

Computer Security

Programme Information

2022.01, Approved

Overview

Programme Code	36055
Programme Title	Computer Security
Awarding Institution	Liverpool John Moores University
Programme Type	Degree

Awards

Award Type	Award Description	Award Learning Outcomes
Target Award	Bachelor of Science with Honours - BSH	N/A
Alternative Exit	Certificate of Higher Education - CHE	<p>Develop computer programs using elementary programming constructs. Discuss computer systems at the hardware and software levels. Discuss computer systems at the hardware and software levels. Understand the different approaches required to solve computer-based problems. Understand the different approaches required to solve computer-based problems. Discuss a range of practical aspects of computing and apply the associated tools and techniques. Discuss a range of practical aspects of computing and apply the associated tools and techniques. Identify a personal development plan to support their career path and recognise ethical, legal and professional aspects that relate to the computing profession. Identify a personal development plan to support their career path and recognise ethical, legal and professional aspects that relate to the computing profession. Design and develop a website using appropriate tools and techniques. Design and develop a website using appropriate tools and techniques. Communicate their ideas and take personal responsibility for their learning. Communicate their ideas and take personal responsibility for their learning. Discuss a range of computing challenges specific to Computer Security. Discuss a range of computing challenges specific to Computer Security.</p>

Alternative Exit	Diploma of Higher Education - DHE	Identify software security requirements and use secure development methods in an implementation. Provide evidence of experience in a number of information assurance methods (e.g. risk analysis). Describe the structure of operating systems and apply the underlying principles. Use security software tools to perform computer system vulnerability analysis. Understand how databases are structured, how to query them for information and be able to develop a database to solve a problem. Understand the ethical and professional issues involved in working in the computing industry.
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Alternate Award Names	
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Partner Name	Partnership Type
YPC International College (Kolej Antarabangsa YPC)	Franchised

External Benchmarks

Subject Benchmark Statement	UG-Computing (2019)
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Programme Offering(s)

Mode of Study, Mode of Delivery	Intake Month	Teaching Institution	Programme Length Programme Length Unit
Full-Time, Face to Face	September	YPC International College (Kolej Antarabangsa YPC)	3 Years

Aims and Outcomes

Educational Aims of the Programme	<p>The two principal themes in the programme are the development of computer science skills relating to information security, and the associated software engineering, management and analysis skills required to enact successful information security within networked computing environments. This is underpinned by themes of computing, networking and software engineering. The main aims are: - To provide students with the technical skills required for the development of computer security software solutions. - To enable the student to acquire the skills needed in the investigation of user requirements and the development of a suitable software design using the appropriate specifications and design methodologies. - To prepare students with the management skills required to implement Computer Security. - To provide students with the knowledge of the wide range of issues involved in the implementation of Computer Security, such as legal, ethical and privacy requirements. - To encourage students to engage with the development of employability skills by completing a self-awareness statement. - To provide students with a comprehensive understanding, critical awareness and ability to conduct evaluation of current computer security research issues. - To further develop students' originality in applying analytical, creative, problem solving and research skills. - To provide advanced, conceptual understanding, underpinning career development, innovation and further study such as PhD in the area of Computer Security.</p>
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Learning Outcomes

Code	Number	Description
PLO1	1	Apply Computer Programming techniques to solve computer security problems.
PLO2	2	Critically evaluate and test theories, concepts and systems relating to computer security.
PLO3	3	Plan, conduct and report a research project.
PLO4	4	Critically analyse evidence data for a security investigation.
PLO5	5	Evaluate security investigation and response methodologies.
PLO6	6	Work professionally as a member of a team.
PLO7	7	Identify and deploy appropriate tools and techniques for ethical hacking and security investigations.
PLO8	8	Conduct research into Computer Security.
PLO9	9	Apply numerical methods to computing problems involving a quantitative dimension.
PLO10	10	Communicate complex information effectively by written or verbal means.
PLO11	11	Identify job roles and opportunities that reflect personal interest and expertise.
PLO12	12	Manage a software development process, including secure software development.
PLO13	13	Plan and manage personal learning and development.

PLO14	14	Work on computer security problems in an ethical way.
PLO15	15	Design, plan and execute complex network security investigations.
PLO16	16	Use a wide range of IT infrastructure such as hardware / network configurations, types of systems, development tools, and emerging technologies to solve computing problems.
PLO17	17	Critically reflect on a wide range of security knowledge domains, such as physical and logical security, legal issues, privacy, internet security, and protection including forensics.
PLO18	18	Deploy a wide range of appropriate computing tools, facilities and techniques to solve a computer security problem.
PLO19	19	Utilise complex methods and skills to solve well-defined computer-based problems.
PLO20	20	Reflect on the impact of new technologies / standards / legal requirements on the security domain.

