

Module Title: **Software Engineering 2 and Career Management**

Module Code: **CS2TS3**
Level: **I**

Providing Department: **Comp. Science**
Number of Credits: **20**

Terms in which taught: **Autumn, Spring, Summer** Module Convener: **tba**

Pre-requisites: **CS1TS2**
Modules excluded: **CS2E2, CS2P2**

Co-requisites: **CS2TP3**
Current from: **2003**

Aims

This module will extend the knowledge gained in year 1 by covering various aspects of software engineering in greater detail and with more practical exercises.

It will extend the principles and practice of design to real-time systems and will consider programming languages and coding techniques.

It will cover quality assurance in software production and will include testing strategies and techniques.

It will also cover principles of the management of software production by looking at software cost estimation, quality management and project planning tools.

It will cover the management and maintenance of existing software systems.

In addition during the Spring term the University's Career Management Skills (CMS) module component will be undertaken. This module component aims to provide students with the opportunity to develop self-awareness in the context of career decision making, knowledge of the career opportunities that are available to them, and the skills to make effective applications.

Assessable Learning Outcomes

By the end of the module, it is expected that the student will be able to:

- explain the principles of real-time software design
- appreciate the characteristics of programming languages and coding techniques in the context of software production
- recognise the principles of quality assurance in the production of software
- explain the implications of critical systems
- recognise aspects of the management of software production
- recognise aspects of the maintenance of existing systems.

- Identify, assess and articulate their skills, interests, values and personality traits in the context of career decision making.
- Develop careers information retrieval, research and decision making skills, using a variety of sources including the Internet and interviews.
- Recognise and be able to write an effective application; identify the purpose and processes of recruitment interviews and how to perform effectively.

Additional Outcomes:

The module also aims to encourage the development of the following skills:

- working with others in a group project
- understanding a team approach to projects
- experience of design, development and evaluation.

Students will develop business awareness skills through understanding broad trends in the graduate labour market and the personal attributes and achievements that employers require. They will develop oral communication and team working skills through practical group exercises. IT skills and information handling skills will be developed through use of the Internet.

Outline Content

The Software Engineering module component is designed to equip students with the knowledge to participate in and appreciate the management of software production, quality assurance and the maintenance and improvement of existing systems. It will divide into 4 parts:

Real-time software design

This is an extension of the design process covered in year 1 to real-time systems.

Quality assurance

- verification and validation
- software testing – strategies and techniques
- critical systems.

The management of software development

- software cost estimation
- quality management
- project management.

The maintenance and improvement of existing systems

- process improvement
- legacy systems
- software change
- software re-engineering
- configuration management.

In addition the CMS module component consists of three elements that relate to the stages in effective career planning, self-awareness (*Finding Your Profile*), opportunity awareness and decision making (*Finding the Fit*), and transition skills (*Effective Applications*). All learning materials are available on the Internet at: <http://www.rdg.ac.uk/Careers/academic/cms.htm>

Brief Description of Teaching and Learning Methods

Two 1-hour lectures each week and one 1-hour seminar each week. The Software Engineering lectures will cover the theoretical aspects of the subject and the seminars will cover exercises and case studies on the practice. The seminars, which can be real or electronic, will also control the group project that will run throughout the year. Reports will be required at the end of the first and second terms and a group presentation will be given in the third term.

The CMS component will be delivered by lectures and seminars, supported by self directed learning online.

Contact Hours

	Autumn	Spring	Summer
Lectures	20	20	8
Tutorials/seminars	10	10	4
Practicals			
Other contact (e.g. study visits)			
Total hours	30	30	12
Number of essays or assignments	1 (report)	1 (report) plus 3 CMS assignments	
Other (e.g. major seminar paper)			1 (presentation)

Assessment:

Coursework

Students will carry out a project based on a scenario taken from a typical commercial situation. The project will be carried out by small groups of students (4-6) who will work as a team on the project.

At the end of the first term, the team will be required to submit a report that outlines their analysis of the requirements of the scenario with models of the existing situation and their proposed design. It will also contain a discussion of the development tools to be used and an outline project plan. The report must clearly show the individual contributions of each team member.

At the end of the second term, the team will be required to submit another report that describes the development of at least a part of the solution proposed in the first report. The report will include a proposal for quality assurance of the software and will include a testing schedule and test results. The project plan will be updated to show actual progress and achievement. Again, the report must clearly show the individual contributions of each team member.

During the second term there will be 3 assignments associated with CMS:

- Personal Career Profile (approx. 400 words)
- Job study (approx. 700 words)

- CV or completed Standard Application Form

During the third term, the team must demonstrate their software and must give a presentation summarising the findings of their studies and outlining the way in which the team operated and what difficulties they encountered. An essential part of the presentation will be an evaluation of the approach and methods that were used.

The marks will be split 25 % for the reports and 5% for the presentation. Coursework will constitute 30 % of the marks overall.

Penalties for late submission of course work will be in accordance with University policy.

Examinations

Students will also sit a 2-hour paper that will constitute 70% of the marks overall. This is required to confirm students' knowledge indicated by their contribution to the group project.

Requirements for a pass

Students will be required to obtain a mark of 40% overall based on coursework and the examination. In addition they must pass the Careers Management Skills component.

Re-assessment

Students will be re-examined in September.