

Software Engineering

Programme Information

2022.01, Approved

Overview

Programme Code	36664
Programme Title	Software Engineering
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. Understand of the basics of data modelling and abstraction. Understand of the basics of data modelling and abstraction. 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 Software Engineering. Discuss a range of computing challenges specific to Software Engineering.</p>

Alternative Exit	Diploma of Higher Education - DHE	Use object-oriented design in formulating an implementation. Design, create, maintain and connect to a database. Identify and implement common data structures and algorithms. Develop software for a variety of platforms. Identify and justify choices in programming languages. Identify the professional skills required within the computing industry. Demonstrate a range of skills including problem-solving as an individual or as part of a group.
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Alternate Award Names	
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Partner Name	Partnership Type
Beaconhouse Group	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	Beaconhouse IC Islamabad	3 Years

Aims and Outcomes

Educational Aims of the Programme	<p>The overall aim of the course is to provide a balanced, integrated and practical based education in the tools, techniques and methods employed by the practitioner in the area of Software Engineering in organisations where software development is a major activity. The specific aims of the course are as follows: -To enable the student to acquire the skills needed in the investigation of user requirements and the development of a suitable design using the appropriate specifications and design methodologies. -To enable the student to acquire the skills required to produce software, which meets an external specification to the appropriate timescale and standards. -To enable the student to acquire the skills needed to determine the quality of software through the appropriate testing, verification and evaluation procedures. -To enable the student to acquire an understanding of the techniques and methods used in the estimation, planning and control of software projects. -To provide a suitable learning environment for the practical application of the concepts of software engineering in a realistic software development situation. - To encourage students to fully engage with the development of employability skills by completing a self-awareness statement. -To provide students with a fuller, systematic understanding of current and developing Software Engineering. -To enable students to explore the issues surrounding Software Engineering in Industrial contexts. -To facilitate students in the development of expertise and interest in topic areas of direct and complementary relevance to the workplace.</p>
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Learning Outcomes

Code	Number	Description
PLO1	1	Apply computer programming skills to medium to large systems.
PLO2	2	Critically evaluate and test software systems against requirements.
PLO3	3	Undertake algorithm selection and deployment.
PLO4	4	Deploy systematic and comprehensive knowledge and understanding of Software Engineering concepts, principles and theories to computing problems.
PLO5	5	Use knowledge with originality in system modelling, requirements analysis and design.
PLO6	6	Critically evaluate and test a computer-based system.
PLO7	7	Effectively manage a software project.
PLO8	8	Work professionally as a member of a team.
PLO9	9	Use an extensive range of Software Development tools.
PLO10	10	Apply numerical methods to computing problems involving a quantitative dimension.
PLO11	11	Communicate complex information effectively by written or verbal means.
PLO12	12	Manage a software development process.

PLO13	13	Identify job roles and opportunities that reflect personal interest and expertise.
PLO14	14	Plan and manage personal learning and development
PLO15	15	Critically reflect on the relationship of hardware to software in computer systems.
PLO16	16	Apply formal methods and modelling techniques to software engineering problems.
PLO17	17	Work on software engineering problems in an ethical way.
PLO18	18	Critically assess emerging and developing practices in Software Engineering.
PLO19	19	Use knowledge with originality and be innovative in Software Engineering.
PLO20	20	Apply problem solving in the context of large computer based systems. Perform systems modelling of computer-based systems as part of the development process.
PLO21	21	Evaluate tools and methods for selection and use in the development process.

