



XIAMEN UNIVERSITY MALAYSIA

廈門大學 馬來西亞分校

PROGRAMME HANDBOOK

BACHELOR OF ENGINEERING IN
SOFTWARE ENGINEERING
(HONOURS)

ACADEMIC SESSION: 2026/09



Academic Affairs Office

Contents

1. UNIVERSITY VISION AND MISSION	3
2. PROGRAMME AIMS	3
3. PROGRAMME EDUCATIONAL OBJECTIVES (PEO)	4
4. PROGRAMME LEARNING OUTCOMES (PLO).....	5
5. EXPECTED AREAS OF GRADUATE EMPLOYMENT	5
6. CURRICULUM STRUCTURE	6
7. LIST OF COURSES OFFERED FOR EACH ACADEMIC YEAR.....	11
8. PREREQUISITE COURSES	11
9. IMPORTANT NOTE.....	16

1. UNIVERSITY VISION AND MISSION

Vision

- Xiamen University Malaysia aspires to become a university with a distinct global outlook, featuring first-class teaching and research, and embracing cultural diversity.

Mission

- To nurture young talents with dignity and wisdom, turning them into fine citizens of the region who will contribute to the prosperity of the people and social progress of Malaysia, China and Southeast Asia.

2. PROGRAMME AIMS

The aim of Bachelor of Engineering in Software Engineering (SWE) is to equip graduates with a balance between theoretical approaches and practical implementation in software engineering, covering a wide spectrum of software engineering related topics including introduction of software engineering, computer architecture, software architecture, C and C++ programming, object oriented modeling, database, network technology, information security, cloud computing, embedded programming, mobile application system design and big data analytics, etc. It also equips them with the knowledge and skills necessary to design, develop and manage computer and mobile application system.

3. PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The PEOs are to produce graduates who are:

PEO1	Software Engineering practitioners who are technically and practically competent, capable of providing solutions for problems in the software engineering discipline;
PEO2	Software Engineering practitioners who have effective communication skills and uphold ethical conduct and professional practices in-line with the industry requirements;
PEO3	Software Engineering practitioners who possess good leadership, interpersonal skills, managerial and entrepreneurial skills;
PEO4	Software Engineering practitioners who engage in lifelong learning, research and career development.

4. PROGRAMME LEARNING OUTCOMES (PLO)

At the end of the programme, graduates will be able to:

PLO1	Knowledge and Understanding	Describe concepts and techniques, design tools, and methodologies in the field of software engineering
PLO2	Cognitive Skills	Apply theoretical and technical knowledge to conceptualize, identify, analyse, evaluate and solve software engineering related problems.
PLO3	Practical Skills	Perform a range of software development activities to solve software engineering related problems.
PLO4	Interpersonal Skills	Demonstrate effective interaction with diverse stakeholders.
PLO5	Communication Skills	Communicate effectively to a diverse set of stakeholders both orally and in written form.
PLO6	Digital Skills	Use digital technology and application software for problem-solving in the field of software engineering.
PLO7	Numeracy Skills	Apply numeracy skills for problem-solving in the field of software engineering.
PLO8	Leadership, Autonomy and Responsibility	Demonstrate teamwork, accountability, autonomy and responsibility in delivering solutions related to the field of software engineering
PLO9	Personal Skills	Exhibit self-development and self-learning capabilities for continuous improvement.
PLO10	Entrepreneurial Skills	Demonstrate entrepreneurial skills/ mindset in delivering software engineering related solutions.
PLO11	Ethics and Professionalism	Demonstrate professionalism and ethical considerations within the practice of software engineering field.

5. EXPECTED AREAS OF GRADUATE EMPLOYMENT

Companies, Government, Academic Research, Self-Employment

6. CURRICULUM STRUCTURE

The minimum requirement for graduation will be **148** credits, with all the components meeting the minimum credit values specified in Table 1.

