

PROGRAMME SPECIFICATION

Bachelor of Science with Honours (SW) in Computer Science

Awarding institution	Liverpool John Moores University
Teaching institution	Liverpool John Moores University
JACS Code	I100
Programme Duration	
Language of Programme	All LJMU programmes are delivered and assessed in English
Subject benchmark statement	Computing (2007)
Programme accredited by	
Description of accreditation	
Validated target and alternative exit awards	<p>Bachelor of Science with Honours in Computer Science</p> <p>Bachelor of Science with Honours (SW) in Computer Science</p> <p>Bachelor of Science in Computer Science</p> <p>Bachelor of Science (SW) in Computer Science</p> <p>Diploma of Higher Education in Computer Science</p> <p>Certificate of Higher Education in Computer Science</p>
Programme Leader	Martin Randles

Educational aims of the programme

The overall aim of the course is to provide a balanced, integrated and practical based education in all aspects of computing and the underlying science behind it for utilisation in organisations where IT and computing is a major activity.

The specific aims of the course are as follows:

- To provide students with a full, systematic understanding of current and developing Computer Science.
- To enable the student to acquire the skills needed in applying computer science to practical development.
- To bring the student to an understanding of the mathematical and scientific concepts that underpin modern computing.
- To encourage students to fully engage with the World of Work programme, including World of Work Skills Certificate and, as a first step towards this, to complete Bronze (Self Awareness) Statement.
- To enable students to explore the issues surrounding Computer Science in Industrial contexts.
- To facilitate students in the development of expertise and interest in topic areas of direct and complementary relevance to their work or planned career.

Alternative Exit/ Interim Award Learning Outcomes - Certificate of Higher Education

A student who is eligible for this award will be able to:

Look at the development of computer programs using elementary constructs from computer science. Apply web science and a variety of tools for website design including scientific principles of Human-Computer Interaction (HCI). Discuss the technical challenges of social computer science and investigate the ethical, commercial and economic issues within this field. Discuss a range of practical aspects of computer science and apply the associated tools and techniques used in them. Discuss computer architecture at the hardware and software levels and basic security concepts. On the completion of Level 4 of the programme, the student will have a good

understanding of the basics of the field of computer science. They will understand the different approaches required to solve computer-based problems. They will have the skills and ability to communicate their ideas and take personal responsibility for their learning.

Alternative Exit/ Interim Award Learning Outcomes - Diploma of Higher Education

A student who is eligible for this award will be able to:

From level 5 materials the students will have an understanding of computer science and its practical applications. They will have been introduced to formal methods and the scientific principles of programming and correctness. Use of object-oriented design in formulating an implementation will be appreciated from the fundamentals of language design. Students will understand relationships, and their relevance to databases, whilst also being able to create and maintain a database. They will analyse the structure of computer networks, architectures and their protocols. The professional skills required within the computing industry will be readily identified.

Target award Learning Outcomes - Bachelor of Science with Honours (SW)

A student successfully completing the programme of study will have acquired the following subject knowledge and understanding as well as skills and other attributes.

A student who is eligible for this award will be able to:

1. Be critically aware of current and developing principles and practices within Computer Science.
2. Have widened and deepened conceptual and practical knowledge and skills in the areas of Computer Science.
3. Have been exposed to and applied a range of advanced tools and techniques used in the specification of complex computer based systems.
4. Have critically analysed a range of development domains.
5. Have a clear understanding of how to effectively and creatively manage Computer Science projects.
6. Demonstrate systematic and comprehensive knowledge and understanding of Computer Science concepts, principles and theories.
7. Use such knowledge with originality in system modelling, requirements analysis and design.
8. Perform critical evaluation and testing for a computer-based system.
9. Deploy appropriate methods and tools creatively for the specification of a complex computer-based system.
10. Develop and evaluate Computer Science projects.
11. Manage Computational projects.
12. Use a wide range of computing facilities effectively.
13. Work individually and/or as a team member.
14. Use information technology, e.g. Software Development tools.
15. Apply numerical and formal methods skills to cases involving a quantitative dimension.
16. Communicate effectively by written or verbal means.
17. Plan and manage learning and development.

Teaching, Learning and Assessment

The methods used to enable outcomes to be achieved and demonstrated are as follows:

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. Specifically, acquisition of 1 is via a combination of lectures, projects, seminars, and guided independent study. Acquisition of 2, 3, 4 and 5 is via a mixture of lectures, tutorials, laboratory work, coursework, and projects. Students are given feedback on all work produced.

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. Specifically, skill 1 is developed through tutorial group discussion, teamwork, coursework, projects, and presentations. Skills 2, 3 and 4 are developed through laboratory work, coursework,

and projects.

