Programme Specification

Programme award and title: MSc/PG Dip/PG Cert Advanced Computing

SCQF Level: M | SCQF Credit Value: 180/120/60

Educational aims of the programme:
Concise (e.g. a few sentences), general statement of aims and broad purposes of the programme
- Business, industry, and the general public, are using computers for a wide range of applications: from simple enquiry services such as news or telephone number search Web pages, through sophisticated online shopping and banking, to integrated business support and mobile telecommunications. The specific objectives of the course are to teach the principles and application of these sophisticated technologies underlying the workings of computers.

Intended programme learning outcomes:
Outline (e.g. one or two paragraphs) of what the student will know, understand and be able to do as a result of their learning, expressed in the categories below. Please consider the contribution made to the student's personal development planning (PDP) and future employability.

Knowledge and understanding
- The operational principles of computers
- the operational principles of computer networks,
- the importance of systematic software design methodology, and the ability to model, design and implement software systems,
- the principles and practice of server and client side Web scripting, and the ability to design and implement computer applications and web-based applications,
- the principles and practice of information storage, management and processing including its central place in the support of decision making,
- principles and practice of computer games technology, web services and telecommunications systems and services
- the impact of legislation on their professional work,
- good design principles for the human computer interface, and how to apply them to computer applications, multimedia presentations, and web sites,
- the environments in which software is developed and used.

Subject-specific skills and other attributes
- produce work involving problem specification, analysis, design and implementation of software systems and an understanding of the environments in which software is being developed and used,
- prepare technical documentation and prepare and give technical presentations,
- use and develop validation and testing procedures for computer-based systems,
- show effective judgement in the choice and use of tools and techniques.

Generic skills (e.g. information skills, communication skills, critical, analytical and problem solving abilities) and other attributes
- integrate the material taught and to apply it to a large loosely-specified task (Masters Degree Programme only)
- apply appropriate practices within a professional and ethical framework,
- organise and manage their time and prioritise workloads,
- communicate effectively, both orally and in writing,
- reflect on and assess their professional development,
- work as a member of a team, recognising the different roles within a team and different ways of organising teams,
- integrate the material taught and to apply it to a large loosely-specified task (Masters Degree Programme only)
critically analyse concepts, principles and practice, in the context of loosely defined scenarios,
bring effective approaches to bear in solving problems,
evaluate and understand requirements and specifications

Learning, teaching and assessment strategies:
Outline (e.g. one or two paragraphs) on overall approach taken to develop and assess learning outcomes, including any distinctive features

The teaching methods used are lectures, tutorials and practical laboratory sessions. The different modules making up the degree use these in differing ways: they need to be selected appropriately for the different modules. This is achieved partly by the lecturer in charge of each module selecting what is in their opinion appropriate, and these decisions are reviewed regularly by the curriculum committee, and by the subject committee.

Students may exit the course either at the end of the 2nd semester, with a Postgraduate Diploma in Advanced Computing, or they may (if they wish) continue to do a project over the summer. Passing this project enables them to graduate with an M.Sc. in Advanced Computing.

Assessment techniques used are practical assignments, reports/essays, examinations, and, for the project, a project dissertation. A random sample of all items of assessed work is reviewed by a member of staff not involved in the teaching of the module. For the MSc project, all pieces of assessment are marked independently by two members of staff. Communication skills are developed through coursework reports and project demonstrations.

Practical assignments are used extensively particularly on modules that have a major programming component. This is the only realistic method for providing formative feedback to students in this area of work. Practical work is also important in modules where design is a major element, as is true of, for example, HCI. In the module on object-oriented modelling, students complete a design assignment in teams of four or five students. This provides a valuable introduction to professional working practices. Examinations are used as a summative assessment (though we also use the marks gained in earlier practical assignments and essays to produce final grades in each course). The summer project is assessed by means of the project dissertation. Students also have to demonstrate their project to the staff assessing the project. In order to gain an M.Sc. degree, the student must pass the project.

As can be seen from the above, students are enabled to demonstrate achievement through their practical work, and through their performance in examination. The practical work is set in such a way that the more able students are able to demonstrate their abilities while the less able students are not disadvantaged. This is achieved by making it clear what is required in order to achieve different levels of grade in the practical work.

Both the examinations and the assessments are designed to test the students’ ability to exercise critical analysis and judgement. The programming skills are initially taught in the first semester, and this knowledge is deepened in the second semester, and (for those proceeding to the M.Sc.) used in a practical context in the project. This project also covers the use of appropriate practices in a professional framework. Working as part of a team is assessed through the use of a group project in object modelling. The technical elements of the learning outcomes are covered in the relevant technical courses. For the Masters degree, the project tests the students’ ability to integrate the material taught and to apply it to a large loosely-specified task requiring the identification and analysis of a problem, the investigation and critical analysis of previous similar and related work, the design of a solution, and a critical assessment of the achievements of the project.

Professional/statutory body accreditation or recognition: not accredited yet
Further details:

Entry requirements: http://www.external.stir.ac.uk/postgrad/index.php

Programme structure: http://www.calendar.stir.ac.uk/

Relevant Subject Benchmark statement (if applicable):
http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp

Scottish Credit and Qualifications Framework: http://www.scqf.org.uk/the_framework.asp

Introduction/revision date: Autumn 2007