

BSc Information Technology
For students entering Part 1 in 2005

UCAS code: G502

Awarding Institution: The University of Reading
Teaching Institution: The University of Reading
Relevant QAA subject benchmarking group(s): Computing
Faculty of Science Programme length: 3 years
Date of specification: 20 June 2007
Programme Director: Dr Andrew Adams
Programme Adviser: Dr Lily Sun
Board of Studies: Information Technology
Accreditation: British Computer Society

Summary of programme aims

This programme aims to prepare students for a career in the Information Technology industry, with a particular emphasis on the vocational elements of computer systems and maintenance. Graduates will be well qualified to play a disciplined and creative part in a development or support environment.

Transferable skills

The University's Strategy for Teaching and Learning has identified a number of generic transferable skills which all students are expected to have developed by the end of their degree programme. In following this programme, students will have had the opportunity to enhance their skills relating to career management, communication (both written and oral), information handling, numeracy, problem-solving, team working and use of information technology.

As part of this programme students are expected to have gained experience in the following transferable skills IT (programming, word processing, databases and use of standard software), technical writing, oral presentations, team-working, problem-solving, use of library resources, time-management, career planning and management, and business awareness.

Programme content

The programme is based around five themes:

- E-business systems
- Information systems and software engineering
- Software tools, Packages and Computer Applications (COTS - Commercial Off the Shelf Software)
- Programming and design
- IT Support (including infrastructure)

Material from all themes must be taken to qualify for the degree; in addition there is some general material that is compulsory for all students.

Part 1 (three terms)		Credits	Level
<i>Compulsory material</i>			
SE1TQ5	COTS 1	20	C
SE1SB5	Software Engineering	20	C
SE1SA5	Programming	20	C
SE1TT5	IT Support 1	20	C
SE1TR5	E-business 1	20	C

Optional material

20 credits from:

SE1EB5	Computer and Internet Technologies	20	C
SE1SC5	Computer Science Roadmap	20	C
MM1F4	Introductory Management	20	C

Other options (including a foreign language from the IWLP) may be selected with the approval of the Course Adviser.

Options are subject to timetabling constraints.

Part 2 (three terms) Credits Level

Compulsory modules

CS2TQ6	Databases for Business	20	I
CS2TX6	Business Programming	20	I
CS2TR6	E-business 2	20	I
CS2TS6	Software Engineering 2 and Career management	20	I
CS2TA6	Information Systems Engineering	20	I

Optional modules

MM270	Practice of Entrepreneurship	20	I
CS2TT6	IT Support 2	20	I

Students may alternatively choose up to 20 credits from other modules, with Course Advisers permission and subject to timetabling.

Part 3 (three terms) Credits Level

Compulsory modules

CS3TU4	Individual Project	40	H
SE3Z5	Social, Legal and Ethical Aspects of Science and Engineering	20	H

Optional modules

60 credits from:

CS3TQ7	Data Management	10	H
CS3TA4	Enterprise IT Architectures	10	H
CS3TC4	Project Management	10	H
CS3TB4	Software Quality and Testing	10	H
CS3TZ4	Network Security	10	H
MM374	Informatics for E-Enterprise	20	H
CS3TE4	Requirements Analysis	10	H
CS3A2	Computer Networking	10	H
CS3B2	GUI, Web and Multimedia Design	10	H
CS3F6	XML and Semantic Web Technologies and Applications	10	H

Students may choose up to 20 credits from other modules from the Computer Science programme or elsewhere, with Course Advisers permission and subject to timetabling.

Progression requirements

To gain a threshold performance at Part 1 and qualify for the CertHE a student shall normally be required to achieve an overall average of 40% over 120 credits taken in Part 1, where all the credits are at C level or above, and a mark of at least 30% in each modules amounting to not less

than 100 credits. In order to progress from Part 1 to Part 2, a student shall normally be required to achieve a threshold performance at Part 1.

To gain a threshold performance at Part 2 and qualify for the DipHE a student shall normally be required to achieve an overall average of 40% over 120 credits taken in Part 2, and a mark of at least 30% in individual modules amounting to not less than 100 credits. In order to progress from Part 2 to Part 3, a student shall normally be required to achieve a threshold performance at Part 2. At least 100 credits must be at level I.

To be eligible for Honours, students must obtain an overall average mark of 40% **and** at least 40% in the Individual Project. At least 100 credits must be at level H.

Summary of teaching and assessment

Teaching is organised in modules that typically involve both lectures and practical work. Most modules are assessed by a mixture of coursework and formal examination. However, some modules are assessed only as coursework. While others are assessed solely by examination. Details are given in the relevant module descriptions.

