

## School of Computer Science

**Head of School** Professor S Linton

### Taught Programmes

M.Sc.: Advanced Computer Science  
Artificial Intelligence  
Information Technology  
Management and Information Technology  
Networks and Distributed Systems  
Software Engineering

Erasmus Mundus M.Sc.: Dependable Software Systems

*For all Masters degrees there are exit awards available that allow suitably-qualified candidates to receive a Postgraduate Certificate or Postgraduate Diploma.*

### Programme Requirements

#### Advanced Computer Science

Taught Element, and PG Diploma in Advanced Computer Science:

120 credits:

- IS5101
- CS5001
- up to 30 credits from CS4100 - CS4450, subject to appropriate experience
- remaining credits from IS5102 - IS5150, CS5003 - CS5089, ID5059

M.Sc.: 120 credits from the Taught Element

- CS5099

#### Artificial Intelligence

Taught Element, and PG Diploma in Artificial Intelligence:

120 credits:

- IS5101
- CS5001
- CS5010
- CS5011
- CS4402 or CS5012
- in total, up to 30 credits from CS4100 - CS4450, subject to appropriate experience
- remaining credits from IS5102 - IS5150, CS5003 - CS5089, ID5059

M.Sc.: 120 credits from Taught Element

- CS5099, the topic being in Artificial Intelligence

## Computer Science - Postgraduate 2012/13 - February 2013

### Information Technology

Taught Element, and PG Diploma in Information Technology:

120 credits:

- IS5101
- remaining credits from IS5102 - IS5150, CS5002 - CS5089, ID5059

M.Sc.:

- 120 credits from Taught Element
- IS5198

### Management and Information Technology

Taught Element, and PG Diploma in Management and Information Technology:

120 credits:

- IS5101
- 45 credits from IS5102 - IS5150, CS5002 - CS5089, ID5059
- MN5470
- MN5471
- 20 credits from MN5401, MN5421, MN5461, MN5480, MN5501-MN5770

M.Sc.:

- 120 credits from Taught Element
- IS5199

### Networks and Distributed Systems

Taught Element, and PG Diploma in Networks and Distributed Systems:

120 credits:

- IS5101
- CS5001
- CS5021
- CS4103 or CS5023
- in total, up to 30 credits from CS4100 - CS4450, subject to appropriate experience
- remaining credits from IS5102 - IS5150, CS5003 - CS5089, ID5059

M.Sc.:

- 120 credits from Taught Element
- CS5099, the topic being in Networks and Distributed Systems

**Software Engineering**

Taught Element, and PG Diploma in Software Engineering:

120 credits:

- IS5101
- CS5001
- CS5030
- CS5031
- CS5032 or CS5033
- up to 30 credits from CS4100 - CS4450, subject to appropriate experience
- remaining credits from IS5102 - IS5150, CS5003 - CS5089, ID5059

M.Sc.:

- 120 credits from Taught Element
- CS5099, the topic being in Software Engineering

**Erasmus Mundus Dependable Software Systems**

120 credits:

- CS5001 (if no equivalent module has been taken at a partner institution as part of the DESEM programme)
- CS5899
- at least 15 and at most 30 credits from CS5010, CS5021, CS5030
- remaining credits from IS5101 - IS5150, CS5003 - CS5089, ID5059

<b>CS5001 Object-Oriented Modelling, Design and Programming</b>			
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b> 1
<b>Planned timetable:</b>	Variable		
This module introduces and revises object-oriented modelling, design and implementation up to the level required to complete programming assignments within other MSc modules. The content includes variables and data types, choice and iteration, method and class structures, inheritance, object-oriented modelling, I/O mechanisms, exception handling, and commenting and documentation techniques. Students complete a number of practical exercises with demonstrator support in laboratory sessions.			
<b>Programme module type:</b>	Compulsory for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, Software Engineering and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.		
<b>Anti-requisite(s):</b>	CS5002	<b>Required for:</b>	CS5011, CS5021, CS5031
<b>Learning and teaching methods and delivery:</b>	Lectures, tutorials and practical classes.		
<b>Assessment pattern:</b>	Coursework = 100%		
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk		