Assessment of cognitive skills is through written examinations, laboratory work, coursework reports, project work, reports and presentations. Specifically, written examinations (1, 2), laboratory work (2-4), coursework reports (1-4), and/or project work, reports and presentations (1-4).

Practical skills are developed throughout the programme. Coursework and projects are designed to provide practical opportunities for students to work independently or in groups. Specifically, skills 1, 2 and 3 are developed through laboratory work, coursework, and project work. Skill 4 is developed through individual and group coursework, laboratory work, and project work.

Assessment is normally by course work.

The placement year is assessed on a pass/fail basis dependent on satisfactory Company and University Supervisor reports and the student's own report.

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. Skill 1 is developed through a combination of research-related coursework, guided independent study, and projects. Skill 2 is developed through study of technical methods, examinations, coursework, and projects. Skill 3 is developed through report writing for coursework and projects, written examinations, teamwork, presentations, and group discussion. Skill 4 is developed via the management of learning tasks and deadlines for coursework and projects.

Key skills are assessed as part of coursework (1-4), projects (1-4), written examinations (2,3) and presentations (3).

Programme structure - programme rules and modules

The programme is modular in construction. At levels 4, 5 and 6 modules are normally 24 credits (equivalent to 240 hours of study) delivered over two semesters, with one 36-credit, module, the level 6 projects, and one 12-credit option module at level six. Students are required to study a total of 120 credits per level. There are core (compulsory) modules at each level, plus a number of choice modules at level six.

Students normally will undertake a placement year between levels 5 and 6. Students successfully completing the assessment of the placement year are eligible for a Sandwich award.

At level 6 students must select one 12 credit option from the following:

6037COMP COMPUTING IN EDUCATION

6038COMP WORK PLACEMENT EVALUATION

6046COMP CLOUD COMPUTING

6053COMP EMPLOYABILITY AND THE WORKPLACE

6055COMP GREEN AND SUSTAINABLE COMPUTING

6061COMP TECHNOLOGY ENTREPRENEURSHIP

6067COMP MAINFRAME COMPUTING

Level 6	Potential Awards on completion	Bachelor of Science with Honours (SW)
Core	Option	Award Requirements
6000PROJ PROJECT (36 credits) 6044COMP ADVANCED SOFTWARE DEVELOPMENT (24 credits) 6048COMP INNOVATIONS IN SOFTWARE DEVELOPMENT (24 credits) 6068COMP ADVANCED DATA STRUCTURES AND ALGORITHMS (24 credits)	6037COMP COMPUTING IN EDUCATION (12 credits) 6038COMP WORK PLACEMENT EVALUATION (12 credits) 6046COMP CLOUD COMPUTING (12 credits) 6053COMP EMPLOYABILITY AND THE WORKPLACE (12 credits) 6055COMP GREEN AND SUSTAINABLE COMPUTING (12 credits) 6061COMP TECHNOLOGY ENTREPRENEURSHIP (12 credits) 6067COMP MAINFRAME COMPUTING (12 credits)	108 core credits at level 6 12 option credits at level 6
Level 5	Potential Awards on completion	

Core	Option	Award Requirements
5019COMP DATABASE DESIGN, APPLICATIONS AND MANAGEMENT (24 credits) 5041COMP COMPUTER NETWORKS (24 credits) 5046COMP OBJECT ORIENTED SOFTWARE DEVELOPMENT (24 credits) 5070COMP ADVANCED WEB DEVELOPMENT (24 credits) 5072COMP FOUNDATIONS OF COMPUTER SCIENCE (24 credits)		120 core credits at level 5 0 option credits at level 5
Level 4	Potential Awards on completion	
Core	Option	Award Requirements
4000COMP WEB DESIGN AND HCI (24 credits) 4001COMP INTRODUCTION TO COMPUTER PROGRAMMING (24 credits) 4004COMP COMPUTING AND SOCIETY (24 credits) 4005COMP COMPUTING IN PRACTICE (24 credits) 4008COMP COMPUTER SYSTEMS (24 credits)		120 core credits at level 4 0 option credits at level 4

Information about assessment regulations

All programmes leading to LJMU awards operate within the University's Academic Framework.
<https://www.ljmu.ac.uk/about-us/public-information/academic-quality-and-regulations/academic-framework>

Opportunities for work-related learning (location and nature of activities)

Opportunities for industrial placement are taken before the commencement of Level 6.

To pass the industrial placement:

- The University Tutor must award at least a pass grade (the mid-point on a five point scale).
- The Company Tutor must award at least a pass grade (the mid-point on a five point scale).
- The University Tutor must award at least a pass grade (the mid-point on a five point scale) to the Professional Placement Report written by the student.
- The student must complete a period of no less than 12 continuous months (including statutory holiday entitlement) of approved professional training.

