INTERNATIONAL

UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

Faculty of Engineering
Department of Civil Engineering

www.eng.upm.edu.my

Master of Structural Engineering and Construction

INTRODUCTION

This programme is designed to provide exposure and in-depth theoritical knowledge in structural engineering and construction management. Courses encompasses the cores and electives, which mainly on structural design and analysis and two interesting courses on construction management.

PROGRAMME DETAILS

Credit Requirements For Graduation

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

Compulsory Courses	21 credits
Elective Course	9 credits
Dissertation	10 credits

Compulsory Courses

Students must take all the listed compulsory courses :

ECV5100	Research Methodology	3 credits
ECV5201	Advanced Structural Analysis	3 credits
ECV5202	Advanced Solid Mechanics	3 credits
ECV5204	Structural Dynamics	3 credits
ECV5221	Reinforced Concrete Structures	3 credits
ECV5701	Advanced Concrete Technology	3 credits
ECV5703	Construction Business Management	3 credits
ECV5990	Dissertation	10 credits

Note: ECV5990 - Dissertation is carried out over two semesters.

Elective Courses

Students must take at least 9 credits (3 courses) out of the listed courses :

ECV5203	Finite Element Method	3 credits
ECV5222	Prestressed Concrete Structures	3 credits
ECV5223	Steel Design and Construction	3 credits
ECV5224	Analysis and Design of Bridges	3 credits
ECV5225	Earthquake Resistance Structures	3 credits
ECV5226	Design of Tall Buildings	3 credits
ECV5227	Assessment and Strengthening of Structures	3 credits
ECV5702	Project Management	3 credits

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

Courses Synopsis

•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.

•ECV5201 •Advanced Method in Structural Analysis •3 credits
This course covers the formulation of basic equations for predicting response matrices and different types of structures under various load conditions manually and computer-aided. The course emphasises knowledge to analyse various structures using matrix method for non-linear material and geometry.

•ECV5202 •Advanced Solid Mechanics •3 credits
This course covers the formulation of bending and torsional equation behavior for various types of structural members. The course emphasises knowledge to the various theories of failure in the structure and analysis of 2D and 3D stress-strain problems.

•ECV5203 •Finite Element Method •3 credits
This course covers the formulation of finite element equation for plane stress structure, plane strain, isoparametric, plate and shell. The course emphasises knowledge of finite element model analysis suitable for surface, thin layer, 2D and 3D.

•ECV5204 •Structural Dynamics •3 credits
This course covers the analysis of response for structures under dynamic loads and equation formulation for various dynamic excitation. The course emphasises knowledge to analyse single degree of freedom and multi-degree of freedom systems.

•ECV5221 •Reinforced Concrete Structures •3 credits
This course covers the design of continuous beams, slabs, foundations, retaining walls and water tanks. The course emphasises knowledge to analyse and design reinforced concrete structures manually and computer-aided.

•ECV5222 •Prestressed Concrete Structures •3 credits
This course covers the design of prestressed concrete structures with selected materials strength and stress limitations. The course emphasises knowledge to analyse ultimate limit state conditions, losses of prestress and composite beams to design selected prestressed concrete structures.

•ECV5223 •Steel Design and Construction •3 credits
This course covers the analysis and design of steel structures. The course emphasises knowledge of the materials principle and limit state design method using members reaction in steel structures.

•ECV5224 •Analysis and Design of Bridge •3 credits
This course covers the analysis and basic grillage analysis methods for designing bridges. The course emphasises knowledge on planning, design and construction of bridges based on the requirements of the selected type of bridge.

•ECV5225 •Earthquake Resistant Structures •3 credits
This course covers the analysis and design of various types of structure such as rigid frame structure, steel structure, reinforced concrete structures and masonry building against earthquake loading. The course emphasises knowledge to analyse frame structures againts seismic and dynamic loading using computer software.

•ECV5226 •Design of Tall Buildings •3 credits
This course covers the design of tall buildings system, stability, and design load. The course emphasises knowledge to the load application and design considerations that are suitable for various system of tall buildings.

•ECV5227 •Assessment and Strengthening Of Structures •3 credits
This course covers the analysis, causes and types of structural problems. The course emphasises knowledge to determine methods of testing, repair and improvement of the strength suitable for the rehabilitation of structural problems

•ECV5701 •Advanced Concrete Technology •3 credits
This course covers various types of cement ratio and its effect on the strength and durability of concrete. The course emphasises knowledge to the production of concrete and quality control on site, destructive and non-destructive testing of concrete, special concrete and precast concrete.

•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.

•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

For further information

Please contact :

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Programme Coordinator :

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ADMISSION REQUIREMENTS

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

Fees	Master without thesis	
	Malaysian Student	International Student
Basic Fees (1st semester)	1,206.00	2,206.00
Basic Fees (2nd and subsequent semester)	950.00	1,950.00
Credit Fees	250.00 / credit hour	350.00 / credit hour

* subject to change

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:

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