BACHELOR OF ENGINEERING IN ARTIFICIAL INTELLIGENCE (HONOURS)

[N/0613/6/0088]07/27[MQA/PA13687]

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

ABOUT THE PROGRAMME

Artificial intelligence is an interdisciplinary field, covering disciplines like programming of intelligence, functionality of brain and industrial intelligence application. Currently, all the giant Internet companies are competing for the advantages of artificial intelligence applications. There exists a huge demand for intelligence system programmers and designers. The involved domains include almost every aspect of modern life.

It is well-known that China is one of the leading countries in artificial intelligence, no matter in the field of research or industrial application. Xiamen University (XMU) has a very strong faculty in intelligence science with more than 23 academic staff. It is ranked among the top ten in China and offers a variety of courses in the theories and industrial applications of artificial intelligence. The faculty has produced a number of world-class researchers such as Ji Rongrong（纪荣嵘）, who conducts many breakthroughs in computer vision.
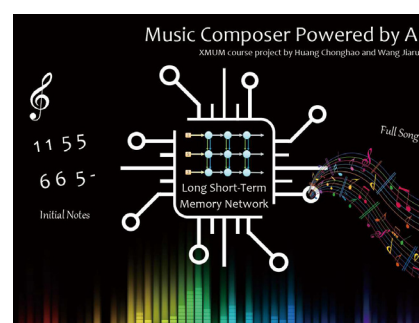
With the balance between theories and practices, our programme at XMUM equips graduates with the necessary knowledge and skills to manage the development and research of computer and intelligence systems through outstanding teaching and research activities in an exciting environment. Besides, we are dedicated to training our students' skills in analytical thinking, problem solving and management, which enables them to adapt to the ever-changing world. Those who would like to pursue further study in this area can also apply for post-graduate programmes at XMU.

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

PROGRAMME HIGHLIGHTS

- Artificial Intelligence techniques and trends bring about many highly paid IT positions, ensuring graduates a promising career.

- Excellent educational recourses from one of the most highly respected and longest-established institutions in China for Artificial Intelligence study.

- A strong curriculum emphasizing both theoretical teaching and practical training, not only equipping graduates with disciplinary knowledge but also training their skills in analytical thinking, problem-solving, and management.

CAREER OPPORTUNITIES

- Artificial Intelligence Engineer / Scientist / Analyst / Specialist
- Machine Learning Engineer / Scientist / Analyst / Specialist
- Data Engineer / Scientist / Analyst / Specialist
- Big Data Engineer / Scientist / Analyst / Specialist
- Applications Architect / Developer
- Analytics Developer / Manager
- Business Intelligence Developer / Analyst
- Software Engineer / Architect / Developer
- Intelligence System Engineer / Architect / Analyst
- AI Research Scientist
- Computer Scientist

Music Composer Powered by AI
XMUM course project by Huang Chonghao and Wang Jiarui

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XMUM Students Won the Grand Prize in the 1st China College Student' "AI+" Innovation and Entrepreneurship Competition (2019)

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

STPM (Science Stream)	A pass in STPM with at least a Grade C (GP2.0) in Mathematics AND 1 Science/ICT subject
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 including Advanced Mathematics
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 fields (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
- Linear Algebra
- Programming Language C
- Python and Tensorflow Programming
- Probability and Statistics
- Principles of Artificial Intelligence
- Introduction to Intelligence Application

Year 2
- Discrete Mathematics
- Data Structures
- Applied Machine Learning
- Principles of Computer Composition
- Matrix Analysis and Application
- Principles of Operating Systems
- Methods and Applications of Deep Learning
- Design and Analysis of Algorithms

Major Elective 1 (Choose 1)
- Natural Language Processing
- Computer Vision and Robotics

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

Year 3
- Computer Networks and Communication
- Big Data Analytics
- Statistical Learning
- Thesis I

Major Elective 3 (Choose 2)
- Computer Architecture
- Compiler Principles
- Numerical Methods
- Computer Graphics

Major Elective 4 (Choose 1)
- Advanced Issues of Artificial Intelligence (Natural Language Processing)
- Advanced Issues of Artificial Intelligence (Computer Vision)

Major Elective 5 (Choose 2)
- Robot Kinematics and Dynamics
- Deep Reinforcement Learning and Control
- Computational Cognitive Science
- Advanced Machine Learning

Major Elective 6 (Choose 1)
- Information Security
- Technology and Application of Internet of Things

Year 4
- Software Architecture and Development Environment
- Principles of Database Systems
- Thesis II
- Industrial Training

Major Elective 7 (Choose 1)
- Strategic Reasoning for AI
- Planning Techniques for Robotics
- Advanced Data Analysis