Level 6:- 6038COMP Computing in Education (Option) - Students who are interested in a career in teaching can apply for consideration at a position with a local school or college, attending one half day per week. This gives them first-hand experience of teaching computing in schools or colleges and allows them to develop their World of Work skills.

Level 6:- 6037COMP Work Placement Evaluation (Option) - This option module allows the student to reflect on their work placement in greater depth than their placement report, evaluate their development of graduate skills during the placement year, and plan their future learning requirements to enhance their employability.

Level 6:- 6053COMP Employability and the Workplace (Option) - LJMU's World of Work initiative has been recognised as an innovative approach to improving the employability skills of graduates. This module operates in conjunction with a development programme at LJMU's World of Work Careers Centre and enables students to critically evaluate their own employability skills and further improve on these via the World of Work certification process if desired.

Level 6:- 6061COMP Technology Entrepreneurship (Option) - This module prepares those students who wish to enter the world of self-employment upon graduation by examining the production of a business plan to support their own idea. With on-going support from the team at the University's Centre for Entrepreneurship, students

will be guided in developing their idea through the initial stages of business development.

Level 6:- 6067COMP Mainframe Computing (Option) - This module prepares those students who wish to undertake possible future professional accreditation in the field of mainframe computing. Delivered in conjunction with IBM, this module provides hands-on theory and experience in using mainframe technologies and follows the IBM certificated curriculum.

Further information about Graduate Skills can be found at:

<http://www.ljmu.ac.uk/worldofwork/123832.htm> (The World of Work Careers Centre website)

<http://www.ljmu.ac.uk/eaqs/128262.htm> (Regulations in Practice - Section 5 Work Related Learning and Additional Information)

Criteria for admission

A/AS Level

A minimum of 280 UCAS tariff points are required to join the BSc (Hons) programme.

Other

In addition to the above, applicants should have five GCSEs at grade C or above including GCSE Mathematics grade C and English Language grade C.

Mature entry

Without the necessary qualifications but relevant experience are encouraged to apply and may be requested to attend an interview and aptitude test.

Overseas qualifications

Offers will be based on individual qualifications and experience. All applicants should have achieved IELTS 6 or equivalent.

External Quality Benchmarks

All programmes leading to LJMU awards have been designed and approved in accordance with the UK Quality Code for Higher Education, including the Framework for Higher Education Qualifications in the UK (FHEQ) and subject benchmark statements where applicable.

The University is subject to periodic review of its quality and standards by the Quality Assurance Agency (QAA). Published review reports are available on the QAA website at www.qaa.ac.uk

Programmes which are professionally accredited are reviewed by professional, statutory and regulatory bodies (PSRBs) and such programmes must meet the competencies/standards of those PSRBs.

Support for students and their learning

The University aims to provide students with access to appropriate and timely information, support and guidance to ensure that they are able to benefit fully from their time at LJMU. All students are assigned a Personal Tutor to provide academic support and when necessary signpost students to the appropriate University support services.

Students are able to access a range of professional services including:

- Advice on practical aspects of study and how to use these opportunities to support and enhance their personal and academic development. This includes support for placements and careers guidance.
- Student Advice and Wellbeing Services provide students with advice, support and information, particularly in the areas of: student funding and financial matters, disability, advice and support to international students, study support, accommodation, health, wellbeing and counselling.
- Students studying for an LJMU award at a partner organisation will have access to local support services

Methods for evaluating and improving the quality and standards of teaching and learning

Student Feedback and Evaluation

The University uses the results of student feedback from internal and external student surveys (such as module evaluations, the NSS and PTES), module evaluation questionnaires and meetings with student representatives to improve the quality of programmes.

Staff development

The quality of teaching is assured through staff review and staff development in learning, teaching and

assessment.

Internal Review

All programmes are reviewed annually and periodically, informed by a range of data and feedback, to ensure quality and standards of programmes and to make improvements to programmes.

External Examining

External examiners are appointed to programmes to assess whether:

- the University is maintaining the threshold academic standards set for awards in accordance with the FHEQ and applicable subject benchmark statements
- the assessment process measures student achievement rigorously and fairly against the intended outcomes of the programme(s) and is conducted in line with University policies and regulations
- the academic standards are comparable with those in other UK higher education institutions of which external examiners have experience
- the achievement of students are comparable with those in other UK higher education institutions of which the external examiners have experience

and to provide informative comment and recommendations on:

- good practice and innovation relating to learning, teaching and assessment observed by external examiners
- opportunities to enhance the quality of the learning opportunities provided to students

Please note:

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content, teaching, learning and assessment methods of each module can be found in module and programme guides.