum. Design of channels is also discussed

• ECV5415  • Design of Water and Wastewater Treatment  • 3 credits
This course covers the processes and design of water and wastewater treatment plants. Sludge treatment and tertiary treatment are also discussed

• ECV5416  • Hydraulic Structures  • 3 credits
This course covers hydraulic structures such as culverts, spillways, energy dissipator and dams. It also covers design of fluvial flood protection structures and detention pond outlets

• ECV5417  • Groundwater Hydraulics  • 3 credits
This course covers the characteristics of aquifers, groundwater flow and design of well. It also includes the use of groundwater model as well as water pollution and remediations

• ECV5418  • Sediment Transport  • 3 credits
This course covers sediment characteristics and transport in channels. It also covers behaviour and protection of river banks as well as sedimentation in reservoirs

• ECV5419  • Coastal and Port Engineering  • 3 credits
This course covers wave hydrodynamics and tides as well as their effects on sediment transport and coastal morphology. Port and infrastructure planning and design as well as their operation and maintenance are also discussed

• ECV5420  • Water Resources Modelling  • 3 credits
This course covers developing models of catchment hydrology. It also includes predictions of water resources availability under scenarios of change

• ECV5421  • Fluvial Flood Risk Assessment  • 3 credits
This course covers methods to assess fluvial flood risk, including flood probability and vulnerability assessments. This includes different approaches to model vulnerability to flooding

• ECV5514  • GIS for Engineers  • 3 credits
This course covers GIS components, spatial data structure, data source and acquisition as well as development of spatial database. It will also cover applications in civil engineering as well as formation and management of GIS unit

• ECV5702  • Project Management  • 3 credits
This course covers the discussion on advanced project management framework with the inclusion of the elements of risk management, quality management, life cycle method and systems thinking. The use of Building Information Modelling (BIM) in project planning and monitoring will also be addressed

For further information

Please contact:

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Website : http://www.eng.upm.edu.my

Programme Coordinator:

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Faculty of Engineering
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Website : http://www.eng.upm.edu.my/akademik/siswazah/master_secara_kerja_kursus-2294?L=en
ADMISSION REQUIREMENTS

An applicant with a bachelor degree in engineering with CGPA 2.500/Second Class Lower and at least three (3) years working experiences in relevant field; or

An applicant with a bachelor degree in engineering with CGPA 2.750/Second Class Lower

An applicant with a bachelor degree in science with CGPA 3.000/Second Class Upper OR CGPA 2.750/Second Class Lower and at least three (3) years working experiences in relevant field

Note:
* When candidates with Bachelor’s of Science or Technology degrees or their equivalents are admitted, prerequisite modules in Engineering must be offered to adequately prepare them for their advanced study.
* Please refer to programme coordinator for more information on admission requirements

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.

FEES

<table>
<thead>
<tr>
<th>Fees</th>
<th>Master without thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Malaysian Student</td>
</tr>
<tr>
<td>Basic Fees (1st semester)</td>
<td>RM1,250</td>
</tr>
<tr>
<td>Basic Fees (2nd and subsequent semester)</td>
<td>RM1,000</td>
</tr>
<tr>
<td>Credit Fees * subject to change</td>
<td>RM 250.00 / Credit Hour</td>
</tr>
</tbody>
</table>

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