

PROGRAMME SPECIFICATION



1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MSc
4	Programme Title	Computing Science
5	UCAS/Programme Code	5055
6	Programme Accreditation	British Computer Society
7	QAA Subject Benchmark(s)	Computing Science
8	FHEQ Level	M
9	Date written/revised	8th February 2007

10 Programme Aims

1. To produce graduates who will have an understanding of the theory and principles which underlie Computing Science and Software Engineering. They will have knowledge and experience of the fundamental techniques used in requirements analysis, specification, design, development, validation, documentation, maintenance and evaluation of software systems in accordance with modern principles of Software Engineering. They will have skills in the application of these techniques in the development of systems software and software for a range of applications. They will also have an understanding of the architectural concepts underlying the hardware systems on which such software is run. Graduates will have experience of a range of software and hardware systems in current use in the profession, an understanding of current trends in their development, and an appreciation of the professional, ethical and social dimensions of the subject. Graduates will have demonstrated the ability to apply the principles and practices of Computing Science in tackling a significant technical problem; the solution typically demonstrates a soundly based vision of the direction of developments of Computing Science. Graduates will have a good understanding of issues at the forefront of Computing Science and will have a knowledge of up to date tools and techniques. They will be able to critically evaluate and test Computing systems. Many graduates go on to employment in technical positions in software houses and with large-scale users; some graduates pursue research careers. Some students seek to develop market-niche software in small companies.
2. To provide a programme which meets the FHEQ at Masters level and which takes appropriate account of the draft subject benchmark statements in Computing.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Computing.

Knowledge and Understanding

On completing the programme students should be able to demonstrate knowledge and understanding of:

- A1. A high level programming language
- A2. A number of applications within Computing Science
- A3. The principles of software engineering
- A4. Techniques for the development of algorithms for a range of applications
- A5. Computer organisation and architectures
- A6. Professional issues to cover: social, ethical and legal aspects
- A7. Some of the theoretical foundations of Computing Science

Teaching and Learning Methods
Lectures are the main way of imparting knowledge and understanding (A1-A7). Practical classes feature prominently, especially to support the programming and software engineering modules (A1, A3). Students are expected to contribute to their own learning experience by independent reading. They are provided with references to books which are categorised as <i>essential</i> , <i>recommended</i> , and <i>background</i> reading, as well as scientific papers and other learning materials including appropriate web URLs.
Assessment Strategy
Knowledge and understanding are assessed by means of closed and open book written examinations, and coursework, including group and individual project reports (A1-A7).
Intellectual Skills
On completing the programme students should be able to demonstrate skills in: B1. The process of software development B2. The use of hardware and software systems B3. The identification and implementation of appropriate algorithms and data structures B4. The use and provision of network information services B5. The use of programming languages B6. Analysis of system requirements and the production of system specifications
Teaching and Learning Methods
B1-B6 feature prominently in all modules. In particular a group project within CSC8005 gives students experience of working within teams to engineer a complex piece of software (B1-B6). An individual project during Semester 3 requires students to develop a large piece of software to a customer's requirements (B1-B6). In all other modules, coursework is used to develop these skills (B1-B6).
Assessment Strategy
Intellectual professional skills are assessed by coursework (B1-B6).
Practical Skills
On completing the programme students should have the ability to: C1. Conduct investigations using the technical and professional literature C2. Use and evaluate appropriate tools and techniques C3. Undertake critical evaluation (both theoretical and empirical) of alternative solutions C4. Formulate problems and identify suitable approaches to solving them C5. Reason abstractly about the structure and behaviour of computer systems
Teaching and Learning Methods
All modules involve coursework, much of which involves problem solving skills (C4). This is especially so in the group and individual projects where students need to select, evaluate and apply appropriate tools and techniques (C2). Here and elsewhere students will need to investigate possible alternatives in the technical and professional literature (C1, C3), and to reason about computer systems (C5).
Assessment Strategy
Practical skills are assessed by a range of coursework (reports, design documents, etc.) (C1-C5).
Transferable/Key Skills
On completing the programme students should be proficient in: D1. Written communication D2. Problem solving D3. Interpersonal communication D4. Initiative D5. Oral presentation D6. Adaptability D7. Teamwork

