BACHELOR OF ENGINEERING IN DATA SCIENCE (HONOURS)

XIAMEN UNIVERSITY MALAYSIA
厦門大學 馬來西亞分校

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

ABOUT THE PROGRAMME

The Bachelor of Engineering in Data Science (Honours) is a new programme offered by the School of Computing and Data Science. The programme is developed to cater for the growing market demand for data science graduates in various sectors, including but not limited to banking, commercial, industrial, medical, and public sectors. The programme aims at cultivating talents with a global mindset and analytical capabilities in the face of the constantly changing world. Upon completion of the programme, students will be equipped with mathematical, statistical, and computational skills needed in solving complex data problems.

The programme is supported by both local and international teams of academicians, including those seconded from the main campus. Our academicians comprise PhD degree holders in their respective specialities. The programme is also supported by prominent academic leaders from Computer Science and Technology Programme, Artificial Intelligence Programme, Software Engineering Programme, and School of Mathematics. Apart from teaching, our academicians are also very active in research and publication. Their diverse backgrounds in the respective niche fields give them an advantage in teaching in view of the fact that data science is a unique yet cross-disciplinary study.

Our programme provides a strong analytical and statistical foundation for students to apply data science knowledge and techniques in solving a wide array of complex data problems. Students will be well-equipped with the required knowledge and skills to excel in their careers. The solid foundation acquired by the students also opens the door to opportunities for postgraduate studies in top universities around the world.

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

PROGRAMME HIGHLIGHTS

- A problem-based learning approach to solving real-life data science problems

- Comprehensive coverage of mathematical, statistical, and programming approaches essential in solving complex data problems

- An emphasis on the balance between theory and practice in the curriculum design

- An emphasis on the cross-specialisation in the curriculum design which incorporates courses in Computer Science, Artificial Intelligence, Statistics, and Software Engineering

CAREER OPPORTUNITIES

- Data Scientist
- Data Engineer
- Data Solution Specialist
- Data Architect
- Data Analyst
- Data Mining Specialist
- Applications Architect
- Analytics Manager
- Machine Learning Specialist
- Business Intelligence Developer
- Statistician
- Business Analyst
- Market Research Analyst
- Analyst Programmer
- Database Administrator
- Health Informatics Analyst
- Data Project Manager
- Bioinformatician
- Research Analyst

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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
STPM (Non Science Stream)	A pass in STPM with at least a Grade C (GP2.0) in any 2 subjects AND a credit in Additional Mathematics in SPM or its equivalent
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
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
- C and C++ Programming
- Introduction to Intelligence Application
- Data Structures
- Introduction to Data Science

Year 2
- Python and Tensorflow Programming Language
- Principles of Artificial Intelligence
- Database
- Probability Theory
- Design and Analysis of Algorithms
- Statistics
- Applied Machine Learning
- Software Engineering

Major Elective (Choose 2)
- Principles of Operating Systems
- Computer Architecture
- Computer Networks and Communication

Year 3
- Regression Analysis
- Statistical Programming using R
- Data Mining
- Methods and Applications of Deep Learning
- Fundamental Research in Academic Project
- Time Series
- Big Data Analytics

Major Elective (Choose 1)
- Object-Oriented Programming-Java
- Introduction to Cloud Computing
- Bayesian Statistics

Major Elective (Choose 1)
- Natural Language Processing
- Statistical Learning
- Multivariate Statistical Analysis

Year 4
- Data Science Academic Project
- Advanced Machine Learning
- Advanced Data Analysis
- Industrial Training

Major Elective (Choose 1)
- Deep Reinforcement Learning and Control
- Computer Graphics

XIAMEN UNIVERSITY MALAYSIA DULN009(B)

TEL : +603 7610 2079
E-MAIL : enquiry@xmu.edu.my
WEBSITE : www.xmu.edu.my
CAMPUS ADDRESS: Jalan Sunsuria, Bandar Sunsuria, 43900 Sepang, Selangor Darul Ehsan, Malaysia

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