Table 1: Components of the Programme and its Value

	Course Classification	Credit Value	Percentage (%)
1	Compulsory courses/modules	12	8.1%
2	Core/Major(s)/Specialisation:		
	• Common Core	41	27.7%
	• Major Core	34	23.0%
	• Final Year Project	11	7.4%
3	Optional/elective courses:		
	• Major Elective	30	20.3%
	• General Elective	14	9.5%
4	Minor courses (if applicable)		
5	Industrial training/Practicum	6	4.1%
6	Others (specify):		
	Total Credit Value	148	100.0%

Compulsory Courses

Compulsory Courses refer to *Mata Pelajaran Pengajian Umum (MPU)*, or General Studies, which is a compulsory component of undergraduate education in Malaysia as mandated by the Ministry of Higher Education (MoHE), as shown in Table 2a below.

MPU aims to develop well-rounded graduates by complementing academic studies with broader knowledge, essential skills, ethical values, and social responsibility. Through courses that promote critical thinking, effective communication, integrity, and community engagement, MPU prepares students to become responsible citizens and lifelong learners in an increasingly interconnected world.

Table 2a: Components of the **Compulsory** Courses and its Value

No.	Name of Course	Course Code	Credit Value	International	Malaysian
U1 (3 courses @ 2 credits per course) Philosophy, Values & History Appreciation					
1	Bahasa Melayu Komunikasi 2	MPU1012	2	√	-
2	Integriti dan Antirasuah (Integrity and Anti-Corruption)	MPU1022	2	√	√
3	Aspirasi Negara Bangsa (Malaysian Nation-State Aspiration)	MPU1032	2	-	√
4	Falsafah dan Cabaran Semasa	MPU1042	2	-	√
5	Citra Malaysia (Malaysian Citra)	MPU1052	2	√	-
U2 (1 course @ 2 credits) Soft Skills					
6	Bahasa Kebangsaan A	MPU2012	2	-	1. Fail Bahasa Melayu SPM OR 2. Scored below C/ without credit in Bahasa Melayu SPM
7	Writing for Professional Purposes	MPU2022	2	√	1. Malaysian students with a credit in BM at SPM OR 2. Took and Passed Bahasa Kebangsaan A in diploma level MUST take Writing for Professional Purposes.
U3 (1 course @ 2 credits) Knowledge About Malaysia					
8	Artificial Intelligence and Malaysia's Digital Economy	MPU3012	2	√	√
U4 (1 course @ 2 credits) Practical Course (Community Service, Motivational, Co-curriculum)					
9	Community Service	MPU4012	2	√	√
Total Credit Value (Compulsory Courses)			12		

General Elective Courses

General Elective Courses refer to courses designed to give students options beyond their major-related courses in order to diversify their scope of knowledge.

Students in Science field can choose courses they are interested in from Group I (Art), Group II (Business) and Group IV (Artificial Intelligence) as shown in Table 2b. Students in Software Engineering shall achieve at least a total of 14 credits with each group meets the minimum requirement of 1 course.

Table 2b: Components of the **General Elective** Courses and its Value

No.	Name of Course	Course Code	Credit Value	Remarks
Group I (Arts)				
	Group I comprises general elective courses in the field of Arts such as <i>Art Appreciation, Basic Korean Language, and Communication Skills for Job Search.</i>	G01XX/ G1XXX		Minimum 1 course
Group II (Business)				
	Group II comprises general elective courses in the field of Business such as <i>Introduction to Finance, Entrepreneurship and Sustainable Development, and Introduction to International Business</i>	G02XX		Minimum 1 course
Group IV (Artificial Intelligence)				
	Group IV comprises general elective courses in the field of Artificial Intelligence , comprising: • Discipline-based (Compulsory) • General (Optional)	G04XX		Minimum 1 course
Total Credit Value (General Elective Courses)			14	

*Note: The courses listed are provided as examples for reference only. The actual general elective courses offered may vary each semester. Students should refer to the **General Elective Course Library** for the list of general elective courses available in a particular semester.*

Common Core Courses

Common Core courses refer to essential courses offered for students in different majors but in the same field according to disciplinary development rules.

