

Admission Requirements

- Bachelor in the field of Engineering or Engineering Technology with CGPA of 2.750 ; or
- Bachelor in the field of Engineering or Engineering Technology with CGPA of 2.500-2.749 with at least 3 years of working experience in relevant field ; or
- Bachelor in the field of Engineering or Engineering Technology with CGPA of 2.250-2.499 with at least 5 years of working experience in relevant field ; or
- Bachelor in any related field of Science or Technology with CGPA of 3.000 ; or
- Bachelor in any related field of Science or Technology with CGPA of 2.750-2.999 with at least 3 years of working experience in relevant field ; or
- Bachelor in any related field of Science or Technology with CGPA of 2.500-2.749 with at least 5 years of working experience in relevant field.

Language Requirements

International candidates are required to fulfill English language requirement as follows:

- 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).

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.



Fees

| Fees | Master without thesis | |
|--|-----------------------|-----------------------|
| | Malaysian Student | International Student |
| Basic Fees (1 st semester) | RM 1,250 | RM 2,300 |
| Basic Fees (2 nd and subsequent semester) | RM 1,000 | RM 2,050 |
| Credit Fees * subject to change | RM 250 / credit | RM 400 / credit |



APPLICATION

Please apply online via:

<http://sgsportal.upm.edu.my:8080/sgsportal>
www.sgs.upm.edu.my/prospective_students-2964

For further information, please contact :

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PROGRAMME COORDINATOR

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MASTER OF STRUCTURAL ENGINEERING AND CONSTRUCTION

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INTRODUCTION

This programme is designed to provide exposure and in-depth theoretical 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 REQUIREMENTS

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 Courses 9 credits
- Dissertation 10 credits

Compulsory Courses

Students must take all the listed compulsory courses;

| | | |
|---------|--|------------|
| ECV5100 | Research Methodology | 3 credits |
| ECV5201 | Advanced Method in 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 semester

Elective Courses

Students must take only three elective courses (9 credits) out of the listed

| | | |
|---------|--|-----------|
| 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 |

Course 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 Bridges | 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 against 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.