FACULTY OF ENGINEERING

For further inquiries, please contact:
Faculty of Engineering
Tel : 6088 - 320 000 / 320 347
Ext : 3131 / 3991 / 3114 / 3000
Fax : 6088 - 320 348 / 320 722
E-mail : pejfkj@ums.edu.my

Introduction

Faculty of Engineering (FKJ), formerly known as School of Engineering and Information Technology (SEIT) was formed in 1996 to train and produce expert human resources in the field of engineering and information technology for the benefit of the country.

Objectives

The objectives of the faculty are as follows:

- To produce graduates with technical knowledge, skills and attributes relevant to their needs.
- To conduct innovative research and advancements in various engineering disciplines by advancing, disseminating and applying engineering knowledge to improve the quality of life of the global communities
- To conduct effective community services for the benefit of the communities.

UMS Faculty of Engineering provides a platform for students' personal growth, resulting in greater innovation and productivity for the benefit of society and the nation as a whole. To achieve the objectives, the faculty is working closely with industrial stakeholders to ensure that the offered programmes are relevant and have the competitive advantage in the job market.

Vision

To become a Global Centre of Quality Professional Education.

Mission

Aims to be an internationally recognized centre of academic excellence by providing a balanced education to spearhead the nation's professional development. The programmes, curriculum, and courses are designed to equip the students with the necessary skills and knowledge for their careers in business, consultancy, marketing, education, etc. To achieve these objectives, the faculty works in collaboration with industries and the various agencies so that the programmes are consistently relevant to the current needs of the industry.

Programmes

HK01 CIVIL ENGINEERING

The Civil Engineering programme offers a full-time 4-year undergraduate programme leading to the award of Bachelor of Engineering with Honours (Civil Engineering) degree. The programme is designed to prepare students to become Civil Engineers who are able to plan, design, construct, maintain, improve and manage the physical and natural built environment, including works such as buildings, bridges, roads, canals, dams, sewerage systems and pipelines. Within these programme, students undertake a variety of courses in maths, mechanics, materials, design, geotechnics, hydraulics, surveying and management. In addition to the lecture, the theoretical aspects are also reinforced with practical through laboratory sessions, field works, industrial training, and final year project. Courses that have been offered are: Civil Engineering Material, Engineering Geology, Applied Mechanics, Fluid Mechanics, Mechanics of Solids, Geotechnical Engineering, Hydrology, Highway Engineering, and Environmental Engineering.

Career Prospects

Structural Engineer, Geotechnical Engineer, Water and Wastewater Engineer, Transportation Engineer, Construction Engineer, Consultant, Project Manager, Academician, Quantity Surveyor etc.

HK02 ELECTRICAL AND ELECTRONIC ENGINEERING

The field of Electrical and Electronic Engineering plays a significant role in shaping our society. The impact can be seen in sustainable electrical system and electronic consumer products that have served to enhance our quality of life as well forming the basis for major economic activity. Electrical and Electronic Engineering programme offers an academic study spanning over Power System, Communication System, Microelectronics and Nanoelectronics, Signal and Image Processing, and Control and Automation. Students begin with a unifying foundation that introduces the areas of electrical system and electronics, and then systematically build up broad foundations and depth in the different sub-disciplines. Laboratory experimentation, industrial internship, team-based design project and independent final year project provide engagement with principles and techniques of analysis, design, and experimentation. In the final year of studies, students may choose to specialize in any one of the sub-disciplines on offer. This programme is accredited by the Board of Engineers Malaysia and the Washington Accord which allows our graduates to practice as engineers in signatory countries.

Career Prospects

Demands for electrical and electronics engineers are high due to their versatility in developing and applying emerging technologies. Potential career includes electrical engineer, electronic engineer, computer engineer, power engineer, software engineer, telecommunication engineer, data analyst, project engineer, consulting engineer, system engineer, design engineer and production engineer.

HK03 CHEMICAL ENGINEERING

Chemical Engineering is a branch of engineering covering the design and operation of industrial plants for the conversion of raw materials into useful value-added products via economical, safe and environment- friendly processes. A chemical engineer is trained in applying physics, chemistry and mathematics in identifying, analyzing problems, and synthesizing optimum solution. He has the skills to tackle multi-disciplinary problems and work in a team as well as on his own. We aim to produce professional and ethical graduates who have the capacity to manage the nation's resources responsibly in the aspects of environment, safety, health and social welfare, and developing innovative technologies to meet the local requirements. They realize the importance of further professional growth through continuing education, and contribute as leaders through their professional training via their participation in either governmental or non-governmental activities, local and overseas. Chemical engineers are frequently in demand in the manufacturing, processing industry to manage large scale process plants producing food, agricultural chemicals, medicine, consumer products, oil and gas, and petrochemicals. Students will be learning fundamental as well as specialized engineering subjects such as Thermodynamics, Chemical and Bioprocess Technology, Unit Operation, Safety and Loss Prevention, Plant Design Project I & II, Management and Process Economics, Laboratories, Chemical Reaction Engineering, Process Control, Petroleum Processing, Solid Waste Management, Process Simulation and Integration and many others.