D8. Planning and organisation D9. Computer literacy
Teaching and Learning Methods
Key skills feature throughout the programme; teamwork in the group project (D7); oral presentation, interpersonal communication, and planning and organisation in the Semester 3 Project module, as well as the group project (D3, D5, D8); written communication in all modules, but especially in the Semester 3 project (D1); problem solving, initiative and adaptability are necessarily covered throughout the programme (D2, D4, D6, D9).
Assessment Strategy
Key (transferable) skills are assessed by both written and oral presentations (D1-D9). Teamwork in the group project is assessed both by the module leader at team oral presentations and by a group monitor (a member of teaching staff) who attends group formal meetings (D5, D7).

12 Programme Curriculum, Structure and Features
Basic structure of the programme
All modules are compulsory. The course has 180 credits. The taught part of the course takes place from September to June. There are six taught 20-credit modules split equally across semesters one and two. In June students begin work on the 60-credit individual project which is submitted at the end of August.
Key features of the programme (including what makes the programme distinctive)
Students may elect to undertake their individual project at one of our ERASMUS partner institutions. To gain professional accreditation students must have passed a practical problem-solving project at the first attempt. Students must have studied their whole degree at the Newcastle campus.
Programme regulations (link to on-line version)
http://www.ncl.ac.uk/regulations/regulations.html?id=288

13 Criteria for admission
<i>Entry qualifications</i> A good honours degree (2ii or equivalent) in any subject. Graduates in Computing Science will also be considered, but will need to be dealt with on an individual basis because of the potential overlap of their first degree with the modules in this MSc.
<i>Admissions policy/selection tools</i> Suitable applicants are made an offer without interview as soon as possible after their application forms have been received and considered
<i>Additional Requirements</i> None.
<i>Level of English Language capability</i> For applicants whose first language is not English we ask for IELTS 6.5 or TOEFL 233 (computer-based)

14 Support for Student Learning
<i>Induction</i> During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University's principle support services and general information about the School and their programme, as

described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/ tutorials/etc. The International Office offers an additional induction programme for overseas students (see http://www.ncl.ac.uk/international/coming_to_newcastle/orientation.phtml)

Study skills support

Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

Academic support

The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff-Student Committee, and/or at the Board of Studies.

Pastoral support

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. Details of the personal tutor system can be found at <http://www.ncl.ac.uk/undergraduate/support/tutor.phtml>

In addition the University offers a range of support services, including the Student Advice Centre, the Counselling and Wellbeing team, the Mature Student Support Officer, and a Childcare Support Officer, see <http://www.ncl.ac.uk/undergraduate/support/welfare.phtml>

Support for students with disabilities

The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies. For further details see <http://www.ncl.ac.uk/disability-support/>

Learning resources

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities, see

<http://www.ncl.ac.uk/undergraduate/support/acfacilities.phtml>

The School of Computing Science has well equipped computer laboratories consisting of networked PCs. Key software used in the support and delivery of the programme is available to students free of charge. The School has its own library which is mainly used for the support of advanced topics and is a particularly valuable resource for individual projects.

All new students whose first language is not English are required to take an English Language test in the Language Centre. Where appropriate, in-session language training can be provided. The Language Centre houses a range of resources for learning other languages which may be particularly appropriate for those interested in an Erasmus exchange. See <http://www.ncl.ac.uk/undergraduate/support/facilities/langcen.phtml>

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

Module reviews

All modules are subject to review by questionnaires which are considered by the Staff Student Committee and Board of Studies. Changes to, or the introduction of new, modules are considered at the School Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff-Student Committee and the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty

Teaching and Learning Committee.

Programme reviews

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee.

External Examiner reports

External Examiner reports are considered by the Board of Studies. The Board responds to these reports through Faculty Teaching and Learning Committee.

Student evaluations

All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff-Student Committee, and the Board of Studies.

