

# Master of ENGINEERING IN MICROELECTRONICS

## INTRODUCTION

- **Master of Engineering in Microelectronics** is a specialized program in the field of microelectronics for postgraduate studies. The program includes a variety of advanced courses related to the field of microelectronics and nanoelectronics. The courses offered are in line with latest developments in the knowledge domain that meet the needs of the semiconductor industry. These courses are constantly improved so that it remains relevant to the latest development in science and technology. Syllabus has been developed taking into account the views and suggestions from various stakeholders including relevant industries. At the end of this program, graduates will be able to meet their obligations as trained engineers who have in-depth knowledge in the field of microelectronics.

## AIMS OF THE PROGRAM

- For students to have advanced knowledge and skills in the core of microelectronics engineering.

- To produce more engineers and researchers who are able to deal with various issues in the field of microelectronics.

## PROGRAM ADVANTAGES

- The program is accredited by MQA and recognized by the Malaysian Government.
- Relevant to the latest development in knowledge domain and meeting the needs of the industry and other stakeholders.
- Opportunities for the student to choose specific microelectronics knowledge and skills through various elective modules.
- Emphasises on the elements of research and innovation to ensure that graduates are able to think creatively and innovatively, be global and become catalyst for the nation's economy.

## MODE & DURATION OF STUDY

### FULL TIME

MINIMUM	1 year (3 semesters)
MAXIMUM	3 year (9 semesters)

### PART TIME

MINIMUM	2 years (6 semesters)
MAXIMUM	5 years (15 semesters)

## PROGRAM LEARNING OUTCOME (PLO)

- PL01** Ability to master knowledge in the field of microelectronics engineering.
- PL02** Ability to apply knowledge in solving problems related to microelectronics engineering.
- PL03** Ability to master practical and competitive skills in the field of microelectronics engineering.
- PL04** Ability to link ideas with social and environmental issues in the field of microelectronics engineering.
- PL05** Able to communicate and deliver information/ideas/reports professionally and confidently
- PL06** Ability to use digital technology to support assignments and learning.
- PL07** Ability to use numerical skills in solving problems related to the field of microelectronics engineering.
- PL08** Ability to lead and manage effectively and responsibly among colleagues and stakeholders.
- PL09** Ability to have personal skills through learning and self-development.
- PL010** Ability to possess entrepreneurial characteristics through learning and self-development.
- PL011** Ability to practice a legal, ethical and professional code of practice.

## MODE OF DELIVERY

### COURSEWORK OPEN AND DISTANCE LEARNING (ODL)

## ENTRY REQUIREMENTS

### ACADEMIC QUALIFICATIONS

- 1 Bachelor's Degree in Engineering with Honors or Bachelor's Degree in Engineering Technology (CGPA 2.5 and above or its equivalent) from Universiti Kebangsaan Malaysia or its equivalent from any recognized university OR;
- 2 Bachelor's Degree in Engineering or related field or its equivalent (CGPA 2.0 – 2.49) may be considered based on a thorough internal assessment OR;
- 3 Bachelor's Degree in Science with Honors (other than engineering) or Bachelor's Degree in Technology (other than engineering) (minimum CGPA 3.00) from Universiti Kebangsaan Malaysia or its equivalent from any recognized university OR;
- 4 Bachelor's Degree in Science with Honors (other than engineering) or Bachelor's Degree in Technology (other than engineering) from Universiti Kebangsaan Malaysia or its equivalent from any recognized university (CGPA less than 3.00) may be considered based on a thorough internal assessment. OR;
- 5 Fulfilling the Accreditation of Prior Experiential Learning (APEL A) for Malaysian candidates only:
  - i at least 30 years old on the application date; AND
  - ii passing a Diploma in Engineering or related field, or an equivalent qualification recognized by the Malaysian Government and approved by the Senate; OR
  - iii other equivalent qualifications; AND
 possessing an MQA APEL certificate with MQF Level 7.

### REQUIREMENT FOR ENGLISH LANGUAGE

- 1 International students must meet the English language requirements by obtaining a minimum score of 5.5 for IELTS or its equivalent in any examination aligned with The Common European Framework of Reference (CEFR) as approved by the Senate.
- 2 International students who do not meet the English language competency requirements may be given a Conditional Offer as follows:
  - i students are allowed to attend the Internal English Language Preparation Course at UKM with a maximum duration of two (2) years and subject to the regulations of the Malaysian Immigration Department in force; and
  - ii international students attending the Internal English Language Preparation Course must take the IELTS, TOEFL, MUET, or any examination aligned with CEFR to meet the English language competency requirements.
- 3 The list of examinations aligned with CEFR is subject to approval by the Senate from time to time.
- 4 Faculties/Institutes may grant exceptions to the requirements stated in (1) and (2) for:
  - i international students from countries using English as the official language; or
  - ii international students using academic qualifications from institutions using English as the sole medium of instruction and intending to pursue higher studies at UKM.

### OKU CATEGORY

Persons with Disabilities (OKU) accepted into this program are those with physical disabilities, except for visual and hearing impairments.

## PROGRAM STRUCTURE

No.	Courses	Credit Value	Percentage (%)
1.	Core -Program (18)	18	45
2	Elective (Choose 4 courses only)	12	30
3	Project	10	25
<b>Total Credit Value</b>		<b>40</b>	<b>100</b>

### LIST OF COURSES:

#### Core courses (18 Credits)

#### Program core

Code	Course Title	Credit
KKKC6073	Research Methodology and Innovation	3
KKKC6053	Advanced Physic Semiconductor	3
KKKC6113	Computational Mathematics and Statistic	3
KKKC6033	Advanced Integrated Circuit Design	3
KKKC6043	Integrated Circuit Fabrication and Packaging	3
KKKC6353	Nanoelectronic Devices	3

#### Elective (12 Credits)

#### \*Choose 4 courses only

Code	Course Title	Credit
KKKC6453	Optical Sensor Technology	3
KKKC6323	Embedded System Design	3
KKKC6233	Digital Integrated Circuit Design	3
KKKC6223	CMOS Analog IC Design	3
KKKC6343	MEMS Sensors and Actuators	3
CMIE6213	Entrepreneurship and Product Innovation	3

#### Project (10 credits)

Code	Course Title	Credit
KKKC6004	Project I	4
KKKC6006	Project II	6

FOR APPLICATION  
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official website

[www.ukmodl.com](http://www.ukmodl.com)

**Bahagian Pembangunan & Pengembangan Program ODL**  
Universiti Kebangsaan Malaysia  
43200 Bangi Selangor

+010 807 0049

[marketingodl@ukm.edu.my](mailto:marketingodl@ukm.edu.my)