## Computer Science - Postgraduate 2012/13 - February 2013

CS5010 Artificial Intelligence Principles				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
<p>This module covers foundational knowledge of Artificial Intelligence (AI). The module gives an overview of AI and its philosophy. It covers fundamental principles in AI reasoning, planning, doing, and learning. It shows how search is used to solve a variety of problems in AI. The fundamentals of symbolic AI, machine learning, neural networks, and robotics are shown, together with their relation to cognitive science. Notions such as agency and uncertainty in AI are covered. Finally, the philosophy of AI in practice and the philosophical problems in AI are shown.</p>				
<b>Programme module type:</b>	Compulsory for Artificial Intelligence Taught Postgraduate Programme. Optional for all Taught Postgraduate Programmes.			
<b>Required for:</b>	CS5011			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

CS5011 Artificial Intelligence Practice				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
<p>This module covers practical design and implementation of Artificial Intelligence (AI). It provides grounding in AI technique, covering techniques in the areas of AI reasoning, planning, doing, and learning. A basic understanding of an AI programming language is provided. Finally, it is shown how to implement AI ideas in software and how to evaluate such implementation.</p>				
<b>Programme module type:</b>	Compulsory for Artificial Intelligence Taught Postgraduate Programme. Optional for Advanced Computer Science, Networks and Distributed Systems, Software Engineering and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.			
<b>Co-requisite(s):</b>	CS5001, CS5010 (PG programmes only)	<b>Required for:</b>	CS5012, CS5019	
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

CS5012 Language and Computation				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
This module covers the major aspects of natural language processing and speech understanding, including computational syntax, computational semantics, discourse processing, machine translation and speech recognition.				
<b>Programme module type:</b>	Optional for Computer Science B.Sc., Joint Computer Science degrees, Computer Science M.Sci. Optional for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, Software Engineering and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.			
<b>Pre-requisite(s):</b>	CS5011			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

CS5019 Artificial Intelligence (Special Subject)				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
This module is a guided reading module on any aspect of Artificial Intelligence not covered by other available modules. It is intended only for M.Sc. students in Artificial Intelligence, for whom it is particularly appropriate to deliver an individually designed programme of study in a specialist area of Artificial Intelligence not covered by other modules.				
<b>Programme module type:</b>	Optional for Artificial Intelligence Taught Postgraduate Programme.			
<b>Pre-requisite(s):</b>	Grade 13.5 in CS5011 and the consent of the Head of School			
<b>Anti-requisite(s):</b>	CS5029, CS5039			
<b>Learning and teaching methods and delivery:</b>	Tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

## Computer Science - Postgraduate 2012/13 - February 2013

CS5021 Advanced Networks				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
This module covers layered architectures, protocol concepts, data link protocols, reliability, resource utilisation, Internet architecture, network tools, and security threats.				
<b>Programme module type:</b>	Compulsory for Networks and Distributed Systems Taught Postgraduate Programme. Optional for Advanced Computer Science, Artificial Intelligence, Software Engineering and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.			
<b>Co-requisite(s):</b>	CS5001	<b>Required for:</b>	CS5023, CS5029	
<b>Learning and teaching methods and delivery:</b>	Weekly lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

CS5023 Mobile and Wireless Networks				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
This module examines how computing and communication are used to allow mobile systems to function in heterogeneous environments, with variations in available network resources and diverse/intermittent network connectivity. A key outcome of the module is for students to be able to critically assess the capabilities and constraints of mobile systems.				
<b>Programme module type:</b>	Optional for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, Software Engineering and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.			
<b>Pre-requisite(s):</b>	CS5021			
<b>Learning and teaching methods and delivery:</b>	Weekly lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

<b>CS5029 Networks and Distributed Systems (Special Subject)</b>				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
This module is a guided reading module on any aspect of Networks and Distributed Systems not covered by other available modules. It is intended only for M.Sc. students in Networks and Distributed Systems, for whom it is particularly appropriate to deliver an individually designed programme of study in a specialist area of Networks and Distributed Systems not covered by other modules.				
<b>Programme module type:</b>	Optional for Networks and Distributed Systems Taught Postgraduate Programme.			
<b>Pre-requisite(s):</b>	Grade 13.5 in CS5021 and the consent of the Head of School			
<b>Anti-requisite(s):</b>	CS5019, CS5039			
<b>Learning and teaching methods and delivery:</b>	Tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

<b>CS5030 Software Engineering Principles</b>				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
This module examines the key concepts in small and large-scale software development. Project management is explored, along with the processes involved in developing system requirements, functionality and high-level descriptions necessary to guide the development of, and assess, a working system.				
<b>Programme module type:</b>	Compulsory for Software Engineering Taught Postgraduate Programme. Optional for all Taught Postgraduate Programmes.			
<b>Required for:</b>	CS5031			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