Admission requirements

Entrants to this programme are normally required to have obtained:
300 points from 3 A levels or 350 from 3 A levels + an AS
GCSE English: grade B; maths: Grade B
Equivalent qualifications are acceptable.

Admissions Tutor: CS admissions tutor (with the assistance of the Programme Advisor and Director).

Support for students and their learning

University support for students and their learning falls into two categories. Learning support includes IT Services, which has several hundred computers and the University Library, which across its three sites holds over a million volumes, subscribes to around 4,000 current periodicals, has a range of electronic sources of information and houses the Student Access to Independent Learning (S@IL) computer-based teaching and learning facilities. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme. Student guidance and welfare support is provided by Personal Tutors, the Careers Advisory Service, the University's Special Needs Advisor, Study Advisors, Hall Wardens and the Students' Union.

Within the providing Department additional support is given through practical laboratory classes. The development of problem-solving skills is assisted by appropriate assignment and project work. There is a Course Adviser to offer advice on the choice of modules within the programme. Course handbooks are provided for each Part of the course: these give more details about the modules which make up the degree. In addition, the School of Computer Science, Cybernetics and Electronic Engineering produces a Handbook for Students, which provides general information about the staff and facilities within the school.

Career prospects

This new degree is designed to be industry oriented. It is expected that graduates will work both within the IT industry as a developer/manager and in a wide range of industries in a support role. Graduates in Information Technology could be expected to have the following generic job titles:

- programmer
- systems analyst
- analyst/programmer
- software engineer
- applications developer
- web developer
- help desk/support technician
- system support engineer
- network engineer
- communications specialist
- database administrator
- project manager
- data analyst
- software/hardware trainer.

Accreditation will be sought for this degree from the British Computer Society.

Opportunities for study abroad or for placements

N/A

Educational aims of the programme

To develop the students' knowledge of the practice and underlying theory of Information Technology, necessary for them to secure employment as a professional in a wide variety of industries; to encourage their critical and analytical skills; and to develop their skills in applying practical concepts to the design of computer systems, and the development of Management Information Systems.

Programme Outcomes

Knowledge and Understanding

A. Knowledge and understanding of:

1. Software including:
 - 1a) Programming languages
 - 1b) Software tools, Packages and Computer Applications
 - 1c) Structuring of data and information
2. Practice
 - 2a) Problem identification and analysis
 - 2b) Design, development and evaluation
 - 2c) Management and organisation
 - 2d) Professionalism and ethics
 - 2e) Commercial and industrial exploitation
3. Hardware
4. Communication and interaction
5. Theory

Note these are the five areas identifies in the Computing benchmark.

Teaching/learning methods and strategies

The course concentrates on aspects 1. and 2. with teaching of all aspects involving an introduction of the aspects in theoretical manner and re-enforcement by related practical work, with the first year providing the core, subsequent years involve deeper study, with the student concentrating on a single theme in their final year.

Aspects 2c) and 2d) will additionally be covered by the compulsory material in the final year.

Aspects 3 and 4. feature within the IT Support and COTS themes particularly from a practical perspective.

Aspects 3, 4. and 5. are presented as supporting material and taught in the context of aspects 1. and 2. as and when they are needed.

Assessment

Knowledge is tested through a mixture of formal examinations and practical work.

Skills and other attributes

B. Intellectual skills – able to:

1. Demonstrate knowledge and understanding related to aspects outlined above.
2. Apply such knowledge and understanding to the modelling of computer systems.
3. Recognise and analyse criteria and specifications appropriate to a specific problem.
4. Critically evaluate and test a computer based system.
5. Deploy appropriate methods and tools for creating computer systems.
6. Reflect and communicate
7. Recognise and conform to appropriate professional, ethical and legal practices

Teaching/learning methods and strategies

1. and 2. As above.
- 3., 4. and 5. will be taught as part of the themes; Software Engineering; Programming and Design and COTS. The taught element will be re-enforced by practical work.
6. will be taught as part of COTS 1 and E-Business 1, throughout the course the students will be expected to use these skills and they will be particularly exercised in the individual Project.
7. will be pervasive throughout the course but be covered specifically in the Software Engineering theme and the compulsory material in the final year.

Assessment

These skills are tested through a mixture of formal examinations, presentations, reports and practicals. The individual project provides a major piece of work in which among other things the student will be assessed on their abilities to reflect and communicate. Oral presentations will be required in the Software Engineering and COTS themes and the Project, in the latter the presentation will be assessed by two members of staff not involved in the supervision of the Project.