Table 2c: Components of the **Common Core** Courses and its Value

No.	Name of Course	Course Code	Credit Value
1	Discrete Mathematics B	BSC136	3
2	Computer Fundamentals	SOF102	3
3	C and C++ Programming	SOF103	4
4	Principles of Information Systems	SOF104	2
5	Fundamentals of Network Technology	SOF203	4
6	Introduction of Software Engineering	SOF107	3
7	Computer Architecture	SOF108	3
8	Data Structure	SOF105	4
9	Operating Systems	SOF201	4
10	Database	SOF202	4
11	Principles of Artificial Intelligence	SOF106	3
12	Software Architecture and Design Patterns	SOF204	4
Total Credit Value (Common Core Courses)			41

Major Core Courses

Major Core Courses refer to courses designed to meet the core educational objectives; each major has its own features.

Table 2d: Components of the **Major Core** Courses and its Value

No.	Name of Course	Course Code	Credit Value
1	Software Requirement Engineering	SWE307	4
2	Algorithm Analysis and Design	SWE201	4
3	Object Oriented Modeling	SWE202	4
4	Software Quality Engineering	SWE204	4
5	Advanced Software Engineering	SWE304	4
6	Software Project Management	SWE205	4
7	Software Verification and Validation	SWE301	4
8	Introduction of Cloud Computing	SWE309	3
9	Fundamental Research in Academic Project	SWE406	5
10	Information Security	SWE308	3
11	Software Engineering Academic Project	SWE407	6
Total Credit Value (Major Core Courses)			45

Table 2e: Components of the **Industrial Training** and its Value

No.	Name of Course	Course Code	Credit Value
1	Industrial Training	SWE408	6
Total Credit Value (Industrial Training)			6

Major Elective Courses

Major Elective Courses refer to courses designed to help students to identify their interested field or direction within the major, which enable them to be better prepared for their career's pathways.

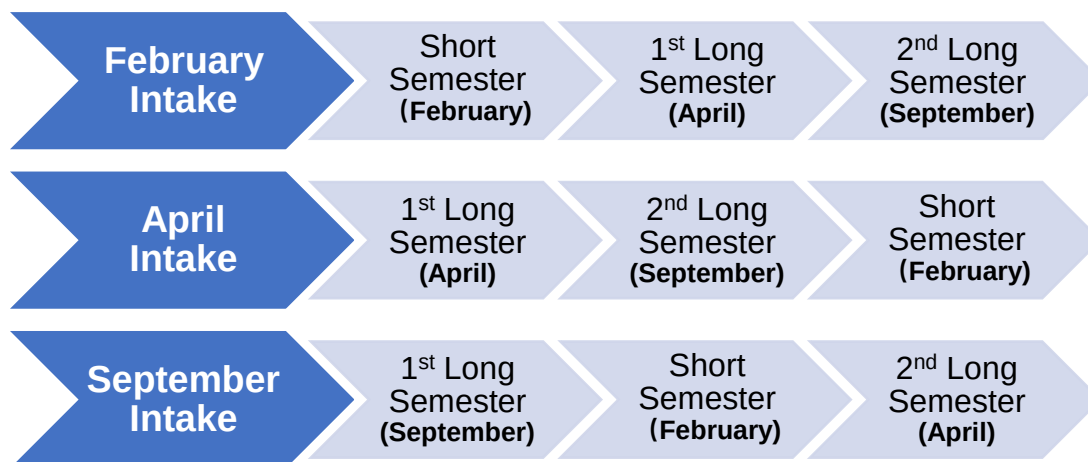
For major elective courses, students are required to choose designated courses based on table below:

Table 2f: Components of the **Major Elective** Courses and its Value

No.	Name of Course	Course Code	Credit Value	Remarks
1	Human Computer Interaction	SWE203	3	Choose 2 courses (min. 6 credits)
2	Programming Elective II (1)	SWE306	3	
3	Computer Graphics	SWE206	3	
4	Python and Tensorflow Programming	AIT102	3	
5	Embedded System	SWE302	3	Choose 2 courses (min. 6 credits)
6	Digital Media Technology	SWE303	3	
7	Game Design and Development	SWE305	3	
8	Programming Elective II (2)	SWE310	3	Choose 2 courses (min. 6 credits)
9	Mobile Application System Design	SWE311	3	
10	Distributed Systems	SWE312	3	
11	Programming Elective II (3)	SWE401	3	Choose 4 courses (min. 12 credits)
12	Data Mining	SWE402	3	
13	Technology and Application of Internet of Things	SWE403	3	
14	Big Data Analytics	SWE404	3	
15	Virtual Reality Technology and Application	SWE405	3	
Total Credit Value (Major Elective Courses)			30	