Mechanisms for gaining student feedback

Feedback is channelled via the Staff-Student Committee and the Board of Studies.

Faculty and University Review Mechanisms

The programme is subject to the University's Internal Subject Review process, see http://www.ncl.ac.uk/aqss/qsh/internal_subject_review/index.php

Accreditation reports

This programme was last accredited by the British Computer Society in November 2003. A further accreditation visit is planned during 2008.

Additional mechanisms

None.

16 Regulation of assessment

Pass mark

The pass mark is 50.

Course requirements

Progression is subject to the University's Masters Degree Progress Regulations, Taught and Research (<http://www.ncl.ac.uk/calendar/university.regs/tpmdepr.pdf>) and Examination Conventions for Taught Masters Degrees (<http://www.ncl.ac.uk/calendar/university.regs/tpmdeprexamconv.pdf>). Limited compensation in up to 40 credits of the taught element and down to a mark of 40 is possible and there are reassessment opportunities, with certain restrictions.

Common Marking Scheme

The University employs a common marking scheme, which is specified in the Taught Postgraduate Examination Conventions, namely:

Summary description applicable to postgraduate Masters programmes

<50	Fail
50-59	Pass
60-69	Pass with Merit
70 or above	Pass with Distinction

Summary description applicable to postgraduate Certificate and Diploma programmes

<50	Fail
50 or above	Pass

Role of the External Examiner

An External Examiner, a distinguished member of the subject community, is appointed by Faculty Teaching and Learning Committee, after recommendation from the Board of Studies. The External Examiner is expected to:

See and approve examination papers
Moderate examination and coursework marking
Attend the Board of Examiners
Report to the University on the standards of the programme

In addition, information relating to the programme is provided in:

The University Prospectus (see <http://www.ncl.ac.uk/undergraduate/>)

The School Brochure (contact enquiries@ncl.ac.uk)

The University Regulations (see <http://www.ncl.ac.uk/calendar/university.regs/>)

The Degree Programme Handbook
(see: <http://www.cs.ncl.ac.uk/teaching/postgraduate/index.php>)

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

Mapping of Intended Learning Outcomes onto Curriculum/Modules

Intended Learning Outcome	Module codes (Compulsory in Bold)
A1	CSC8001, CSC8002, CSC8005.
A2	CSC8001, CSC8002, CSC8003, CSC8005, CSC8006.
A3	CSC8001, CSC8002, CSC8003, CSC8005, CSC8006.
A4	CSC8001, CSC8002, CSC8003.
A5	CSC8003, CSC8006.
A6	CSC8003, CSC8005, CSC8006.
A7	CSC8002.
B1	CSC8001, CSC8003, CSC8005, CSC8006.
B2	CSC8001, CSC8003, CSC8006.
B3	CSC8001, CSC8003, CSC8005.
B4	CSC8001, CSC8003, CSC8004, CSC8006.
B5	CSC8001, CSC8002.
C1	CSC8001, CSC8005, CSC8006, CSC8099.
C2	CSC8001, CSC8003, CSC8005, CSC8006, CSC8099.
C3	CSC8003, CSC8004, CSC8006, CSC8099.
C4	CSC8003, CSC8004, CSC8005, CSC8006, CSC8099.
C5	CSC8001, CSC8003, CSC8004, CSC8005, CSC8006.
D1	CSC8001, CSC8002, CSC8003, CSC8004, CSC8005, CSC8006, CSC8099.
D2	CSC8001, CSC8002, CSC8003, CSC8004, CSC8005, CSC8006, CSC8099.
D3	CSC8003, CSC8005, CSC8006, CSC8099.
D4	CSC8001, CSC8003, CSC8004, CSC8099.
D5	CSC8005, CSC8099.
D6	CSC8001, CSC8003, CSC8004, CSC8005, CSC8099.
D7	CSC8005, CSC8006.
D8	CSC8001, CSC8003, CSC8005, CSC8099.
D9	CSC8001, CSC8003, CSC8004, CSC8006, CSC8099.