



XIAMEN UNIVERSITY MALAYSIA

廈門大學 馬來西亞分校

PROGRAMME HANDBOOK

BACHELOR OF ENGINEERING IN ARTIFICIAL INTELLIGENCE (HONOURS)

ACADEMIC SESSION: 2026/09



Academic Affairs Office

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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 programme will help students to become professionals with good skills to program and design intelligence system in the job market. Besides this, the programme also promote the competitive power of Malaysia in artificial intelligence, which could boost the technology and economics of this nation among China, ASEAN counties and even the whole international community.

3. PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

The PEOs are to produce graduates who are:

PEO1

Process and comprehend the knowledge, principles and skills in artificial intelligence, including the intelligence theories, practical models and system design methodologies.

PEO2

Possess analytical and critical thinking skills to solve problems by applying knowledge, principles, skills in artificial intelligence.

PEO3

Able to apply fundamental mathematical, scientific, engineering, legal and theoretical computing knowledge in analyzing, modelling, designing, developing and evaluating computing solutions and artificial intelligence models.

PEO4

Understand the interplay between theory and practice of artificial intelligence and the essential links between them, then develop the consciousness and ability of lifelong learning and the basic leadership ability of management.

4. PROGRAMME LEARNING OUTCOMES (PLO)

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

PLO1	Knowledge and Understanding	Demonstrate basic knowledge of theories, principles and applications of artificial intelligence, including analytical skills and practical abilities in a global context.
PLO2	Cognitive Skills	Formulate real problems into artificial intelligence models and propose creative solutions to these issues.
PLO3	Practical Skills	Demonstrate logic and rigorous ability for real intelligence problem solving.
PLO4	Interpersonal Skills	Combine teamwork, communication and interpersonal skills, with socially- and culturally-sensitive skill sets to engage effectively with peers, clients, superiors and society.
PLO5	Communication Skills	Practice oral and written capabilities to communicate/convey information/ideas/reports cogently and professionally.
PLO6	Digital Skills	Develop and apply relevant software tools and media technology in solving real world problems.
PLO7	Numeracy Skills	Formulate mathematical models, graphical/visual methods, and numerical algorithms to devise improved solutions or applications.
PLO8	Leadership, Autonomy and Responsibility	Integrate social, cultural, environmental and global responsibilities and leadership as well as the need for sustainable development.
PLO9	Personal Skills	Identify the need for continual professional development, and to engage in independent and lifelong learning.
PLO10	Entrepreneurial Skills	Demonstrate managerial qualities with appropriate knowledge on management, business practices and entrepreneurship.
PLO11	Ethics and Professionalism	Demonstrate an awareness to uphold values, attitudes, and ideals to remain professional, ethical and humanistic, and at all times, adhere to ethical standards and code of practice relevant to industry.

5. EXPECTED AREAS OF GRADUATE EMPLOYMENT

Our graduates will have the opportunities to work in many industries, including:

- Information and Communications Technology
- Education
- Data Science
- Brain Science
- Research and Development
- Engineering

6. CURRICULUM STRUCTURE

The minimum requirement for graduation will be **141** 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	8.5%
2	Core/Major(s)/Specialisation:		
	• Common Core (Core)	52	36.9%
	• Major Core (Specialisation)	22	15.6%
	• Major Elective (Field Elective)	30	21.3%
	• Thesis (Final Year Project)	6	4.3%
3	Optional/elective courses:		
	• General Elective	13	9.2%
4	Minor courses (if applicable)		
5	Industrial training/Practicum	6	4.3%
6	Others (specify):		
	Total Credit Value	141	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 (Arts), Group II (Business) and Group IV (Artificial Intelligence) as shown in Table 2b. Students in Artificial Intelligence shall achieve at least a total of 13 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	2	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	2	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	3	Minimum 1 course
Total Credit Value (General Elective Courses)			13	