Course Structure

Programme Structure Description

Programme Structure - 360 credit points	
Level 4 - 120 credit points	
Level 4 Core - 120 credit points	CORE
[MODULE] 4500SEPA Introduction to Programming Approved 2022.01 - 20 credit points	
[MODULE] 4501SEPA Computer Systems Approved 2022.01 - 20 credit points	
[MODULE] 4502SEPA Professional Practice Approved 2022.01 - 10 credit points	
[MODULE] 4503SEPA Data Modelling Approved 2022.01 - 10 credit points	
[MODULE] 4504SEPA Software Engineering Principles Approved 2022.01 - 20 credit points	
[MODULE] 4505SEPA Software Engineering Workshop Approved 2022.01 - 20 credit points	
[MODULE] 4506SEPA Introduction to Web Development Approved 2022.01 - 20 credit points	
Level 5 - 120 credit points	
Level 5 Core - 120 credit points	CORE
[MODULE] 5500SEPA Group Project Approved 2022.01 - 20 credit points	
[MODULE] 5501SEPA Database Systems Approved 2022.01 - 20 credit points	
[MODULE] 5502SEPA Object-Oriented Systems Approved 2022.01 - 20 credit points	
[MODULE] 5503SEPA Data Structures and Algorithms Approved 2022.01 - 20 credit points	
[MODULE] 5504SEPA Automata, Languages and Computation Approved 2022.01 - 20 credit points	
[MODULE] 5505SEPA Mobile and Web Development Approved 2022.01 - 20 credit points	
Level 6 - 120 credit points	
Level 6 Core - 120 credit points	CORE
[MODULE] 6500SEPA Project Approved 2022.01 - 40 credit points	
[MODULE] 6501SEPA User Experience Design Approved 2022.01 - 20 credit points	
[MODULE] 6502SEPA Applied Data Science Approved 2022.01 - 20 credit points	
[MODULE] 6503SEPA Virtualisation and Cloud Computing Approved 2022.01 - 20 credit points	
[MODULE] 6504SEPA Embedded Systems Approved 2022.01 - 20 credit points	

Teaching, Learning and Assessment

Teaching, Learning and Assessment	<p>Core knowledge and understanding is acquired via lectures, tutorials, practical work, workshops and guided independent study. Independent study is used where appropriate resource material is available and increases as the programme progresses. Assessment methods are specified in each module specification. All learning outcomes in a module are assessed and the type of assessment specified for each outcome. Each module is assessed by examination and/or course work. The nature of the course work varies for each module. Cognitive skills are developed throughout the programme via tutorial, group discussion, teamwork, coursework, projects and presentations. Assessment of skills is by coursework and examinations. The final year project will further demonstrate the student's ability in this area. The assessment method for each module is specified in the module's specification. Practical skills are developed throughout the programme. The basic skills are provided at the lower levels. These are supplemented at higher levels by more advanced tools and techniques. The various computer programming modules at levels 4 and 5 provide relevant practice in industry standard languages. Problem solving skill is a key aspect of all programming related modules at each level. The individual final year project provides an opportunity for students to apply all the techniques that they have been exposed to in a large-scale development. Practical skills are assessed via laboratory sessions, workshops, submission of reports, demonstration of systems and individual projects. Personal Development opportunities are embedded within the programme. Key skills are developed throughout the programme in a variety of forms. Specifically through a combination of research related coursework, guided independent study and projects, examinations, group work and presentations. Key skills are assessed as part of coursework, projects, written examinations and presentations.</p>
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Opportunities for work related learning

Opportunities for work related learning
<p>Level 4: 4502SEPA 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: 5500SEPA Group Project - this module provides further insight into developing the role of the student becoming a computing professional.</p>

Entry Requirements

Type	Description
BTECs	BTEC National Diploma BTEC Extended Diploma - DMM / 112 UCAS tariff points. Engineering discipline required with a Distinction grade in Further Mathematics unit.
Alternative qualifications considered	Applicants should also have five GCSE (or equivalent) passes of at least grade C including Mathematics. Applicants must have English language skills at the level required to study the programme, these are: a GCSE 'O Level' English of at least grade C (or IELTS 6.0 or equivalent) ; or the candidate will have studied a first degree that has been taught and assessed in English.
A levels	Applicants should have 112 UCAS tariff points including a minimum of 64 points from Maths and one of the following: Physics, Chemistry, Computing, Further Maths, Electronics or Engineering
International Baccalaureate	Applicants should have 112 UCAS tariff points including a minimum of 64 points from Higher level Maths and Physics.

Other international requirements	HSSC - Intermediate / Higher Secondary Certificate: entry to level 4 requires a 75% overall award mark ; mathematics passed at 70% or above in final year, passes in physics and chemistry. Students who achieve less than any of the entry requirements stated in this section 'Criteria for Admission', would be required to either: (i) register for an International Foundation Year programme [Level 3]; or (ii) have successfully completed an International Foundation Year programme for entry to Level 4.
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Programme Contacts

Programme Leader

Contact Name

Link Tutor

Contact Name
Silvester Czanner