7. LIST OF COURSES OFFERED FOR EACH ACADEMIC YEAR

There are three (3) semesters in each academic year: two (2) long semesters and one (1) short semester. The sequence of course registration varies according to the intake:



Students should be aware that the total number of credits shall not exceed **20** for long semester and **7** for a short semester.

It is important to note that the arrangement of courses for each academic year listed below is subject to change based on programme needs or institutional requirements.

Year	Semester	Course Name	Course Code	Classification	Credit
Year 1	1 st Long Semester	Discrete Mathematics B	BSC136	Common Core	3
		Computer Fundamentals	SOF102	Common Core	3
		C and C++ Programming	SOF103	Common Core	4
		Principles of Information Systems	SOF104	Common Core	2
		Bahasa Melayu Komunikasi 2	MPU1012	Compulsory	2
		Aspirasi Negara Bangsa (Malaysian Nation-State Aspiration)	MPU1032	Compulsory	
		Falsafah dan Cabaran Semasa	MPU1042	Compulsory	2
		Citra Malaysia (Malaysian Citra)	MPU1052	Compulsory	
		Integrity dan Antirasuah (Integrity and Anti-Corruption)	MPU1022	Compulsory	2
		Total Credit Value			
	2 nd Long Semester	Fundamentals of Network Technology	SOF203	Common Core	4
		Introduction of Software Engineering	SOF107	Common Core	3
		Computer Architecture	SOF108	Common Core	3
		Data Structure	SOF105	Common Core	4
		Artificial Intelligence and Malaysia's Digital Economy	MPU3012	Compulsory	2
		Bahasa Kebangsaan A	MPU2012	Compulsory	2

Year	Semester	Course Name	Course Code	Classification	Credit
		Writing for Professional Purposes	MPU2022	Compulsory	2
		Total Credit Value			18
	Short Semester	Select from Table 2b	Gxxxx	General Elective	4
		Total Credit Value			4
Year 2	1 st Long Semester	Operating Systems	SOF201	Common Core	4
		Database	SOF202	Common Core	4
		Principles of Artificial Intelligence	SOF106	Common Core	3
		Software Requirement Engineering	SWE307	Major Core	4
		Algorithm Analysis and Design	SWE201	Major Core	4
		Total Credit Value			19
	2 nd Long Semester	Object Oriented Modeling	SWE202	Major Core	4
		Software Quality Engineering	SWE204	Major Core	4
		Advanced Software Engineering	SWE304	Major Core	4
		Student to choose 2 courses (min. 6 credits):			
		Human Computer Interaction	SWE203	Major Elective	3
		Computer Graphics	SWE206	Major Elective	3
		Programming Elective II (1)	SWE306	Major Elective	3
		Python and Tensorflow Programming	AIT102	Major Elective	3
		Total Credit Value			18
	Short Semester	Select from Table 2b	Gxxxx	General Elective	2
		Community Service	MPU4012	Compulsory	2
		Total Credit Value			4
Year 3	1 st Long Semester	Software Project Management	SWE205	Major Core	4
		Software Verification and Validation	SWE301	Major Core	4
		Introduction of Cloud Computing	SWE309	Major Core	3
		Student to choose 2 courses (min. 6 credits):			
		Embedded System	SWE302	Major Elective	3
		Digital Media Technology	SWE303	Major Elective	3
		Game Design and Development	SWE305	Major Elective	3
		Total Credit Value			17
	2 nd Long Semester	Fundamental Research in Academic Project	SWE406	Academic Research Projects	5
		Software Architecture and Design	SOF204	Common Core	4
		Information Security	SWE308	Major Core	3
		Student to choose 2 courses (min. 6 credits):			
		Programming Elective II (2)	SWE310	Major Elective	3
		Mobile Application System Design	SWE311	Major Elective	3
		Distributed Systems	SWE312	Major Elective	3
		Total Credit Value			18
	Short Semester	Select from Table 2b	Gxxxx	General Elective	4
		Total Credit Value			4

