

## **NAME OF PROGRAMME**

Bachelor of Information Technology (Hons) in Software Engineering (BSE)

## **DESCRIPTION**

The programme is designed to prepare students for careers in the field of software engineering who are knowledgeable and competent in the software engineering process and activities such as software engineers, requirement engineers, software designers and software testers or test engineers and software developers.

## **CAREER OPPORTUNITIES FOR STUDENTS**

- Software Engineers,
- Requirement Engineers
- Software Designers
- Software Testers Or Test Engineers
- Software Developers.

## **OBJECTIVES**

This programme is designed to:-

- Apply the knowledge, principles and skills related to software engineering to define procedures, processes, systems or methodologies
- Select and apply appropriate techniques, resources and software engineering tools to broadly-defined software engineering activities, with an understanding of the limitations
- Identify, formulate and solve software engineering problems using appropriate design techniques to meet specified needs
- Demonstrate awareness and consideration for societal, safety and consequent responsibilities
- Understand and commit to professional ethics and responsibilities and norms of information technology practice
- Communicate and function effectively as an individual and as a member or leader in a diverse technical team
- Recognise the need for, and have the ability to engage in independent and lifelong learning
- Demonstrate an awareness and understanding of management, business practices, and technopreneurial competencies

## MODULES

SEMESTER	SUBJECTS
<p><b>Semester 1</b></p> <p>In this semester, students will be introduced to basic skills and courses in English and Mathematics for IT/Computing and personal development. Students will learn how to think logically and solve problems and make decisions based by using critical thinking skills.</p>	<ul style="list-style-type: none"> <li>• Tamadun Islam &amp; Tamadun Asia (TITAS) (L) /</li> <li>• Bahasa Melayu Komunikasi 2 (I)</li> <li>• Fundamental English</li> <li>• Professional English 1</li> <li>• Technopreneurship</li> <li>• Discrete Mathematics for IT</li> </ul>
<p><b>Semester 2</b></p> <p>In this semester, students will be equipped with essential knowledge and skills on computing, programming and software engineering. The computing courses cover the organizational paradigms that determine the capabilities, performance and the success of computer systems. The hardware and architecture of computer systems are discussed. The programming course covers the important concepts of computer programming and logical thinking. Students will learn the core syntax of a programming language and can begin programming using Java language (Principles of Computer Programming). In the software engineering course, students will be exposed to the methods and techniques used in the discipline of software engineering, as well as software development. They will gain an understanding on the importance of software engineering's best practices (Software Engineering).</p>	<ul style="list-style-type: none"> <li>• Hubungan Etnik (L) / Pengajian Malaysia 3 (I)</li> <li>• Probability and Statistics for IT</li> <li>• Intro to Computing and Information System</li> <li>• Computer Organization</li> <li>• Principles of Computer Programming</li> <li>• Introduction to Software Engineering</li> </ul>
<p><b>Semester 3</b></p> <p>In this semester, students will gain knowledge and skills required in the early phase of Software Engineering activities such as communicating system requirements and designs and also the flow of data within the studied system (Object Oriented Systems Analysis and Design; and Database Management Systems). Students will learn to design and develop software applications with considerations that employ user-centred interaction design (UCID) guidelines using Object Oriented technology (Interaction Design). They will also learn</p>	<ul style="list-style-type: none"> <li>• Third Language 1 (Mandarin 1) / Third Language 1 (Korean Language 1)</li> <li>• Operating Systems</li> <li>• Object Oriented Systems Analysis and Design</li> <li>• Database Management Systems</li> <li>• Interaction Design</li> <li>• Object Oriented Programming</li> </ul>