Course Structure

Programme Structure Description	Students starting on this programme prior to September 2022 will be required to complete the modules specified in the programme specification in force when they commenced their study. This requirement may be varied should a student take a leave of absence or be required to complete final module attempts.
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Programme Structure - 360 credit points	
Level 4 - 120 credit points	
Level 4 Core - 120 credit points	CORE
[MODULE] 4700YCOM Introduction to Programming Approved 2022.01 - 20 credit points	
[MODULE] 4701YCOM Computer Systems Approved 2022.01 - 20 credit points	
[MODULE] 4703YCOM Professional Practice Approved 2022.01 - 10 credit points	
[MODULE] 4704YCOM Data Modelling Approved 2022.01 - 10 credit points	
[MODULE] 4705YCOM Introduction to Computer Forensics and Security Approved 2022.01 - 20 credit points	
[MODULE] 4714YCOM Problem Solving for Computer Security Approved 2022.01 - 20 credit points	
[MODULE] 4722YCOM Introduction to Web Development Approved 2022.01 - 20 credit points	
Level 5 - 120 credit points	
Level 5 Core - 120 credit points	CORE
[MODULE] 5700YCOM Group Project Approved 2022.01 - 20 credit points	
[MODULE] 5702YCOM Database Systems Approved 2022.01 - 20 credit points	
[MODULE] 5703YCOM Operating Systems Approved 2022.01 - 20 credit points	
[MODULE] 5716YCOM System Penetration Testing Approved 2022.01 - 20 credit points	
[MODULE] 5718YCOM Secure Software Development Approved 2022.01 - 20 credit points	
[MODULE] 5719YCOM Information Security Management Approved 2022.01 - 20 credit points	
Level 6 - 120 credit points	
Level 6 Core - 120 credit points	CORE
[MODULE] 6700YCOM Project Approved 2022.01 - 40 credit points	
[MODULE] 6702YCOM Network Forensics Approved 2022.01 - 20 credit points	
[MODULE] 6713YCOM Network Defence Approved 2022.01 - 20 credit points	
[MODULE] 6717YCOM Ethical Hacking Approved 2022.01 - 20 credit points	
[MODULE] 6718YCOM Applied Cryptography Approved 2022.01 - 20 credit points	

Teaching, Learning and Assessment

Teaching, Learning and Assessment	Acquisition of the skills is through a combination of lectures, tutorials, practical sessions and laboratory work. These skills are assessed across the 3 levels of the programme in a range of different assessments such as coursework, presentations and examinations. Throughout the learner is encouraged to undertake independent reading both to supplement and consolidate what is being taught / learnt and to broaden their individual knowledge and understanding of the subject.
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Opportunities for work related learning

Opportunities for work related learning
Level 4: 4703YCOM Professional Practice - this module provides students with an opportunity to consider their future role as a computing professional and develop a plan to enable them to progress in their chosen career. Level 5: 5700YCOM Group Project - this module provides further insight into developing the role of the student becoming a computing professional, via teamwork and consideration of professional issues within computer security. Students will be encouraged to become student members of appropriate professional bodies for the computing industry (e.g. ACM, IEEE or BCS) as part of their development.

Entry Requirements

Type	Description
Alternative qualifications considered	For admission to Level 4 of the programme. School/College leavers who have reached 17.5 years on admission would normally be required to have achieved the following: STPM (Malaysian Higher School Certificate) - two (2) principal passes + two (2) subsidiary passes (equivalent to A-levels) in appropriate subjects. OR - Pass Unified Examination Certificate (UEC - Senior Middle Level) with minimum 5 subjects in Grade B including Advanced Mathematics/Additional Mathematics or equivalent. OR - Foundation in Business & Information Technology from YPC International College. OR - Any qualification deemed equivalent by the Programme Team and Link Tutor as entry-level education. For admission directly to Level 5 of the programme, a student would normally be required to have achieved the following: SPM - 3 credits in English Language and other relevant subjects (equivalent to O-levels) plus a YPC International College Diploma in Computer Science (Cyber Security) with a minimum 2.5 Cumulative Grade Point Average (CGPA) score. OR SPM - 3 credits in English Language and other relevant subjects (equivalent to O-levels) plus a MQA approved Diploma in an appropriate discipline - with a minimum 2.5 Cumulative Grade Point Average (CGPA) score. In each case the YPC International College Programme Co-Ordinator will assess English Language capability (such as MUET Band 3 / IELTS 5.5) and if necessary, place students on an appropriate English Language programme. The content of the MQA approved Diploma will be subject to LJMU's RP(E)L process.

Programme Contacts

Programme Leader

Contact Name

Link Tutor

Contact Name

Glyn Hughes