*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	Calculus I A	BSC121	5
2	Linear Algebra	BSC124	3
3	Calculus II	BSC123	5
4	Probability and Statistics A	BSC125	4
5	Discrete Mathematics B	BSC136	3
6	Programming Language C	AIT101	3
7	Python and Tensorflow Programming	AIT102	3
8	Data Structures	AIT206	3
9	Design and Analysis of Algorithms	CST207	4
10	Matrix Analysis and Application	AIT205	3
11	Principles of Computer Composition	CST301	4
12	Principles of Operating Systems	CST306	4
13	Computer Networks and Communication	CST309	4
14	Software Architecture and Development Environment	CST307	4
Total Credit Value (Common Core Courses)			52

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	Principles of Artificial Intelligence	SOF106	3
2	Introduction to Intelligence Application	AIT103	3
3	Applied Machine Learning	AIT201	3
4	Methods and Applications of Deep Learning	AIT202	3
5	Big Data Analytics	SWE404	3
6	Statistical Learning	AIT302	3
7	Thesis I	AIT310	3
8	Thesis II	AIT410	3
9	Principles of Database Systems	CST403	4
Total Credit Value (Major Core Courses)			28

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

No.	Name of Course	Course Code	Credit Value
1	Industrial Training	AIT420	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 careers pathways.

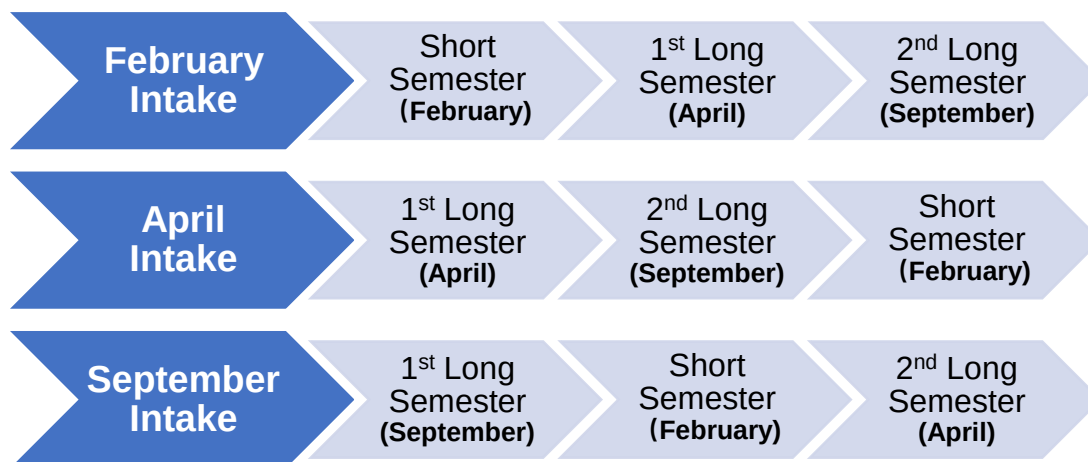
For major elective courses, students are required to choose designated courses based on table below:

