BACHELOR OF ENGINEERING IN CYBER SECURITY (HONOURS)

[N/481/6/0834]07/28[MQA/PA14639]

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

ABOUT THE PROGRAMME

As technology continues to evolve, computing systems enable the provision of more interconnected, powerful supporting services in almost every sector of life. With the prevalence of new cyber threats and attacks, maintaining the security of these systems is becoming more critical yet challenging, leading to a huge demand for cyber security professionals. The Bachelor of Engineering in Cyber Security (Honours) programme at Xiamen University Malaysia is developed to cater for this growing market demand. The programme is offered by the School of Computing and Data Science, and aims to produce competent cyber security experts, analysts, and engineers capable of:

- developing cyber-resilient systems
- identifying threats and vulnerabilities in computing systems
- conducting risk assessments of these systems
- and implementing appropriate solutions to mitigate the risks posed by cyber security threats and attacks

The programme is supported by a strong local and international academic team, covering a wide range of expertise. The academic team comprises PhD degree holders in cyber security and other information and communication technology fields. The programme is also supported by the School of Informatics of Xiamen University China, which is ranked among the top ten in China and has a strong faculty in cyber security. Students will enjoy the privilege of world-class cyber security education through effective interactions with local and international faculty.

The programme equips graduates with the necessary knowledge, technical and critical thinking skills, enabling them to solve a wide range of complex computing and cyber security problems. The curriculum is adapted from that of the main campus and involves various major core courses covering the theories and applications of cyber security. These courses include all the necessary cyber security knowledge, i.e. information assurance, network security, data security, and societal and organisational security. Besides the major core courses, students also pursue some common core courses related to mathematics, computer science, software engineering and artificial intelligence. With the coverage of a wide range of relevant topics, the programme will produce knowledgeable and skilful graduates capable of performing professional roles in computing and cyber security. The graduates will also be well-equipped to continue their postgraduate studies in top universities worldwide.

PROGRAMME HIGHLIGHTS

- A strong curriculum equipping students with theoretical knowledge, practical skills, critical thinking skills, and problem-solving skills.
- Developing advanced knowledge and skills in a set of specialised topics to address complex cyber security challenges.
- Provision of many project-based courses which train students to apply theoretical and technical knowledge to solve real-world and research-oriented cyber security problems.
- Developing knowledge and skills in cross-specialisation fields, including computer science, software engineering, and artificial intelligence.

CAREER OPPORTUNITIES

- Cyber Security Engineer
- Cyber Security Analyst
- Penetration Tester
- IT Security Specialist
- IT Security Operations Executive
- Security Architect
- Information Security Executive
- Information Security Management Officer
- Security Operation Centre Analyst
- Malware Analyst
- Cryptographer
- Security Researcher
- Security Consultant
- Chief Information Security Officer

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

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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
- Discrete Mathematics
- Programming Language (C)
- Introduction of Software Engineering
- Data Structures
- Introduction to Cyber Security

Year 2
- Probability and Statistics
- ARM Assembly Language
- Design and Analysis of Algorithms
- Principles of Computer Composition
- Principles of Database Systems
- Principles of Operating Systems
- Computer Networks and Communication
- Principles of Artificial Intelligence
- Modern Cryptography

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

Year 3
- Compiler Principles
- Digital Forensics and Investigation
- Network Attack and Defence Technology
- Cyber Security Laws and Regulations
- Network Traffic Monitoring and Analysis
- Fundamentals of Academic Research

Major Elective (Choose 1)
- Introduction of Cloud Computing
- Data Mining

Major Elective (Choose 2)
- Advanced Network Attack and Defence Technology
- Malware Analysis
- Cryptanalysis

Year 4
- Final Year Project
- Industrial Training

Major Elective (Choose 3)
- Technology & Application of Internet of Things
- Big Data Analytics
- Biometrics
- Blockchain Technology

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