

**BSc Information Technology with Industrial Year  
For students entering Part 1 in 2011/2**

**UCAS code: G503**

Awarding Institution:	University of Reading
Teaching Institution:	University of Reading
Relevant QAA subject Benchmarking group(s):	Computing
Faculty:	Science Faculty
Programme length:	4 years
Date of specification:	15/May/2013
Programme Director:	Dr Hong Wei
Programme Advisor:	Dr Lily Sun
Board of Studies:	UG Systems Engineering
Accreditation:	Accredited by the 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 elements of computer systems and their use in business. The student's placement year aims to provide an understanding of how the methods and technologies learnt in the parts 1 and 2 of this degree relate to the requirements of industry; this deepens the student's appreciation of the topics studied and encourages a more effective approach to their final year modules and project. Graduates will be well qualified to play a disciplined and creative part in a development or support environment.

The programme aims 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, including computational thinking; and to develop their skills in applying practical concepts to the design of computer systems, and the development of Management Information Systems.

**Transferable skills**

During the course of their studies at Reading, all students will be expected to enhance their academic and personal transferable skills. In following this programme, students will have had the opportunity to develop such skills, in particular relating to communication, interpersonal skills, learning skills, self-management, use of IT, and problem-solving and will have been encouraged to further develop and enhance the full set of skills through a variety of opportunities available outside their curriculum.

As part of this programme students are expected to have gained experience in the following transferable skills: 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 on the following themes:

- Information systems and software engineering
- Enterprise, architecture and e-business systems
- Programming and design
- IT service management

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)**

*Compulsory modules*

<i>Code</i>	<i>Module title</i>	<i>Credits</i>	<i>Level</i>
SE1PR11	Programming	20	4
SE1SE11	Software Engineering	20	4
SE1FC11	Fundamentals of Computing	20	4
SE1EA11	Enterprise, Architecture and e-Business Systems	20	4

*Optional modules*

*Select modules worth 40 credits from:*

SE1CA11	Computer Applications	20	4
MA116	Mathematics for Computer Scientists	20	4
MM1F10	Student Enterprise	20	4
MM1F12	Markets, Marketing and Strategy	20	4

## Part 2 (three terms)

### Compulsory modules

<i>Code</i>	<i>Module title</i>	<i>Credits</i>	<i>Level</i>
SE2SM11	System Design and Project Management	20	5
SE2BP11	Business Programming	20	5
SE2BS11	Business Systems Applications	20	5
SE2DB11	Databases	10	5
SE2FD11	Further Databases	10	5
SE2HA11	HCI and Applications	20	5

### Optional modules:

SE2EA11	Essential Algorithms	10	5
SE2OS11	Operating Systems	10	5
SE2JA11	Java	20	5
MM270	Practice of Entrepreneurship	20	5
MM254	Organisational Behaviour	20	5
LA1XX1	Institution Wide Language Programme	20	4

## Year abroad/Year away/Additional year (three terms)

### Compulsory modules

<i>Code</i>	<i>Module title</i>	<i>Credits</i>	<i>Level</i>
SE2W9	Industrial Year	120	5

## Part 3 (three terms)

### Compulsory modules

<i>Code</i>	<i>Module title</i>	<i>Credits</i>	<i>Level</i>
SE3IP11	Individual Project	40	6
SE3SL11	Social, Legal and Ethical Aspects of Science and Engineering	10	6
SE3RD11	Requirements, Domains and Soft Systems	10	6
SE3EA11	Enterprise Application Integration	10	6
SE3IT13	IT Service Management	10	6

### Optional modules

Select modules worth 40 credits from:

SE3CN11	Computer Networking	20	6
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SE3NS11	Network Security	10	6
SE3SQ11	Software Quality and Testing	10	6
MM374	Informatics for e-Enterprise	20	6
MM379	Social Enterprise	20	6

### 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 level 4 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 5.

Satisfactory completion of the placement period (detailed in the relevant module descriptions) is required for continuation into Part 3 of the four-year degree programme in Information Technology with Industrial Year. Those who do not complete the placement year satisfactorily will be permitted to continue to Part 3 of the three-year degree course in Information Technology.

To be eligible for Honours, students must achieve at least 40% in modules amounting to 80 credits in the final Part, including the Individual Project (SE3IP11).

In order to graduate with this degree, students are required to achieve "PASS" in their industrial placement (module SE2W9). Otherwise students will be eligible for the BSc Information Technology degree.