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CS5031 Software Engineering Practice				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
<p>This module introduces advanced software engineering methods supporting the development of complex, composite software systems with an emphasis on software configuration management, reuse and test-driven development practices. It examines software reuse at different levels of scale, from software libraries and components to service-oriented architectures and discusses how reuse presents both challenges and opportunities for the development of quality software. A key process in today's software engineering practice is testing; the module introduces testing methods that complement the different scales of reuse-oriented development, from unit-level testing to integration testing and system-level testing. Students work on a project to design, implement and test a complex, distributed application to put the content of the lectures into practice. Reference is made to the content of the co-requisite Software Engineering Principles module where appropriate, so that students learn how the practices studied fit into a larger software engineering lifecycle.</p>				
<b>Programme module type:</b>	Compulsory for Software Engineering Taught Postgraduate Programme. Optional for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.			
<b>Co-requisite(s):</b>	CS5001, CS5030			
<b>Required for:</b>	CS5032, CS5033, CS5039			
<b>Learning and teaching methods and delivery:</b>	Weekly lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

CS5032 Critical Systems Engineering				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
<p>This module provides students with an understanding of the concepts and development techniques used for critical, socio-technical systems. On completion they will understand the notion of system dependability, the key characteristics of dependable systems, and the specialised software engineering techniques that may be used to ensure dependable system operation. Students also gain practical experience of applying some of these techniques in systems specification, design or implementation.</p>				
<b>Programme module type:</b>	Optional for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, Software Engineering and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.			
<b>Pre-requisite(s):</b>	CS5031			
<b>Learning and teaching methods and delivery:</b>	Weekly lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			



CS5033 Software Architecture				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
<p>This module introduces students to the concept of software architecture, as an aid to software design, reuse and evolution. When students have completed this module, they will: have knowledge of the key elements of software architectures; recognise architectural styles of existing software systems; be able to describe the software architecture of a non-trivial system accurately; be able to construct systems that satisfy an architectural description; understand how software architecture aids design, reuse and evolution of software.</p>				
<b>Programme module type:</b>	Optional for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, Software Engineering and Erasmus Mundus Dependable Software Systems Taught Postgraduate Programmes.			
<b>Pre-requisite(s):</b>	CS5031			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

CS5039 Software Engineering (Special Subject)				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	Optional for Software Engineering Taught Postgraduate Programme.			
<p>This module is a guided reading module on any aspect of Software Engineering not covered by other available modules. It is intended only for M.Sc. students in Software Engineering, for whom it is particularly appropriate to deliver an individually designed programme of study in a specialist area of Software Engineering not covered by other modules.</p>				
<b>Programme module type:</b>	Optional for Software Engineering Taught Postgraduate Programme.			
<b>Pre-requisite(s):</b>	Grade 13.5 in CS5031 and the consent of the Head of School			
<b>Anti-requisite(s):</b>	CS5019, CS5029			
<b>Learning and teaching methods and delivery:</b>	Tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

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CS5041 User-Centred Interaction Design				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
Desktop and mobile computing are evolving as advanced interactive technologies change our view of applications, services, gaming and computing. This module focuses on interaction between one or more humans and one or more computational machines. It studies both the mechanism side and the human side, with a focus on a class of devices beyond the desktop. The module examines the design, evaluation and implementation of interactive technologies and computing systems for human use.				
<b>Programme module type:</b>	Optional for all Taught Postgraduate Programmes			
<b>Learning and teaching methods and delivery:</b>	Weekly lectures and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

CS5099 Dissertation in Computer Science				
<b>SCOTCAT Credits:</b>	60	SCQF Level 11	<b>Semester:</b>	Whole Year
<b>Planned timetable:</b>	To be arranged.			
This module is an individually supervised dissertation, not exceeding 15,000 words, on a topic in computer science. Typically it comprises a literature review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. Students will be required to give an assessed presentation of their work.				
<b>Programme module type:</b>	Compulsory for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, and Software Engineering M.Sc. Programmes.			
<b>Pre-requisite(s):</b>	Admission to dissertation phase of M.Sc.			
<b>Learning and teaching methods and delivery:</b>	Meeting with supervisor.			
<b>Assessment pattern:</b>	Coursework = 100%			

