

Software Engineering

Programme Requirements:

Software Engineering - MSc
<p>((CS5098 (60 credits) or CS5099 (60 credits)) and CS5001 (15 credits) and CS5030 (15 credits) and CS5031 (15 credits) and (CS5032 (15 credits) or CS5033 (15 credits)) and Between 0 and 30 credits from Module List: CS4052, CS4100 - CS4450 and Between 0 and 30 credits from Module List: IS5102 - IS5150 and Between 0 and 75 credits from Module List: CS5003 - CS5089 (except CS5019, CS5029), ID5059)</p> <p>MPhil: 120 credits from taught element of programme requirements (not including project/dissertation) plus a thesis of up to 40,000 words</p> <p>CS5001 is compulsory except when exempted following satisfactory performance in an assessment conducted by the school.</p>

Compulsory modules:

CS5001 Object-Oriented Modelling, Design and Programming				
SCOTCAT Credits:	15	SCQF Level 11	Semester	Both
Academic year:	2018/9			
Availability restrictions:	This module is only available in Semester 2 to students enrolled on the 'with English Language' version of the programme. All other students must take the module in Semester 1.			
Planned timetable:	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. Students complete a number of practical exercises in laboratory sessions.			
Anti-requisite(s)	You cannot take this module if you take CS5002			
Learning and teaching methods of delivery:	Weekly contact: Lectures, tutorials and practical classes.			
Assessment pattern:	Coursework = 100%			
Module teaching staff:	TBC Module coordinator(s): Director of Postgraduate Teaching - Computer Science (dopgt-cs@st-andrews.ac.uk)			

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CS5030 Software Engineering Principles				
SCOTCAT Credits:	15	SCQF Level 11	Semester	1
Academic year:	2018/9			
Planned timetable:	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.				
Learning and teaching methods of delivery:	Weekly contact: Lectures, seminars, tutorials and practical classes.			
	Scheduled learning: 25 hours		Guided independent study: 125 hours	
Assessment pattern:	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%			
Re-assessment pattern:	2-hour Written Examination = 60%, Existing Coursework = 40%			
Module teaching staff:	TBC Module coordinator(s): Director of Postgraduate Teaching - Computer Science (dopgt-cs@st-andrews.ac.uk)			

CS5031 Software Engineering Practice				
SCOTCAT Credits:	15	SCQF Level 11	Semester	2
Academic year:	2018/9			
Planned timetable:	To be arranged.			
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.				
Pre-requisite(s):	Undergraduate - before taking this module you must pass CS2002 and (pass CS2001 or pass cs2101)			
Co-requisite(s):	Postgraduate - in the same year as taking this module you should take CS5030 and take CS5001			
Learning and teaching methods of delivery:	Weekly contact: Weekly lectures, seminars, tutorials and practical classes.			
	Scheduled learning: 25 hours		Guided independent study: 125 hours	
Assessment pattern:	As used by St Andrews: Coursework = 100%			
Re-assessment pattern:	No Re-assessment available			
Module teaching staff:	TBC Module coordinator(s): Director of Postgraduate Teaching - Computer Science (dopgt-cs@st-andrews.ac.uk)			

One of:

CS5032 Critical Systems Engineering			
SCOTCAT Credits:	15	SCQF Level 11	Semester 1
Academic year:	2018/9		
Planned timetable:	To be arranged.		
The aim of this module is to provide students with an understanding of the concepts and development techniques used for critical, socio-technical systems. When students have completed this module they will: understand the notion of system dependability and the key characteristics of dependable systems; understand the specialised software engineering techniques that may be used to ensure dependable system operation; have practical experience of applying some of these techniques in systems specification, design or implementation.			
Pre-requisite(s):	Undergraduate - before taking this module you must pass CS3099		
Learning and teaching methods of delivery:	Weekly contact: Weekly lectures, seminars, tutorials and practical classes.		
	Scheduled learning: 25 hours	Guided independent study: 125 hours	
Assessment pattern:	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%		
Re-assessment pattern:	2-hour Written Examination = 60%, Existing Coursework = 40%		
Module teaching staff:	TBC Module coordinator(s): Director of Postgraduate Teaching - Computer Science (dopgt-cs@st-andrews.ac.uk)		

CS5033 Software Architecture			
SCOTCAT Credits:	15	SCQF Level 11	Semester 2
Academic year:	2018/9		
Planned timetable:	To be arranged.		
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.			
Co-requisite(s):	Postgraduate - you must also take CS5031		
Learning and teaching methods of delivery:	Weekly contact: Lectures, seminars, tutorials and practical classes.		
	Scheduled learning: 25 hours	Guided independent study: 125 hours	
Assessment pattern:	As used by St Andrews: 2-hour Written Examination = 60%, Coursework = 40%		
Re-assessment pattern:	2-hour Written Examination = 60%, Existing Coursework = 40%		
Module teaching staff:	TBC Module coordinator(s): Director of Postgraduate Teaching - Computer Science (dopgt-cs@st-andrews.ac.uk)		

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One of:

CS5098 Group Project and Dissertation in Computer Science				
SCOTCAT Credits:	60	SCQF Level 11	Semester	Full Year
Academic year:	2018/9			
Planned timetable:	To be arranged.			
This module is a group-based MSc project on a topic in Computer Science. It results in an individual dissertation of no more than 15,000 words submitted by each student. Typically the dissertation comprises a review of related work, the extension of old or development of new ideas, software implementation and testing, analyses and evaluation. The dissertation may also include an agreed collaboratively-written group report. Each student is individually assessed, taking into account both individual and group submissions. Students are required to give a presentation of their work.				
Pre-requisite(s):	Requires admission to dissertation phase of msc and permission of the head of school.			
Anti-requisite(s)	You cannot take this module if you take CS5099			
Learning and teaching methods of delivery:	Weekly contact: Meetings with supervisor.			
	Scheduled learning: 13 hours		Guided independent study: 587 hours	
Assessment pattern:	As used by St Andrews: Coursework = 100%			
Module teaching staff:	TBC Module coordinator(s): Director of Postgraduate Teaching - Computer Science (dopgt-cs@st-andrews.ac.uk)			

CS5099 Dissertation in Computer Science				
SCOTCAT Credits:	60	SCQF Level 11	Semester	Full Year
Academic year:	2018/9			
Planned timetable:	To be arranged.			
This module is an individually supervised MSc project on a topic in Computer Science. It results in a dissertation of no more than 15,000 words. Typically the dissertation comprises a review of related work, the extension of old or development of new ideas, software implementation and testing, analyses and evaluation. Students are required to give a presentation of their work.				
Pre-requisite(s):	Requires admission to dissertation phase of msc and permission of the head of school			
Anti-requisite(s)	You cannot take this module if you take CS5098			
Learning and teaching methods of delivery:	Weekly contact: Meeting with supervisor.			
	Scheduled learning: 0 hours		Guided independent study: 0 hours	
Assessment pattern:	As used by St Andrews: Coursework = 100%			
Module teaching staff:	TBC Module coordinator(s): Director of Postgraduate Teaching - Computer Science (dopgt-cs@st-andrews.ac.uk)			

Optional modules are available - see the pdf online called Computer Science optional modules 2018-2019