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

No.	Name of Course	Course Code	Credit Value	Remarks
1	Natural Language Processing	AIT203	3	Choose ONE (1) course (Total 3 credits)
2	Computer Vision and Robotics	AIT204	3	
Sub-total credits required			3	
3	Object-Oriented Programming-C++	CST209	4	Choose ONE (1) course (Total 4 credits)
4	Object-Oriented Programming-Java	CST210	4	
Sub-total credits required			4	
5	Computer Architecture	CST308	4	Choose TWO (2) courses (Total 8 credits)
6	Compiler Principles	CST302	4	
7	Numerical Methods	BSC128	4	
8	Computer Graphics	CST305	4	
Sub-total credits required			8	
9	Advanced Issues of Artificial Intelligence (Natural Language Processing)	AIT303	3	Choose ONE (1) course (Total 3 credits)
10	Advanced Issues of Artificial Intelligence (Computer Vision)	AIT304	3	
Sub-total credits required			3	
11	Advanced Machine Learning	AIT301	3	Choose TWO (2) courses (Total 6 credits)
12	Robot Kinematics and Dynamics	AIT305	3	
13	Deep Reinforcement Learning and Control	AIT306	3	
14	Computational Cognitive Science	AIT307	3	
Sub-total credits required			6	
15	Information Security	SWE308	3	Choose ONE (1) course (Total 3 credits)
16	Technology and Application of Internet of Things	SWE403	3	
Sub-total credits required			3	
17	Strategic Reasoning for AI	AIT401	3	Choose ONE (1) course (Total 3 credits)
18	Planning Techniques for Robotics	AIT402	3	
19	Advanced Data Analysis	AIT403	3	
Sub-total credits required			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	Calculus I A	BSC121	Common Core	5
		Linear Algebra	BSC124	Common Core	3
		Programming Language C	AIT101	Common Core	3
		Python and Tensorflow Programming	AIT102	Common Core	3
		Bahasa Melayu Komunikasi 2/ Aspirasi Negara Bangsa	MPU1012/ MPU1032	Compulsory	2
		Total Credit Value			
	2 nd Long Semester	Calculus II	BSC123	Common Core	5
		Probability and Statistics A	BSC125	Common Core	4
		Principles of Artificial Intelligence	SOF106	Major Core	3
		Introduction to Intelligence Application	AIT103	Major Core	3
		Integrity and Anti-Corruption	MPU1022	Compulsory	2
		Total Credit Value			
	Short Semester	General Elective Course (Select from Table 2b)	Gxxxx	General Elective	6

Year	Semester	Course Name	Course Code	Classification	Credit
		Total Credit Value			6
Year 2	1 st Long Semester	Discrete Mathematics B	BSC136	Common Core	3
		Data Structures	AIT206	Common Core	3
		Applied Machine Learning	AIT201	Major Core	3
		Principles of Computer Composition	CST301	Common Core	4
		Matrix Analysis and Application	AIT205	Common Core	3
		Total Credit Value			16
	2 nd Long Semester	Principles of Operating Systems	CST306	Common Core	4
		Methods and Applications of Deep Learning	AIT202	Major Core	3
		Design and Analysis of Algorithms	CST207	Common Core	4
		<u>Students to choose ONE (1) course (Total 3 credits):</u>			
		Natural Language Processing	AIT203	Major Elective	3
		Computer Vision and Robotics	AIT204	Major Elective	3
		<u>Students to choose ONE (1) course (Total 4 credits):</u>			
		Object-Oriented Programming-C++	CST209	Major Elective	4
		Object-Oriented Programming-Java	CST210	Major Elective	4
		Total Credit Value			18
	Short Semester	Citra Malaysia (Malaysia Citra/ Falsafah dan Cabaran Semasa)	MPU1052/ MPU1042	Compulsory	2
		Bahasa Kebangsaan A/ Writing for Professional Purposes	MPU2012/ MPU2022	Compulsory	2
		Total Credit Value			4
Year 3	1 st Long Semester	Computer Networks and Communication	CST309	Common Core	4
		Big Data Analytics	SWE404	Major Core	3
		Statistical Learning	AIT302	Major Core	3
		<u>Students to choose TWO (2) courses (Total 8 credits):</u>			
		Computer Architecture	CST308	Major Elective	4
		Compiler Principles	CST302	Major Elective	4
		Numerical Methods	BSC128	Major Elective	4
		Computer Graphics	CST305	Major Elective	4
		Total Credit Value			18
	2 nd Long Semester	Thesis I	AIT310	Major Core	3
		<u>Students to choose ONE (1) course (Total 3 credits):</u>			
		Advanced Issues of Artificial Intelligence (Natural Language Processing)	AIT303	Major Elective	3
		Advanced Issues of Artificial Intelligence (Computer Vision)	AIT304	Major Elective	3
		<u>Students to choose TWO (2) courses (Total 6 credits):</u>			
		Advanced Machine Learning	AIT301	Major Elective	3
		Robot Kinematics and Dynamics	AIT305	Major Elective	3
		Deep Reinforcement Learning and Control	AIT306	Major Elective	3