CS5899 Erasmus Mundus Dissertation in Dependable Software Systems				
<b>SCOTCAT Credits:</b>	45	SCQF Level 11	<b>Semester:</b>	Summer
<b>Availability restriction:</b>	Available only to students on Erasmus Mundus M.Sc. in Dependable Software Systems.			
<b>Planned timetable:</b>	To be arranged.			
This module is an individually supervised dissertation, not exceeding 15,000 words, on a topic in computer science. Typically it comprises a literature review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. Students will be required to give an assessed presentation of their work.				
<b>Programme module type:</b>	Compulsory for Erasmus Mundus M.Sc. in Dependable Software Systems at St Andrews.			
<b>Learning and teaching methods and delivery:</b>	Meeting with supervisor.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	cs5000.coord@cs.st-andrews.ac.uk			

ID5059 Knowledge Discovery and Datamining				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
<p>Contemporary data collection can be automated and on a massive scale e.g. credit card transaction databases. Large databases potentially carry a wealth of important information that could inform business strategy, identify criminal activities, characterise network faults etc. These large scale problems may preclude the standard carefully constructed statistical models, necessitating highly automated approaches. This module covers many of the methods found under the banner of "Datamining", building from a theoretical perspective but ultimately teaching practical application. Topics covered include: historical/philosophical perspectives, model selection algorithms and optimality measures, tree methods, bagging and boosting, neural nets, and classification in general. Practical applications build sought-after skills in the commercial packages SAS and SPSS.</p>				
<b>Programme module type:</b>	<p>Optional for Advanced Computer Science, Artificial Intelligence, Networks and Distributed Systems, Software Engineering and Erasmus Mundus Dependable Software Systems M.Sc. Programmes.</p> <p>Compulsory for Applied Statistics and Datamining Taught Postgraduate Programme.</p> <p>Optional for Statistics Taught Postgraduate Programme.</p>			
<b>Anti-requisite(s):</b>	MT5759			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			
<b>Module Co-ordinator:</b>	Dr C R Donovan and Dr T Kelsey			
<b>Lecturer(s)/Tutor(s):</b>	Dr C R Donovan and Dr T Kelsey			

IS5101 Masters Core Skills				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	Whole Year
<b>Planned timetable:</b>	To be arranged.			
<p>This module equips students with essential skills for completing an MSc in the School of Computer Science. Topics include: technical writing for Computer Science and Information Technology; use of bibliographic and referencing software; presentation skills; critical analysis of written work; generic research skills including framing research hypotheses, designing and conducting experiments, use of survey tools and gathering, analysing and presenting data; understanding basic statistics; use of project planning techniques; awareness of professional and ethical issues in research activities; carrying out a literature review; and awareness of what constitutes academic misconduct. Skills in these areas are reinforced through practical assignments.</p>				
<b>Programme module type:</b>	Compulsory for all Taught Postgraduate Programmes.			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			

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### IS5102 Database Management Systems

<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
The aim of this module is to introduce the core principles and techniques required in the design and implementation of database systems. With a focus on relational database management systems, topics include database design theory; E-R modelling; data definition and manipulation languages; database security and administration. There is a significant practical element to the module, which will require students to build and manipulate a database. Planned Timetable: To be arranged.				
<b>Programme module type:</b>	Optional for all Taught Postgraduate Programmes.			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			

### IS5103 Web Technologies

<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
A web application is a collection of web pages that interact with the user, with each other, and with various resources on a web server, including databases. It is important for managers to understand the different technologies that are used to develop web applications, not only to understand but to be able to discuss with web designers the needs of an organisation when it comes to web sites. This module covers: Web accessibility, Cascading style sheets, and Web server technologies.				
<b>Programme module type:</b>	Optional for all Taught Postgraduate Programmes.			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 60%, Written Examination = 40%			

### IS5104 Information Security Management

<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	1
<b>Planned timetable:</b>	To be arranged.			
This module reviews key theoretical and practical aspects of Information Security Management. The module content covers higher-level technical and theoretical issues as well as management issues such as organisational, planning, certification, auditing and governance. From the student's perspective the module introduces students to a topical field of business and IT concern via varied learning styles and in depth consideration of current issues, standards and scenarios. The module uses both block learning and individual self-learning.				
<b>Programme module type:</b>	Optional for all Taught Postgraduate Programmes.			
<b>Anti-requisite(s):</b>	CS4203			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 60%, Written Examination = 40%			

