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 professionals and scientists to develop their skills and expertise in water engineering, enabling them to apply 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>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory Courses</td>
<td>24 credits</td>
</tr>
<tr>
<td>Elective Course</td>
<td>10 credits</td>
</tr>
<tr>
<td>Project</td>
<td>6 credits</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>ECV5401</td>
<td>Water Quality Control</td>
<td>3</td>
</tr>
<tr>
<td>ECV5402</td>
<td>Open Channel Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>ECV5403</td>
<td>Water and Wastewater Treatment Design</td>
<td>3</td>
</tr>
<tr>
<td>ECV5404</td>
<td>Flow in Closed Conduits</td>
<td>3</td>
</tr>
<tr>
<td>ECV5405</td>
<td>Advanced Surface Water Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>ECV5406</td>
<td>Groundwater Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>ECV5407</td>
<td>Sediment Transport</td>
<td>3</td>
</tr>
<tr>
<td>ECV5408</td>
<td>Hydraulic Structures</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses

Students must also take at least 10 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>ECV5409</td>
<td>Water Quality &amp; Quantity Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ECV5410</td>
<td>Landfill Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECV5411</td>
<td>Water Engineering Design Project</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>
<tr>
<td>ECV5703</td>
<td>Construction Business Management</td>
<td>3</td>
</tr>
<tr>
<td>ECV5977</td>
<td>Independent Study</td>
<td>1</td>
</tr>
</tbody>
</table>

Identification of other suitable elective courses will be made by the programme coordinator.

Project

Students are required to take the course ECV 5989 - Project in two consecutive semesters, with 3 credits registered in each 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

- **ECVS401** Water Quality Control  
  This course covers water quality and pollution, as well as the movement of pollution within the surface water and sub-surface water systems.
  
- **ECVS402** Open Channel Hydraulics  
  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.
  
- **ECVS403** Water and Wastewater Treatment Design  
  This course covers the processes and design of water and wastewater treatment plants. Sludge treatment and tertiary treatment will also be discussed.
  
- **ECVS404** Flow in Closed Conduits  
  This course covers aspects of flow in closed conduits including computation of head loss, analysis of pumps, flow in pipe networks, and unsteady flow.
  
- **ECVS405** Advanced Surface Water Hydrology  
  This course covers materials related to computation of discharge by deterministic and probabilistic methods, for peak discharge and continuous discharge.
  
- **ECVS406** Groundwater Hydraulics  
  This course covers the characteristics of aquifers, groundwater flow, the use of groundwater model as well as the problems of groundwater contamination and pollution.
  
- **ECVS407** Sediment Transport  
  This course covers sediment characteristics and transport, river behaviour and protection of river banks as well as sedimentation in reservoirs.
  
- **ECVS408** Hydraulic Structures  
  This course covers hydraulic structures such as dams, spillways, stilling basins, in-stream structures and culverts. Protection of bridge piers from scour is also discussed.
  
- **ECVS409** Water Quality & Quantity Laboratory  
  This course covers hydraulic structures such as dams, spillways, stilling basins, in-stream structures and culverts. Protection of bridge piers from scour is also discussed.
  
- **ECVS410** Landfill Engineering  
  This course covers the collection and management of solid wastes as well as design, operation and maintenance of sanitary landfills.
  
- **ECVS411** Water Engineering Design Project  
  In this course, students are required to work in a group of three or four persons to undertake a complete design work on a given or proposed project. The project to be designed should be related to one of the branches of water engineering such as water treatment plant, dam, river training, wastewater treatment plant, water reclamation system and others. Each group will be supervised by one or more lecturers. Each group will produce a complete report on the design, and also present the findings.
  
- **ECVS514** GIS for Engineers  
  This course covers GIS components, spatial data structure, data source and acquisition, development of spatial database, applications in civil engineering, as well as formation and management of GIS unit.
  
- **ECVS502** Project Management  
  This course covers the characteristics of project management, system thinking and project life cycle. Construction planning and scheduling as well as contract dispute are also discussed.
  
- **ECVS503** Construction Business Management  
  This course covers business aspects in construction, financial transaction, management of cost and profit control as well as financing sources and cash flow management.
  
- **ECVS5977** Independent Study  
  The student is required to carry out an individual study on a selected topic that is relevant to his/her field of study and prepare a report at the end of the semester. He/she will be supervised by one or more lecturers.

For more information

**Please contact:**
Deputy Dean (Research)
Faculty of Engineering
Universiti Putra Malaysia
43400 UPM, Serdang
Selangor Darul Ehsan
Malaysia
Tel : 603-89466266/6253
Fax : 603-86567103
Email : tdp@eng.upm.edu.my
Website : http://www.eng.upm.edu.my

**Programme Coordinator:**
Abdul Halim Ghazali (Associate Prof. Dr.)
Department of Civil Engineering
Faculty of Engineering
Universiti Putra Malaysia
43400 UPM, Serdang
Selangor Darul Ehsan
Malaysia
Tel : 603-89466382
Fax : 603-86567129
Email : abdhalim@eng.upm.edu.my
Website : http://www.eng.upm.edu.my
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 experiences 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>
</tr>
</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</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