INTRODUCTION

This programme is designed to train professionals to be knowledgeable and skilled in forming policies, planning engineering works and ensuring equity to the public at large. It is introduced to produce professionals in the field of transportation who are knowledgeable in the technical and policy issues in transportation, planning, design and control and management. This programme offers advanced knowledge in the topics of traffic, pavement and road safety engineering through the combination of lectures and hands on workshops.

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>Credit Requirements for Graduation</th>
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</thead>
<tbody>
<tr>
<td>Compulsory Courses</td>
<td>21 credits</td>
</tr>
<tr>
<td>Elective Course</td>
<td>9 credits</td>
</tr>
<tr>
<td>Project 1</td>
<td>0 credits</td>
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</tbody>
</table>

Compulsory Courses

Students must take all the compulsory courses listed below:

- ECV5601 Accident Analysis and Prevention 3 credits
- ECV5603 Advanced Transportation Engineering 3 credits
- ECV5604 Advanced Highway Capacity Analysis 3 credits
- ECV5605 Pavement Materials 3 credits
- ECV5606 Pavement Analysis and Design 3 credits
- ECV5607 Pavement Management System 3 credits
- ECV5609 Highway Design 3 credits
- ECV5100 Research Methodology 3 credits
- ECV5990 Dissertation 10 credits

Note: ECV5990 - Dissertation is carried out over two semesters

Elective Courses

Students must also take at least 6 credit from the elective courses listed below:

- ECV5602 Statistical Methods for Transportation 3 credits
- ECV5608 Public Transport Analysis 3 credits
- ECV5610 Railway System Engineering 3 credits
- ECV5703 Construction Business Management 3 credits

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

ECV5601 • Accident Analysis And Prevention • 3 credits
This course covers the accident problems, diagnosis and measures to overcome accident black-spots problems and the implementation of road safety audit

ECV5602 • Statistical Methods for Transportation • 3 credits
This course covers scientific methods for collecting, organizing, summarizing, presenting, drawing conclusions and recommendation based on data analysis for transportation research

ECV5603 • Advanced Transportation 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

ECV5604 • Advanced Highway Capacity Analysis • 3 credits
This course covers the use of traffic engineering studies as well as capacity analysis of freeway system, weaving segment, ramps, multi-lane and two-lane rural highways

ECV5605 • Pavement Materials • 3 credits
This course covers suitable pavement materials for road construction, asphalt rheology, uses, testing of asphalt mixtures, Portland cement concrete mixtures, and analysis of base, sub-base and subgrade materials

ECV5606 • Pavement Analysis and Design • 3 credits
This course covers pavement layers, interaction between pavement layers, axle loads on pavement, theory and concepts for pavement design, moisture induced damages on pavement, and design approach for airport pavement.

ECV5607 • Pavement Management System • 3 credits
This course covers pavement performance, consideration of pavement evaluation techniques, management procedures of flexible and rigid pavements, exposure to the use of pavement management system software

ECV5608 • Public Transport Analysis • 3 credits
This course covers policy, regulation, management and operation of public transport to fulfil user demand. Cost-benefit analysis is also emphasized

ECV5609 • Highway Design • 3 credits
This course covers the fundamental principles of highway location design with focus on various traffic characteristics, survey and earthwork operations as well as geometric standards and design, and various alignment design

ECV5610 • Railway System Engineering • 3 credits
This course covers an overview of basic railway engineering elements and roles of rail transportation, history, organizations and economics, safety, intercity and urban passenger rail, freight operations, track-train dynamics, signals and communications, motive power and equipment, design of track components, construction and maintenance

ECV5703 • Construction Business Management • 3 credits
This course covers defining the minimum profit requirement of the construction project and finance liquidity requirements analysis for projects and construction companies. The course emphasises knowledge to prepare cost control management at the project level and the construction company

ECV5990 • Dissertation • 10 credits
This course involves a research or study by a student on a specific topic. It covers literature review, methodology, data collection and analysis under a supervision of a lecturer. A proposal report needs to be prepared at the beginning of the study. At the end of the project, the student will submit a complete dissertation and research output for evaluation. The student is also required to present the findings of the study to a panel of assessors

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

For further information

Please contact:

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Website : http://www.eng.upm.edu.my/akademik/siswa_zah/master_secar_kursus-2294?L=en
ADMISSION REQUIREMENTS

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 must be offered to adequately prepare them for their advanced study

FEES

<table>
<thead>
<tr>
<th>Fees</th>
<th>Master without thesis</th>
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</thead>
<tbody>
<tr>
<td>Basic Fees (1st semester)</td>
<td></td>
</tr>
<tr>
<td>Malaysian Student</td>
<td>RM1,250</td>
</tr>
<tr>
<td>International Student</td>
<td>RM2,300</td>
</tr>
<tr>
<td>Basic Fees (2nd and subsequent semester)</td>
<td></td>
</tr>
<tr>
<td>Malaysian Student</td>
<td>RM1,000</td>
</tr>
<tr>
<td>International Student</td>
<td>RM2,050</td>
</tr>
<tr>
<td>Credit Fees</td>
<td></td>
</tr>
<tr>
<td>* subject to change</td>
<td>RM 250.00 / Credit Hour</td>
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<tr>
<td></td>
<td>RM 350.00 / 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