IS5105 Network Systems Management				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
<p>Networked computer systems are pervasive in every walk of life. Today's mobile phones are more powerful computing devices than the mainframes of thirty years ago. Few organisations could function without computer networks. This module looks at the history of computer networks, examines how computer networks function, and surveys emerging and future networking technologies. It gives insights into computer networking from the perspectives of developers, managers and users. Students taking this module will gain a core understanding of networking principles and protocols for wired and wireless networking. They will learn about the main aspects of network systems management, including network monitoring and configuration management, network service management, and firewall management.</p>				
<b>Programme module type:</b>	Optional for all Taught Postgraduate Programmes.			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars, tutorials and practical classes.			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	is1000.coord@cs.st-andrews.ac.uk			

IS5106 Green Information Technology				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
<p>This module introduces students to a variety of topics and technologies in the area of Green IT and Sustainable IT. Students investigate the way in which technology contributes towards global emissions as well as its potential to enable a positive sustainable future. This includes the responsibilities and actions of IT users, as well as service providers. The module covers key factors driving Green IT from a technical, political, financial, social and legal perspective, and includes the IT life cycle, approaches to product design and the provision of IT services. Students gain understanding and insight into current issues related to sustainable IT usage and future development.</p>				
<b>Programme module type:</b>	Optional for all Taught Postgraduate Programmes.			
<b>Learning and teaching methods and delivery:</b>	Lectures, seminars and tutorials			
<b>Assessment pattern:</b>	Coursework = 40%, Written Examination = 60%			

IS5108 Information Technology Projects				
<b>SCOTCAT Credits:</b>	15	SCQF Level 11	<b>Semester:</b>	2
<b>Planned timetable:</b>	To be arranged.			
<p>This module reinforces information technology and project management skills gained during semester 1, by means of a selection of coursework assignments posed as information technology projects. These are designed to offer increasing depth and scope for creativity as the module progresses.</p>				
<b>Programme module type:</b>	Optional for Information Technology, Management and Information Technology, and Computing and Information Technology M.Sc. Programmes.			
<b>Learning and teaching methods and delivery:</b>	Lectures, tutorials and practical classes			
<b>Assessment pattern:</b>	Coursework = 100%			
<b>Module Co-ordinator:</b>	is1000.coord@cs.st-andrews.ac.uk			

## Computer Science - Postgraduate 2012/13 - February 2013

IS5198 Dissertation in Information Technology				
<b>SCOTCAT Credits:</b>	60	SCQF Level 11	<b>Semester:</b>	Summer
<b>Planned timetable:</b>	To be arranged.			
<p>This module provides students with the opportunity to undertake an in-depth investigation into issues within the field of Information Technology. They are required to prepare a dissertation of not more than 15,000 words on an approved topic which shows appropriate competences in the field. Typically it comprises a related work review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. The project may be a team project but the dissertation will be an individual one.</p>				
<b>Programme module type:</b>	Compulsory for M.Sc. Information Technology Programme.			
<b>Pre-requisite(s):</b>	Admission to dissertation phase of the M.Sc.			
<b>Learning and teaching methods and delivery:</b>	Meeting with supervisor.			
<b>Assessment pattern:</b>	Coursework (Dissertation) = 100%			

IS5199 Dissertation in Management and IT				
<b>SCOTCAT Credits:</b>	60	SCQF Level 11	<b>Semester:</b>	Summer
<b>Planned timetable:</b>	To be arranged.			
<p>This module provides students with the opportunity to undertake an in-depth investigation into issues within the fields of Management and Information Technologies. They are required to prepare a dissertation of not more than 15,000 words on an approved topic which shows appropriate competences in both fields, especially in IT. At least 25% of the work will involve IT and 25% will involve Management focus. Typically it comprises a related work review, extension of old or development of new ideas, their implementation and testing, summarised in a report, with the implementation based on sound theory and software engineering principles. The project may be a team project but the dissertation will be an individual one.</p>				
<b>Programme module type:</b>	Compulsory for M.Sc. in Management and Information Technology Programme.			
<b>Pre-requisite(s):</b>	Admission to dissertation phase of the M.Sc.			
<b>Learning and teaching methods and delivery:</b>	Meeting with supervisor			
<b>Assessment pattern:</b>	Coursework (Dissertation) = 100%			

**Modules from Management that are part of the Management and Information Technology Programme Can be found in the Management Section of the Course Catalogue.**