C. Practical skills – able to:

1. Specify, design and construct computer-based systems.
2. Evaluate systems
3. Recognise Risks and Safety aspects
4. Effectively deploy software tools
5. Operate computing equipment effectively

Teaching/learning methods and strategies

1. will be covered both theoretically and practically, particularly in the IT Support and Programming and Design themes.
2. will be particularly covered as part of IT Support and COTS themes.
3. The IT support theme will cover practical and theoretical aspects of risk and safety, the compulsory material in the final year will also cover managerial aspects.
4. will be covered theoretically and practically as part of the COTS, Programming and Design and Software Engineering themes.
5. will be covered both as part the COTS and IT Support themes in a theoretical and practical manner.

Assessment

Skills 1. to 5. will be assessed by a mixture of practical work and examination.

D. Transferable skills – able to:

1. Effectively retrieve information
2. Present cases in a quantitative dimension.
3. Manage own learning and development.
4. Appreciate the need for continuing professional development (CPD), be able to plan and execute their own CPD
5. Organise and work as part of a team.
6. Plan and manage their own careers.
7. Communicate in a manner appropriate to the situation.
8. Effectively use Information Technology.

Teaching/learning methods and strategies

1. Information retrieval will be covered theoretically and by practical work necessitating the use of browsers and search engines. It will be first introduced in COTS 1 but exercised extensively elsewhere.
2. Numerical skills will be introduced as needed and used in programming examples and project planning. They will also be exercised in the COTS 1. The IT Support theme will require a study of quantitative issues related to aspects of costs, efficiency, performance and economics.
3. Time management and organisational skills will be taught as part of Software Engineering. The students will also be expected to use a number of on-line learning tools. Tutorial support for self managed learning will be provided in COTS 1.
4. Professionalism will be an important issue throughout the course. Students will be encouraged to join the BCS and participate in local meetings.
5. The theory of team work will be covered, in Software Engineering, and the students required to undertake a piece of group work
6. The University's Careers management skill module component will be included in the second year of the Software Engineering theme.
7. The role of written and verbal communications will be covered in the COTS and Software Engineering themes.
8. Information Technology will be used throughout the course. The COTS theme will specifically include the use of Information Technology.

Assessment

1. to 3., 5. to 8. will be assessed by a mixture of practical work, presentations, reports and examinations. 4. will be assessed by formal examination. Communication skills (7.) will also be assessed with the Individual Project.

D. Transferable skills – able to:

- communicate ideas, principles and theories, arguments and analysis effectively in speech and writing, using visual and ICT media as tools where appropriate, to specific and non specific audiences;
- demonstrate appropriate critical thinking skills, including the ability to:
 - Identify and summarise the main points in an argument;
 - Present and develop an argument, drawing upon appropriate evidence, literature and theory;
 - Analyse and synthesise research, theories and ideas from multiple sources
 - Examine issues from a range of professional and theoretical perspectives;
 - Produce critical and evaluative responses to planned outcomes
- use ICT to support their own development, and the learning and development of children;
- work within a team and individually to complete a relevant and agreed project or task
- solve theoretical and practical problems that occur
- improve their own performance through critical self reflection, the implementation of evidence-based practice and continued professional development activities.
- demonstrate and promote the positive values, attitudes and behaviour they expect

Teaching/learning methods and strategies

The teaching and acquisition of these transferable skills is firmly embedded in the programme. As a work-based degree, there is particular emphasis on the acquisition and personal development of a wide range of transferable skills. For example, communication skills are taught in ED1FSS, but are also considered in ED1FPE, ED1FLD and ED1FSC and these are also deployed in the group presentations, individual reports and work – based experiences. A care and education culture permeates the programme fed by module content and the intended learning outcomes, staff (and student) links with practice, lectures by visiting practitioners, visits to other settings and the analysis of video material.

The use of ICT is embedded throughout the programme, although there is particular emphasis in the inputs of ED1FSS and ED2FSK.

Oral presentations, team work and career planning are included in modules and in meetings with a personal tutor.

Time management and use of library resources are essential for effective completion of a degree whilst working; advice is given in pre-programme documentation, induction week and ED1FSS.

The programme's strategy on career management incorporates the use Careers Advisory Services incorporating a taught session and / or on-line learning material There is a timetable to prepare students for progression to honours, QTS and / or career development.

Assessment

As a result of this 'pervasive' approach to transferable skills, students' performance is assessed across the full range of skills throughout the programme on a module-by-module basis through coursework when feedback is provided.

Written feedback from mentors and tutors and some written assignments and reports reflect these skills.

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 and teaching, learning and assessment methods of each module can be found in the module description and in the programme handbook. The University reserves the right to modify this specification in unforeseen circumstances, or where the process of academic development and feedback from students, quality assurance processes or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.