



BSc (Hons) in SOFTWARE ENGINEERING

[R/A81/5/0714](04/21)(MQA/FA0366)

At a glance

Module outline

Duration:
3 years full-time

This programme is specifically designed to provide students with:

- Familiarity with the tools and rigorous methodologies used to develop mission-critical and safety-critical software systems.
- The ability to critically evaluate design paradigms, languages, algorithms, and techniques used to develop large-scale and complex software systems.
- A deep appreciation of the importance of software architecture, testing, documentation, and maintainability.

Career options

- Software Engineer
- Systems Analyst
- Project Manager
- Software Consultant
- Programmer
- Chief Technology Officer (CTO)
- Application Engineer
- Software Test Engineer
- Software Quality Assurance (QA) Specialist
- R&D Specialist
- Software Architect
- Systems Integration Engineer
- Senior Technical Lead
- Product Manager
- Solutions Architect
- Development Manager
- Senior System Designer



LEVEL 1

Students will learn fundamental skills required by every IT professional, and the basic understanding of programming, problem solving skills, algorithmic skills, mathematical techniques and systems analysis and design. Some specialised modules will provide students with basic knowledge of underlying computer systems such as Computer Architecture, operating systems, networking and databases. The modules will also help them develop personal and organisational skills, as well as nurture creativity and innovation.

LEVEL 2

A broader range of skills will be learnt, in which students will gain a better understanding of design paradigms, languages, and algorithms used for developing large-scale and complex software systems. They will gain solid understanding of software lifecycle, and methodologies for specification, design, development, testing, evaluation, analysis and maintenance of software systems. We will further nurture their creativity and innovation as well as independent learning to prepare them for the workplace.

INTERNSHIP

Students will undertake an Internship/Industrial Training for a minimum period of 16 weeks to prepare them for a smooth transition from the classroom to the working environment.

LEVEL 3

Students will make use of their previous studies and industrial experience to extend their familiarity in the field of software engineering and to refine their personal and professional development. Students will move further into system design methods that help them improve on software design, organisation and maintainability to produce concise and powerful software applications. A final year project requires them to investigate and develop a solution for a real-world problem - they will demonstrate their ability to combine technical knowledge, critical thinking and analytical skills to produce a personal achievement portfolio.

MQA Compulsory Subjects*

- Ethnic Relations (M'sian Students)
- Islamic & Asian Civilisation (M'sian Students)
- Malaysian Studies (Int'l Students)
- Malay Communication Language (Int'l Students)
- Workplace Professional Communication Skills
- Employee & Employment Trends
- Co-Curriculum

(*All students are required to successfully complete these modules as stipulated by the Malaysian Qualification Agency)

LEVEL 1

Common Modules

- Digital Thinking and Innovation
- Intercultural Awareness and Cultural Diversity
- System Analysis & Design
- Programming with Python
- Mathematical Concepts for Computing
- Operating Systems & Computer Architecture
- Introduction to Networking
- Introduction to Databases

Specialised Module

- Introduction to Object Oriented Programming

Elective Modules (Choose 1)

- Introduction to Artificial Intelligence
- Fundamentals of Web Design & Development

LEVEL 2

Common Modules

- Object Oriented Development with Java
- System Development Methods
- Programming for Data Analysis
- Creativity & Innovation
- Research Methods for Computing and Technology

Specialised Modules

- Computer Theory
- Data Structures
- Design Methods
- Requirements Engineering
- Software Architecture
- Enterprise Systems

Elective Modules (Choose 1)

- Concurrent Programming
- Further Web Design & Development
- Mobile App Engineering

INTERNSHIP (16 weeks)

LEVEL 3

Common Modules

- Innovation Management & New Product Development
- Project Management

Specialised Modules

- Advanced Programming Language Concepts
- Algorithmics
- Design Patterns
- Software Quality Engineering
- Designing & Developing Applications on Cloud
- Investigations in Software Engineering
- Software Engineering Project

Elective Modules (Choose 2)

- Advanced Database Systems
- Distributed Computer Systems
- Blockchain Development
- Enterprise Programming for Distributed Applications
- HCI & Usability
- Optimisation and Deep Learning