### Assessment and classification

The University's honours classification scheme is:

<i>Mark</i>	<i>Interpretation</i>
70% - 100%	First class
60% - 69%	Upper Second class
50% - 59%	Lower Second class
40% - 49%	Third class
35% - 39%	Below Honours Standard
0% - 34%	Fail

For the University-wide framework for classification, which includes details of the classification method, please see: [www.reading.ac.uk/internal/exams/Policies/exa-class.aspx](http://www.reading.ac.uk/internal/exams/Policies/exa-class.aspx)

The weighting of the Parts/Years in the calculation of the degree classification is

### Four-year programmes, including placement year: Normally:

Part 2 one-third

Placement Year not included in classification

Part 3 two-thirds

(where students fail a placement year which does not contribute to classification they transfer to the three-year version of the programme)

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. There are some modules which are assessed only as coursework and others wholly by examination; the 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 340 from 3 A levels + an AS

GCSE English: grade B; maths: Grade B  
Equivalent qualifications are acceptable.

**Admissions Tutor:** Dr Oswaldo Cadenas

### **Support for students and their learning**

University support for students and their learning falls into two categories. Learning support is provided by a wide array of services across the University, including: the University Library, the Careers, Placement and Experience Centre (CPEC), In-session English Support Programme, the Study Advice and Mathematics Support Centre teams, IT Services and 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, School Senior Tutors, the Students' Union, the Medical Practice and advisers in the Student Services Centre. The Student Services Centre is housed in the Carrington Building and offers advice on accommodation, careers, disability, finance, and wellbeing, academic issues (eg problems with module selection) and exam related queries. Students can get key information and guidance from the team of Helpdesk Advisers, or make an appointment with a specialist adviser; Student Services also offer drop-in sessions and runs workshops and seminars on a range of topics. For more information see [www.reading.ac.uk/student](http://www.reading.ac.uk/student)

An Industrial placement officer is available to help you find a suitable role in your placement year (subject to successful application and employee interview). An academic supervisor is allocated to you to support you whilst you are out on placement.

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 produces a Handbook for Students, which provides general information about the staff and facilities within the school.

### **Career prospects**

This degree is designed to be industry oriented. It is expected that all graduates will work both within the IT industry as a developer/manger 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, helpdesk/support technician, system support engineer, network engineer, communications specialist, database administrator, project manager, data analyst, software/hardware trainer.

### **Opportunities for study abroad or for placements**

Industrial placements are compulsory between Part 2 and Part 3.

### **Programme Outcomes**

#### **Knowledge and Understanding**

##### **A. Knowledge and understanding of:**

1. Software including:
  - 1a) Programming languages
  - 1b) Software tools, Packages and Computer Applications, including those used in business
  - 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

##### **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. Aspects 2c) and 2d) will additionally be covered by the compulsory material in the final year. Aspects 3 and 4. feature particularly from a practical perspective. Aspects 3, 4. and 5. are presented as supporting material and taught in the context of aspects 1. and

4. Communication and interaction
5. Theory

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; Information Systems, Software Engineering, and Programming. The taught element will be re-enforced by practical work.
6. will be taught as part of enterprise and e-Business, 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 Information Systems, Software Engineering and the final year Project. These will be assessed by academic staff.

**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 Programming and Design themes.
- 2 will be particularly covered as part of Information Systems and e-Business Systems.
- 3 will be covered in practical and theoretical aspects of system analysis, and the compulsory material in the final year will also cover managerial aspects.
- 4 will be covered theoretically and practically as part of Programming and Design and Software Engineering themes.
- 5 will be covered in practical manner through themes.

*Assessment*

Skills 1-5 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

**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 exercised extensively.
2. Numerical skills will be introduced as needed and

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

used in programming examples and project planning. They will also be exercised in databases. A study of quantitative issues related to aspects of costs, efficiency, performance and economics is covered in systems analysis.

3. Time management and organisational skills will be taught as part of Career Management Skill through Software Engineering and Project Management. The students will also be expected to use a number of on-line learning tools.

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, System Design and Project Management, and the students are required to undertake a piece of group work

6. The University's Careers management skill (CMS) module component will be spread through modules within the three year of the Information System and Software Engineering theme. The role of written and verbal communications will be covered in CMS.

7. Information Technology will be used throughout the course.

#### *Assessment*

1 to 3, and 5 to 7, will be assessed by a mixture of practical work, presentations, reports and examinations. 4 will be assessed by formal examination. Communication skills (6) 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 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 process or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.**