

Bachelor of Electrical and Electronic Engineering

BACKGROUND

The Faculty of Engineering has been providing education and training in the field of electronics since 1985. In 1996, the Department of Electrical and Electronic Engineering is established and currently offering both undergraduate and postgraduate programs in the Electrical and Electronic Engineering.

PROGRAM

Bachelor of Electrical and Electronic Engineering is a 4-year program that has been developed in response to the nation's necessity for electrical and electronic engineers. The Department focuses in producing electrical and electronic engineers equipped with a strong engineering foundations and specialized either in Microelectronic, Power or Control Engineering.

The program is fully accredited by the Engineering Accreditation Council (EAC), Malaysia. As part of the accreditation exercise, the program goes through a periodical review every 5 years by EAC to ensure the continual suitability and relevance to the need of the nation and industry. Renowned professors from overseas are appointed as external examiners and assessors to ensure that the program meets international standards. Academic links are maintained with other local and international academic institutions with the aim of sharing information and experience related to teaching, research and other related activities. Close links are also maintained with industries through industrial training and by collaborative research. This cooperation ensures that teaching staff and students are well aware of current developments in the industry. Outcome Based Education (OBE) has also been adopted as the main approach of teaching and learning at the Department.

PROGRAM EDUCATIONAL OBJECTIVES

The objectives of the Bachelor of Electrical and Electronic Engineering program are to produce engineers who:

- a) are knowledgeable and competent in the field of Electrical and Electronic Engineering with skills that meet the needs of industry and market.
- b) are creative and innovative, as well as a caring and responsible towards society, culture and dynamic environment.
- c) are able to adapt to the global work environment, continuing lifelong learning, research and development in the field of Electrical and Electronic Engineering.
- d) have knowledge and ability to solve engineering problems including the advanced design and development in one of the field in Power, Control or Microelectronics Engineering.

CURRICULUM

Bachelor of Electrical and Electronic Engineering degree provides a distinctive broad-based approach to electrical and electronics courses with the aim to produce high quality, skilful, all-rounded graduates to meet technological advancements of the future. Thus the program places great emphasize on the cognitive, affective and psychomotor elements in teaching and learning process.

In the first year, the students learn fundamental courses of mathematics, electrical and electronics circuits and devices, and computer programming. Intermediate courses are introduced in the second and third year of study where the students are required to take all subjects associated to the three major specialization which is Microelectronic, Power and Control. The students will learn microelectronics principle and microprocessor technology; power system, power electronics and electrical machine; and control system and industrial control electronics respectively. Elective courses are offered in the fourth year of study where students will opt courses that reflect their specialization.

During the semester break before commencing the fourth year, the students will undergo a 10-week industrial training. In the first semester of the fourth year will undertake Electrical and Electronic Systems Design Project that focuses on team-oriented capstone design project for multi-disciplinary electric and electronic engineering. Apart from that, each student is also required to carry out a Bachelor's Project preferably related to his/her specialization. A total of 127 credit hours are required for graduation.

Microelectronic Engineering

Microelectronic Engineering is a field related to the physical implementation of electronic systems based on a miniaturization approach. This includes the study of device materials, device fabrications, integrated circuit (IC) and very large scale integration (VLSI) designs and tests, manufacturing processes, circuit reliability and their applications. With such specialization, the graduates will not only be ready for the work force, they will also be equipped with knowledge to lead the microelectronic industries locally and abroad.

Power Engineering

Power Engineering concentrates on power generation and distribution systems, high voltage systems, electrical machines, power electronic applications and industrial drives. The graduates specialize in power engineering are able to serve with power utilities and industries especially in sector that engage in high power applications.

Control Engineering

Control Engineering focuses on the control algorithms, design, development and implementations in various systems. The program emphasizes on control fundamental, artificial intelligence, model-based design, signal processing and data conditioning, microcontroller technology and industrial control electronic. The applications of this specialization are not limited to electrical and electronic engineering but also to other areas such as biomedical, chemical and biological processes, manufacturing and industrial processes, energy and green technology, agriculture and transportation.

CAREER OPPORTUNITIES

Electrical and Electronic engineers has broad career prospects either in the government agencies or private companies. Since the electrical and electronic engineering disciplines are required almost everywhere, graduates from this program can seek employment in many different fields such as (but not limited to) electricity supply, electronic design house, telecommunications, manufacturing, transportations, chemical, food and petroleum industries. They can also work anyway that requires electrical and/or electronics maintenance. Till today, our graduates have been hired by well-known national and multinational organizations such as National Instruments, Tenaga Nasional Berhad, Huawei Technology Malaysia Sdn. Bhd., Medivest Sdn. Bhd., Texas Instruments Malaysia Sdn. Bhd., Silterra Malaysia Sdn. Bhd., Agrofis Enterprise, SEE Energy Sdn. Bhd., Honda Malaysia Sdn. Bhd., Sony EMCS Malaysia, Xilinx Asia Pacific, MKS Medic Sdn Bhd, Jabatan Perangkaan Malaysia, Accenture Malaysia, Appsmiths USA, Fingertech, Mekaletrik Konsult Sdn. Bhd, USains Infotech Sdn. Bhd., MS Elevators Engineering Sdn. Bhd., EWC Engineers Singapore, Intel Technology Sdn. Bhd., Edgenta Propel Berhad and many others. There are also graduates who become entrepreneurs by setting up companies and involved in engineering design, fabrication and engineering tools supplies.

ADMISSION REQUIREMENTS

Bachelor of Electrical and Electronic Engineering (PK02) 8 Semesters		
Fulfills the University General Requirements and Specific Programme Requirements:		
a) A minimum CGPA of 2.80 b) Not colour-blind c) A minimum of Band 3 in the Malaysian University English Test (MUET) OR Credit in English Language subject at SPM level		
d) And		
STPM Holder	KPM Matriculation / UM Science Foundation / UiTM Foundation / UPM Agricultural Science Foundation Holder	Diploma Holder / Equivalent
A minimum of Grade B (GP 3.00) in <ul style="list-style-type: none"> • Mathematics T / Further Mathematics T; AND • Physics 	A minimum of Grade B (GP 3.00) in <ul style="list-style-type: none"> • Mathematics / Engineering Mathematics; AND • Physics / Engineering Physics / Electric & Electronic Engineering Studies 	A Diploma with a minimum CGPA of 2.80 in the appropriate field or other qualification approved by the UPM Senate.

CURRICULUM (2016 – 2020)

The component of curriculum studies can be divided into three categories, namely general courses, core courses and elective courses.

Component	EAC requirements (minimum total credit hours)	Curriculum of Bachelor of Electrical and Electronic Engineering	Percentage
General Courses	No fixed minimum value	35	27.5%
Core Courses	80	82	64.6%
Elective Courses		10	7.9%
Total Credit	120	127	100%

Total credit hours: 127

Duration of study: 8 semester (4 years)

Fees:

Code	Program	Average cost of a student per year	Fees on First Semester*	Government subsidies to the student per year
67	Bachelor of Electrical and Electronic Engineering	RM24,921.00	RM2,643.00	RM20,491.00

*Fees for Local Students as per New Intake 2016/2017-1 Session (Subject to change)

Persons to be contacted:

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