Admission Requirements

i. Bachelor in the field of Engineering or Engineering Technology with CGPA of 2.750 or;
ii. 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;
iii. 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;
iv. Bachelor in any related field of Science or Technology with CGPA of 3.000 or;
v. 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;
vi. 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.

Note: 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.

Language Requirements

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

a) 550 for TOEFL Paper-based Test (Academic Version); or
b) Band 6.0 for IELTS (Academic Training); or
c) 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 (1st semester)	RM 1,425	RM 2,475
Basic Fees (2nd and subsequent semester)	RM 1,175	RM 2,225
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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MASTER OF ENVIRONMENTAL ENGINEERING

Department of Chemical and Environmental Engineering
Faculty of Engineering, Universiti Putra Malaysia

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INTRODUCTION

This programme is designed to equip professionals with knowledge on the problems of environmental pollution and its improvement for the good of mankind. It prepares professionals with knowledge and skills in environmental control and management and in the solution of environment-related problems.

PROGRAMME REQUIREMENTS

Credit Requirements for Graduation

Students enrolling under this programme must fulfill 41 credits of courses to graduate. The credit distributions for compulsory courses, elective courses and project are as follows:

- Compulsory Courses 25 credits
- Elective Courses 6 credits
- Dissertation 10 credits

Compulsory Courses

Students must take all the listed compulsory courses;

ECH5100	Research Methodology	3 credits
ECH5513	Environmental Management Principles	3 credits
ECH5101	Environmental Health Technology	3 credits
ECH5102	Principles of Environmental Engineering	3 credits
ECH5103	Wastewater Treatment Design	3 credits
ECH5104	Solid Waste Management & Design	3 credits
ECH5106	Toxic and Hazardous Waste Technology	3 credits
ECH5404	Environmental Engineering Laboratory	1 credits
ECH5522	Atmospheric Risk Management	3 credits
ECH5990	Dissertation	10 credits

Note: ECH5990 - Dissertation can be completed in one semester or at most in two consecutive semesters.

Elective Courses

Students must take only two elective courses (2 credits) out of the listed below;

ECH5105	Noise Pollution Engineering	3 credits
ECH5108	Ecotoxicology	3 credits
ECH5110	Circular Economy for Sustainable Environment	3 credits
ECH5111	Technology Innovation	3 credits
ECH5502	Hazard Analysis and Risk Assessment	3 credits
ECH5511	Safety, Health and Environmental Protection	3 credits
ECH5512	Water Management	3 credits
ECH5804	Corrosion Engineering	3 credits
ECH5955	Special Topic	3 credits

Please refer to Program Coordinator for the availability of the elective courses.

Course Synopsis

ECH5100 | Research Methodology | 3 Credits
This best

This course covers the best practices of research designs. Emphasis are given on the methods of organizing relevant information, determining appropriate research methodology, producing research proposal, academic writing, and ethical considerations in engineering research

ECH5513 | Environmental Management Principles | 3 Credits
This course covers environmental management principle and practice, management standards and monitoring as well as future approaches in handling national and global environmental changes. The role of stakeholders in environmental management are assessed. Development activities are related to the environmental conditions.

ECH5101 | Environmental Health Technology | 3 Credits
This course covers planning on public health measures and preparedness against emerging environmental, health and safety related issues. Effects of water and air pollutions are related to infectious diseases. Health problems from various sources, disposal and management of solid, toxic and hazardous wastes are identified. The effects to human health, environment and economy are evaluated.

ECH5102 | Principles of Environmental Engineering | 3 Credits
This course covers description on various physical processes involved in the movement of pollutants through the environment as well as the treatment and pollution control. Level of contamination in the solution, soil and atmospheric systems are analyzed. The solution of mass and energy balance calculations for environmental engineering processes are implemented. Principles of chemical and biological ecosystem for chemical stream fate in the natural and engineered systems are assessed.

ECH5103 | Wastewater Treatment Design | 3 Credits
This course covers design on physical, chemical and biological treatment systems for wastewater treatments. The importance of design and key components in wastewater treatment plants is explained. Options for sludge handling and disposal at the treatment plants are evaluated. Identification of advanced and emerging treatment processes are implemented.

