

## **BSc Information Technology**

**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  
For students entering Part 1 in 2002 Date of specification: 1 March 2004  
Programme Director: Shirley Williams  
Programme Adviser: Lily Sun  
Board of Studies: Information Technology  
Accreditation: British Computer Society (to be confirmed)

### **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:  
COTS (Commercial Off the Shelf Software)  
Software Engineering  
Programming and Design  
IT Support (including infrastructure)  
E-business

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. In some cases named modules are compulsory. In other cases there are alternatives, for example there are alternative modules related to Programming and Design depending on a student's prior knowledge.

This section contains the normal module selection for a student entering to read BSc in Information Technology.

Alternative module selections that meet the general requirements described in Appendix A may be permitted by the Course Adviser/Director, if deemed appropriate for the student. Normally this will be because the student wished in Part 1 to keep open the option of changing to another degree.

<b>Part 1</b> (three terms)		Credits	Level
<i>Compulsory material</i>			
CS1TQ2	COTS 1	20	C
CS1TS2	Software Engineering 1	20	C
CS1TT2	IT Support 1	20	C
CS1TR2	E-business 1	20	C
EITHER			
CS1C2	Introductory Programming 1	10	C
	<i>and</i>		
CS1D2	Introductory Programming 2	10	C
OR			
CS1A2	Programming 1	10	C
	<i>and</i>		
CS1B2	Programming 2	10	C
<i>Optional material</i>			
SE1A2	Introduction to Computer systems	10	C
CS1G2	Introduction to Algorithms	10	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.			

<b>Part 2</b> (three terms)		Credits	Level
<i>Compulsory modules</i>			
CS2TP3	Programming and Design	20	I
CS2TQ3	COTS 2	20	I
CS2TS3	Software Engineering 2 and Career management	20	I
CS2TT3	IT Support 2	20	I
CS2TR3	E-business 2	20	I
<i>Optional modules</i>			
CS1H2	Functional Programming	20	C
Other options may be selected with the approval of the Course Adviser.			
Options are subject to timetabling constraints.			

<b>Part 3</b> (three terms)		Credits	Level
<i>Compulsory modules</i>			
CS3TU4	Individual Project	40	H
CS3Z2	Professional Aspects of Computer Science and Information Technology	20	H
<i>Optional modules</i>			
60 credits from:			
CS3TQ4	Advanced Databases	10	H
CS3TA4	Enterprise IT Architectures	10	H
CS3TD4	Requirements Engineering and Management	20	H
CS3TC4	Project Management	10	H
CS3TB4	Software Quality and Testing	10	H
CS3TT4	Computer Networks and Protocols	10	H
CS3TZ4	Network Security	10	H
CS3TR4	Informatics for E-Enterprise	20	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 proceed to Part 2 students must obtain an overall average mark of 40% **and** no mark lower than 30% in any module, except that marks of less than 30% in a total of 20 credits may be condoned provided that the candidate has pursued the course for the module with reasonable diligence and has not been absent from the exam without reasonable cause.

To proceed from Part 2 to Part 3 students must obtain an overall average mark of 40% **and** no mark lower than 30% in any module, except that marks of less than 30% in a total of 20 credits may be condoned provided that the candidate has pursued the course for the module with reasonable diligence and has not been absent from the exam without reasonable cause. At least 100 credits must be at level I.

To be eligible for Honours, students must obtain an overall average mark of 40% **and** no mark lower than 30% in any module **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:

Grade C or better in English in GCSE and grade B or better in GCSE Mathematics; and achieved UCAS Tariff: 320 points, at least two A2's

Equivalent qualifications are acceptable.

Admissions Tutor: CS admissions tutor (with the assistance of the Course 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*

<p>A. Knowledge and understanding of:</p> <ol style="list-style-type: none"><li>1. Software including:<ol style="list-style-type: none"><li>1a) Programming languages</li><li>1b) Software tools</li><li>1c) Packages</li><li>1d) Computer Applications</li><li>1e) Structuring of data and information</li></ol></li><li>2. Practice<ol style="list-style-type: none"><li>2a) Problem identification and analysis</li><li>2b) Design, development and evaluation</li><li>2c) Management and organisation</li><li>2d) Professionalism and ethics</li><li>2e) Commercial and industrial exploitation</li></ol></li><li>3. Hardware</li><li>4. Communication and interaction</li><li>5. Theory</li></ol> <p>Note these are the five areas identifies in the Computing benchmark.</p>	<p><b>Teaching/learning methods and strategies</b> 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.</p> <p><i>Assessment</i> Knowledge is tested through a mixture of formal examinations and practical work.</p>
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### *Skills and other attributes*

<p>B. Intellectual skills – able to:</p> <ol style="list-style-type: none"><li>1. Demonstrate knowledge and understanding related to aspects outlined above.</li><li>2. Apply such knowledge and understanding to the modelling of computer systems.</li><li>3. Recognise and analyse criteria and specifications appropriate to a specific problem.</li><li>4. Critically evaluate and test a computer based system.</li><li>5. Deploy appropriate methods and tools for creating computer systems.</li><li>6. Reflect and communicate</li><li>7. Recognise and conform to appropriate professional, ethical and legal practices</li></ol>	<p><b>Teaching/learning methods and strategies</b> 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.</p> <p><i>Assessment</i> 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.</p>
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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.
  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.

*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 expect 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 module and programme handbooks.

## Appendix A

Alternative module selections that meet the general requirements described below may be permitted by the Course Adviser/Director, if deemed appropriate for the student. Normally this will be because the student wished in Part 1 to keep open the option of changing to another degree (for example Computer Science). When a student is allowed to take this alternative a list of modules and in which part they are to be taken will be provided.

### *Compulsory modules*

CS3TU4	Individual Project	40	H
CS3Z2	Professional Aspects of Computer Science and Information Technology	20	H
CS1TQ2	COTS 1	20	C
CS2TQ3	COTS 2	20	I
CS1TR2	E-business 1	20	C
CS2TR3	E-business 2	20	I
CS2TT3	IT Support 2	20	I

### *Software Engineering*

EITHER

CS1TS2	Software Engineering 1	20	C
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*and*

CS2TS3	Software Engineering 2 and Career management	20	I
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OR

CS2E2	Software Engineering	10	I
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*and*

CS2P2	Information Systems Design	20	I
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There are alternative modules which deliver CMS and the programme advisers will ensure that the student takes one of these (CS2TS3 and CS2P2).

### *Programming and Design*

– one of the following blocks must be taken

#### Block 1

CS1A2	Programming 1	10	C
CS1B2	Programming 2	10	C
CS2TP3	Programming and Design	20	I

#### Block 2

CS1C2	Introductory Programming 1	10	C
CS1D2	Introductory Programming 2	10	C
CS2TP3	Programming and Design	20	I

### *IT Support*

EITHER

CS1TT2	IT Support 1	20	C
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OR

CS2TZ2	PC Infrastructure	10	I
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*At least 40 credits must be taken from the following:*

CS3TQ4	Advanced Databases	10	H
CS3TA4	Enterprise IT Architectures	10	H



CS3TD4	Requirements Engineering and Management	20	H
CS3TC4	Project Management	10	H
CS3TB4	Software Quality and Testing	10	H
CS3TT4	Computer Networks and Protocols	10	H
CS3TZ4	Network Security	10	H
CS3TR4	Informatics for E-Enterprise	20	H

*Optional modules*

Students may take other modules such as:

Suitable modules from Computer Science or the School of Business.

A foreign language from the IWLP.

Options are subject to timetabling constraints.