BACHELOR OF ENGINEERING IN COMPUTER SCIENCE AND TECHNOLOGY (HONOURS)

[R/0613/6/0037] 11/27 [MQA/FA5711]

DURATION	INTAKE	MEDIUM OF INSTRUCTION
4 years	February/April/September	English

ABOUT THE PROGRAMME

Most people are unaware that the foundation of advanced AI systems, including robotics, and software/hardware-based security systems, lies in computer algorithms. Algorithms are methods and procedures used to solve computing problems, both in research and in the industry. Both AI and security systems rely heavily on the advancement, proliferation and implementation of algorithms in computer systems.

The Bachelor of Engineering in Computer Science and Technology (Honours) programme is designed to establish solid foundations in mathematics and computer science. This prepares graduate to readily adapt to the rapidly evolving technologies in algorithms and the computing industry.

Graduates are expected to devise new and innovative methods for implementing computing algorithms or explore novel applications of computer technology. The programme also provides graduates with knowledge in computer systems (both hardware & software) through a curriculum based on computer systems engineering principles.

Graduates are equipped to address computing challenges in businesses, financial institutions, and organisations prepared for the Fourth Industrial Revolution (IR 4.0). As industries increasingly shift to IR 4.0, the demand for computer science graduates continues to rise steadily.

Furthermore, graduates acquire essential skills to pursue their studies or conduct advanced research in computer science related fields.

Winner of Best Final Year Project Award – BP Malaysia Award

PROGRAMME HIGHLIGHTS

The CST programme aims to produce graduates who are able to:

- Design and implement software/algorithms (e.g. finding credit card fraud in 100 million card transactions)

- Devise new ways to use computers (e.g. connecting wrist pulse sensors to mobile devices and laptops for health monitoring)

- Develop effective ways to solve computing problems (e.g. providing solutions for self-driving car to avoid road hazards such as potholes or drains)

- Plan and manage organisational technology infrastructure. (e.g. deploying antivirus/firewall/IoT software & hardware in large organisations networks)

CAREER OPPORTUNITIES

- IoT Systems Engineer & Systems Integrator
- Systems Analyst
- Applications Developer/Programmer
- Cloud Solutions Engineer
- Embedded Systems Engineer
- Computer/Cyber Security Specialist
- Information Security Specialist
- Computer Engineer
- Network Support Engineer
- Computer Network Architect

Note: The degree is not among the fields of engineering in the register of the Board of Engineers Malaysia.

BP Award 2023

ENTRY REQUIREMENTS *For other equivalent qualifications, please consult our programme counsellor.*

STPM (Science Stream)	A pass in STPM with at least a Grade C in Mathematics and 1 Science/ICT subject
STPM (Non-Science Stream)	A pass in STPM with at least a Grade C (GP2.0) in any 2 subjects AND a credit in Additional Mathematics in SPM or its equivalent
A-LEVEL	A pass in A-Level with at least a Grade D in any 2 subjects
UEC	A pass in UEC with at least a Grade B in 5 subjects
Foundation/Matriculation	A pass in Foundation / Matriculation with at least a CGPA of 2.0 out of 4.0
Diploma	A pass in Diploma in Computing (Computer Science/Software Engineering/Information Technology/ Information System/Data Science) with at least a CGPA of 2.5* out of 4.0 OR A pass in any Diploma in Science and Technology or the equivalent with at least a CGPA of 2.75** out of 4.0
AND	(i) Additional Mathematics*** —a credit in SPM or the equivalent; OR (ii) Mathematics and any 1 Science/Technology/Engineering subject —a credit in SPM or the equivalent AND pass a Mathematics placement test organised by XMUM before joining the programme

NOTES:
* Candidates with a CGPA of less than 2.5 but more than 2.0 may be accepted subject to a stringent internal evaluation process.
** Candidates with a CGPA of less than 2.75 but more than 2.5 may be accepted subject to a stringent internal evaluation process.
*** The requirement for the Additional Mathematics at SPM level can be exempted if the Foundation/Matriculation or its equivalent offers a Mathematics course that is of a similar or higher level compared to the Additional Mathematics at SPM level

MAIN COURSES

YEAR 1
- Calculus I A
- Calculus II B
- Linear Algebra
- Discrete Mathematics
- General Physics I
- Programming Practice
- Programming Language (C)
- Introduction to Computer Science and Technology

YEAR 2
- General Physics II
- General Physics Laboratory
- Probability and Statistics
- Digital Logic
- Design and Analysis of Algorithms
- Data Structures
- UNIX System Programming

Major Elective 1 (Choose 2)
- Object-Oriented Programming - C++
- Object-Oriented Programming – Java
- Circuit Analysis

YEAR 3
- Principles of Computer Composition
- Compiler Principles
- Principles of Operating Systems
- Computer Architecture
- Fundamental Academic Research

Major Elective 2 (Choose 2)
- Numerical Methods
- Digital Signal Processing
- Computer Graphics

Major Elective 3 (Choose 2)
- Computer Networks and Communication
- Software Architecture and Development Environment
- Multimedia Technology

YEAR 4
- Thesis
- Industrial Training

Major Elective 4 (Choose 2)
- Software Engineering
- ARM Assembly Language
- Principles of Database Systems

December 2024