<p>basic computing and programming skills (Operating Systems; and Object Oriented Programming).</p>	
<p><b>Semester 4</b>  In this semester, students are exposed to advanced concepts and skills in the software engineering process. The Software Requirement Engineering course will be taught by certified lecturers in order to prepare students to sign up for professional certification courses in software requirement engineering (CPRE). Data structure and Algorithms course provide students with skills required for algorithm or code efficiency analysis to determine the best algorithm to solve certain computing problems. Students will also learn to design and develop web-based applications (Web Application Development) with considerations to produce innovative software products (Innovation Management).</p>	<ul style="list-style-type: none"> <li>• Elective BSE 1**</li> <li>• Innovation Management</li> <li>• Third Language 2 (Mandarin 2) /Third Language 2 (Korean Language 2)</li> <li>• Data Structures and Algorithms</li> <li>• Software Requirements Engineering (PC1)</li> <li>• Web Application Development</li> </ul>
<p><b>Semester 5</b>  In this semester, students will learn more advanced concepts and skills in the software engineering process or activities. The modules Software Design and Integration, Reuse and Components-Based Development and Ubiquitous Computing provide students with skills to design and develop software applications with considerations producing software products with certain quality attributes and apply the concept of 'reusability' in each software engineering activity.</p>	<ul style="list-style-type: none"> <li>• Elective BSE 2**</li> <li>• Isu-isuKontemporari Muslim di Malaysia (L-M) / Culture and Lifestyle in Malaysia (L-NM &amp; I)</li> <li>• Professional English 2</li> <li>• Software Design and Integration</li> <li>• Reuse and Component-Based Development</li> <li>• Ubiquitous Computing</li> </ul>
<p><b>Semester 6</b>  The Software Testing course is offered in this semester and will be taught by certified lecturers to prepare students to undergo a professional certification course in software testing (CTFL). Students will perform specific test to their software products and learn the skills needed in managing their software project development and producing quality project reports (IT Project Management, Research Methodology).</p>	<ul style="list-style-type: none"> <li>• Elective BSE 3**</li> <li>• Co-Curriculum*</li> <li>• Research Methodology</li> <li>• IT Project Management</li> <li>• Final Year Project 1</li> <li>• Software Testing (PC2)</li> </ul>
<p><b>Semester 7</b></p>	<ul style="list-style-type: none"> <li>• Elective BSE 4**</li> </ul>

<p>These modules, Software Configuration management and Software Quality courses will be offered in the last semester to provide students with skills to track and control changes in their software products (after software product is released) e.g. revision control, establishment of baselines and to track and manage the quality of their software products.</p>	<ul style="list-style-type: none"> <li>• Final Year Project 2</li> <li>• Software Configuration Management</li> <li>• Software Quality</li> </ul>
<p><b>Semester 8</b> In this semester students will undergo industrial attachment in order to expose them to the real working environment in related fields.</p>	<ul style="list-style-type: none"> <li>• Industrial Training</li> </ul>
<p><b>Elective</b> Elective courses are offered in semester 4 - 7 and provide more advance skills in programming and other courses based on students' choice. Students will learn to develop dynamic web-based systems in project team using various web programming languages (Internet Programming and Advanced Programming). Students will gain knowledge and skills on Business Intelligence (BI) systems in terms of its tools, current practices and impacts and able to determine the best method and solution to secure the confidential information system project and organization.</p>	<ul style="list-style-type: none"> <li>• Internet Programming</li> <li>• Advanced Programming</li> <li>• Business Intelligence</li> <li>• Information Security</li> <li>• Business Enterprise Architecture</li> </ul>

## PHOTOS OF FACILITIES



Computer Lab



CTFL Training



Student Club



CSR

## PROFESSIONAL CERTIFICATES

The programme which is attached to the Malaysian Software Testing Board (MSTB), aims to equip students with the necessary knowledge and skills in software engineering, besides offering opportunities in **professional certification** such as :-

- Certified Professional for Requirements Engineering – Foundation Level (CPRE-FL)
- Certified Tester Foundation Level in Software Testing (CTFL).

## STUDENTS GRADUATE WITH PROFESSIONAL CERTIFICATE

SEMESTER	CTFL		CPRE	
	SIT	PASS	SIT	PASS
Jan 2011	30	12		
Jun 2011	18	12		
Jan 2012	29	28		
Jun 2012	25	18		
Jan 2013			50	45
Jun 2013	20	7		
Jun 2014	21	4	50	17
Sept 2015	22	8	32	8
<b>Total</b>	165	89	132	70

### AWARD WON BY STUDENTS

Computer Unified Device Architecture (CUDA) Programming Challenge 2014 : 3rd prize

### INDUSTRY COLLABORATION

Malaysian Software Testing Board (MSTB)