Career Prospects

Project Consultant, Reactor Designer, Plant Operation Engineer, Process Engineer, Production Engineer, Product Formulation Specialist, Heat Exchanger Specialist, Pipeline Specialist, Quality Control Engineer, Plant Managers, Academician and Flow Assurance Engineers.

HK08 MECHANICAL ENGINEERING

Mechanical Engineering is a branch of engineering that concerned in part with the elements of forces, materials, fluids, energy and motion, and the application of those elements to devise products that advance society and improve people's lives. As a profession, Mechanical Engineers deal with research, design and development, installation and maintenance of various machineries, manufacturing of goods that simplify works and bring comfort to the end users. The four years programme in Mechanical Engineering provides a broad intellectual foundation in the mechanical engineering field. Students learn the necessary fundamental engineering concepts and applications of material science, mechanics of machinery, fluid mechanics, thermodynamics, manufacturing, Computer-Aided Engineering and product design as well as general skills in management, team work and communication. The programme foster self-learning capability through hands-on laboratory, virtual simulation, final year project and project-based learning in small-sized group thus enable students to creatively apply what they have learnt in solving problems in real-world settings. Students also gain industrial exposure via industrial visits, periodical talks and industrial training programme.

Career Prospects

Mechanical Engineer, M&E Engineer, HVAC Design Engineer, Construction Project Engineer/Manager, Production Engineer /Manager, Automotive Engineer, Maintenance Engineer, Aviation/Aerospace Engineer, Plant Engineer/Manager, Manufacturing Engineer, Operations Manager, Product Design Engineer, Quality Assurance / Quality Control Engineer, R&D Engineer, Mechanical Engineering Academician.

ELECTRONIC (COMPUTER) ENGINEERING (HK20)

The rapid growth of computing industry and information technology (Industry 4.0) in the country requires a large number of computer engineering professionals. In order to meet this need, UMS offers this programme with a primary objective of providing broad base education in electronic engineering and computer science. Students study skills in understanding, designing and applying electronic circuits covering main areas of microprocessors, computer peripherals and use of computers for programme development. Employment prospects are good and graduates find employment in a wide spectrum of industry and organizations primarily concerned with modern development of computing, communications and electronics. Courses that have been offered are: Computer Security, Microprocessor, Database System, Embedded System, Artificial Intelligence, Analogue Electronics, Mobile Application Design, Digital Signal Processing, Computer Network, Computer Architecture, Wireless Communication and Software Engineering.

Career Prospects

Cyber Security Engineer**,** / Software Engineer, / Electronics Engineer, / Big Data System Support Specialist or Systems Engineer / Computer Engineer, / Network Engineer, / Telecommunication Engineer, / Instrument & Control Engineer, / Research & Development Engineer (Electronic Field).

OIL AND GAS ENGINEERING (HK88)

Oil and gas engineering covers the production of oil and gas from subsurface (underground) to surface in an economical and environmental safe way. An oil and gas engineer is trained to apply physics, chemistry, mathematics and engineering principles to identify and analyzing problems for getting optimum solution to produce oil and gas from the subsurface to surface. They also will develop skills to tackle multi-disciplinary problems and work either in a team and/or individually. Students will be learning fundamental upstream and downstream activities such as design, development and operation of systems for locating, extracting, processing and refining crude petroleum and natural gas, including mining and drilling systems, processing and refining systems and facilities, storage facilities, transportation systems, enhanced oil recovery, well logging and management, and related environmental, economic and safety systems. The technical knowledge and hands-on experience students gain from this program are specific to industry requirements. This program will have direct industry involvement, including industry advisory panels, guest lectures, field trips, site visits, networking and careers events, and industry supported student projects.

Career Prospects

Oil Well Consultant, Production Engineer, Completion Engineer, Drilling Engineer, Reservoir Engineer, Equipment and Software Engineer, Academician, Simulator, Process Engineer, Project Manager

H2451 DIPLOMA IN PROCESS ENGINEERING (OIL AND GAS OPERATIONS)

Diploma in Process Engineering at Universiti Malaysia Sabah is a 3 years programme study which mainly covers the midstream activities in oil and gas industry. This program is designed to produce graduates with state of the art knowledge and skills required to work as a process technician in oil and gas industries. This programme will have direct industry involvement, including industry advisory panels, guest lectures, industrial visit, final year project and industrial training. The programme includes theoretical and practical studies which cover process and production operation; processing; instrumentation; maintenance and testing; and safety. The major programme courses include Hydrocarbon Chemistry; Engineering Science; Health, Safety and Environment; Fluid Mechanics; Thermodynamics; Separation Process; Process Utility and Facilities; Process Control and Instrumentation; Introduction to Oil and Gas Engineering; Acts, Regulations and Codes of Practices; Petroleum Geology; Oil and Gas Production Operations; Oil and Gas Transportation and Storage; and Operation and Maintenance Management.

Career Prospects

Oil and Gas Operator; Oil and Gas Contractor; Process Technician; Process Supervisor; Engineer Assistant; General Technician; Plant and Machine Operator; Health and Safety Officer; Government Sectors

ACADEMIC STAFF

http://www.ums.edu.my/fkj/ms