ECH5104 | Solid Waste Management & Design | 3 Credits
This course covers assessment on basic principles of existing and emerging technologies for municipal solid waste treatment and product recovery from wastes. Characterization of municipal solid waste in accordance with the integrated solid waste management is examined. Principles of scientific and sustainable solid waste management in solving practical municipal solid waste management challenges are applied.

ECH5106 | Toxic and Hazardous Waste Technology | 3 Credits
This course covers evaluation on sources and types of hazardous waste and relationship between process principles and waste treatment technologies. Fate of contaminants and toxicological effects to human health and environment are assessed. Selection of suitable treatment methods for various types of toxic and hazardous wastes are implemented. Potential recovery technologies for emerging sustainable wastes are identified.

ECH5404 | Environmental Engineering Laboratory | 1 Credits
This course covers analysis on practical data in group. Measurement of pollutants are implemented by following the proper safety measures during the practical work carried out. The standard methods of environmental analysis are used to determine level of pollutants and water, wastewater, soil, air, noise and corrosion pollution analysis. Reports based on practical results with the needs of appropriate environmental law are assessed.

ECH5107 | Green Engineering | 3 Credits
This course covers assessment on the effects of product, process, and system to the environment. Evaluation on block building and equipment design for green engineering are implemented. Current environmental issues related to the use of new process or product are investigated. Different approach of green design

ECH5501 | Atmospheric Risk Management | 3 Credits
This course covers relationships between atmospheric risk characteristics with the sources and air risk effects. Explanation on the importance of air pollution policies and laws are implemented. Atmospheric toxic with the indoor air quality concept are related. Appropriate risk management techniques are developed.

ECH5105 | Noise Pollution Engineering | 3 Credits
The course appropriate assessment on noise propagation models to the environment outside and inside. Noise pollution management plans are developed. Suitable methods and isolators are related to noise and vibration pollution control.

ECH5804 | Corrosion Engineering | 3 Credits
This course covers measurement on rate and types of corrosion with testing methods. The applicability of the metal or alloy in the environment is described. Material selection and appropriate environment for corrosion control are implemented. Suitability of control methods and corrosion prevention are assessed.

ECH5511 | Safety, Health and Environmental Protection | 3 Credits
This course covers assessment on the risks to health, safety and environment and prevention techniques. Regulations and standards relating to health, safety and the environment are identified. Determination of prevention level and utilization of appropriate personal protective equipment are implemented. Health, safety and environmental audit in the workplace are developed.

ECH5109 | Advanced Air Pollution Engineering | 3 Credits
This course covers assessment on appropriate air pollution control technologies based on types of pollutions. Sources and effects of air pollutions on human, plants and animals are identified. Laws and regulations related to air pollution are explained.

ECH5502 | Hazard Analysis and Risk Assessment | 3 Credits
This course covers the interaction between process design and hazard identification. Safety enhancements of the plant at the design stage, hazard operability study and fault tree analysis techniques are emphasized. Risk assessment, including suitable criteria, is discussed. Information related to safety study is integrated within the design process.

ECH5503 | Design for Safe Handling of Industrial Chemicals | 3 Credits
This course covers assessment on physical and chemical properties of materials. Safety systems in laboratory and process plant are designed. Environmental legislation and the impacts on society, culture, universal and environment are described.

ECH5510 | Disaster Management and Emergency Plan | 3 Credits
This course covers the management principles, planning and analysis of disaster and also emergency management for facing disaster and emergency situations in a more systematic and organized manner. Planning for disaster preparation and explanation on the hazard management principles are held. Lessons from the past disasters are identified. Emergency response plan with the application of the correct basic techniques are organized.

ECH5955 | Special Topic | 3 Credits
This course focuses on selected issues and trends related to the field of environmental engineering and management. Exploration of key issues and new directions is conducted to recommend solutions through analysis of critical issues and problems.

ECH5990 | 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.