Year	Semester	Course Name	Course Code	Classification	Credit	
Year 4	1 st Long Semester	Software Engineering Academic Projects	SWE407	Academic Research Projects	6	
		<u>Student to choose 4 courses (12 credits):</u>				
		Programming Elective II (3)	SWE401	Major Elective	3	
		Data Mining	SWE402	Major Elective	3	
		Technology and Application of Internet of Things	SWE403	Major Elective	3	
		Big Data Analytics	SWE404	Major Elective	3	
		Virtual Reality Technology and Application	SWE405	Major Elective	3	
		Total Credit Value				18
	2 nd Long Semester	Industrial Training	SWE408	Industrial Training	6	
		Total Credit Value				6
	Short Semester	AI Applications in Science, Technology, and Business (Table 2b- Group IV Compulsory)	G0402	General Elective	2	
		Select from Table 2b	Gxxxx	General Elective	2	
		Total Credit Value				4
Grand Total					148	

8. PREREQUISITE COURSES

A prerequisite is a course that must be completed before taking a more advanced course.

Course Code	Course Name	Prerequisites
SOF105	Data Structure	SOF103 C and C++ Programming
SOF106	Principles of Artificial Intelligence	SOF103 C and C++ Programming SOF105 Data Structure
SOF108	Computer Architecture	SOF102 Computer Fundamentals
SOF201	Operating Systems	SOF108 Computer Architecture
SOF202	Database	SOF105 Data Structure
SOF203	Fundamentals of Network Technology	SOF103 C and C++ Programming
SOF204	Software Architecture and Design Patterns	SOF103 C and C++ Programming SOF105 Data Structure
SWE201	Algorithm Analysis and Design	SOF107 Introduction of Software Engineering
SWE202	Object Oriented Modeling	SOF103 C and C++ Programming SOF105 Data Structure SOF107 Introduction of Software Engineering SOF202 Database
SWE204	Software Quality Engineering	SOF107 Introduction of Software Engineering
SWE205	Software Project Management	SOF107 Introduction of Software Engineering
SWE301	Software Verification and Validation	SOF105 Data Structure SOF201 Operating Systems
SWE304	Advanced Software Engineering	SOF107 Introduction of Software Engineering
SWE305	Game Design and Development	SOF103 C and C++ Programming
SWE306	Programming Elective II (1)	SOF103 C and C++ Programming
SWE307	Software Requirement Engineering	SOF107 Introduction of Software Engineering
SWE308	Information Security	SOF201 Operating Systems SOF203 Fundamentals of Network Technology
SWE310	Programming Elective II (2)	SOF103 C and C++ Programming
SWE311	Mobile Application System Design	SOF103 C and C++ Programming SOF107 Introduction of Software Engineering
SWE312	Distributed Systems	SOF108 Computer Architecture SOF201 Operating Systems
SWE401	Programming Elective II (3)	SOF108 Computer Architecture SOF201 Operating Systems

Course Code	Course Name	Prerequisites
SWE403	Technology and Application of Internet of Things	SOF105 Data Structure
SWE404	Big Data Analytics	SOF108 Computer Architecture SOF201 Operating Systems
SWE407	Software Engineering Academic Project	SOF202 Database SWE202 Object Oriented Modeling
SWE408	Industrial Training	Obtained at least 60% of total Cumulative Credits Earned (CCE) CGPA above 2.00

9. IMPORTANT NOTE

Threshold Requirement

A grade threshold refers to the minimum number of marks that a student needs to obtain in a particular component of the course.

Software Engineering students must obtain a threshold mark of 40 in all assessment components, including the final examination, and an overall mark of 55 or above to pass a core / major / elective course.

Note: The above information is subject to change as new information becomes available in accordance with the guiding standards and requirements set by relevant authorities.