Year	Semester	Course Name	Course Code	Classification	Credit
Year 4		Computational Cognitive Science	AIT307	Major Elective	3
		Students to choose ONE (1) course (Total 3 credits):			
		Information Security	SWE308	Major Elective	3
		Technology and Application of Internet of Things	SWE403	Major Elective	3
		Total Credit Value			15
	Short Semester	General Elective Course (Select from Table 2b)	Gxxxx	General Elective	2
		General Elective Course (Select from Table 2b)	Gxxxx	General Elective	2
		Artificial Intelligence & Malaysia's Digital Economy	MPU3012	Compulsory	2
		Total Credit Value			6
	1 st Long Semester	Software Architecture and Development Environment	CST307	Common Core	4
		Principles of Database Systems	CST403	Major Core	4
		Thesis II	AIT410	Major Core	3
		Students to choose ONE (1) course (Total 3 credits):			
Strategic Reasoning for AI		AIT401	Major Elective	3	
Planning Techniques for Robotics		AIT402	Major Elective	3	
Advanced Data Analysis		AIT403	Major Elective	3	
Total Credit Value			14		
2 nd Long Semester		Industrial Training	AIT420	Industrial Training	6
		Total Credit Value			6
Short Semester		Community Service	MPU4012	Compulsory	2
		General Elective Course (Table 2b-Group IV Compulsory)	G04xxx	General Elective	3
	Total Credit Value			5	
Grand Total				141	

8. PREREQUISITE COURSES

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

Course Code	Course Name	Prerequisites
AIT201	Applied Machine Learning	AIT102 Python and Tensorflow Programming
AIT202	Methods and Applications of Deep Learning	AIT102 Python and Tensorflow Programming
AIT203	Natural Language Processing	AIT102 Python and Tensorflow Programming
AIT205	Matrix Analysis and Application	BSC121 Calculus I A
AIT206	Data Structures	AIT101 Programming Language C
AIT301	Advanced Machine Learning	AIT202 Methods and Applications of Deep Learning
AIT302	Statistical Learning	BSC125 Probability and Statistics A
AIT307	Computational Cognitive Science	- AIT202 Methods and Applications of Deep Learning - AIT301 Advanced Machine Learning
AIT403	Advanced Data Analysis	AIT206 Data Structures
AIT410	Thesis II	AIT310 Thesis I
AIT420	Industrial Training	Obtained at least 60% of total credit hours
BSC123	Calculus II	BSC121 Calculus I A
BSC125	Probability and Statistics A	BSC121 Calculus I A
CST207	Design and Analysis of Algorithms	- BSC136 Discrete Mathematics B - AIT206 Data Structures
CST209	Object-Oriented Programming-C++	AIT101 Programming Language C
CST210	Object-Oriented Programming-Java	AIT101 Programming Language C
CST301	Principles of Computer Composition	AIT101 Programming Language C
CST302	Compiler Principles	- AIT101 Programming Language C - AIT206 Data Structures - BSC136 Discrete Mathematics B
CST305	Computer Graphics	AIT101 Programming Language C
CST307	Software Architecture and Development Environment	CST209 Object-Oriented Programming-C++ OR CST210 Object-Oriented Programming-Java
CST308	Computer Architecture	- AIT101 Programming Language C - AIT206 Data Structures

		• CST301 Principles of Computer Composition
CST309	Computer Networks and Communication	• AIT101 Programming Language C
CST403	Principles of Database Systems	• AIT101 Programming Language C • AIT206 Data Structures • BSC136 Discrete Mathematics B
SOF106	Principles of Artificial Intelligence	• AIT101 Programming Language C
SWE308	Information Security	• CST306 Principles of Operating Systems • CST309 Computer Networks and Communication
SWE403	Technology and Application on Internet of Things	• AIT206 Data Structures
SWE404	Big Data Analytics	• CST306 Principles of Operating Systems

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.

Artificial Intelligence 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.