Master of Science Computing and Information Technology

Programme Requirements

### Computing and Information Technology - MSc

<table>
<thead>
<tr>
<th>Module</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS5101</td>
<td>15</td>
</tr>
<tr>
<td>(CS5001 15 credits) or CS5002 (15 credits)</td>
<td>and</td>
</tr>
<tr>
<td>CS5003</td>
<td>15</td>
</tr>
<tr>
<td>30 credits from Module List: CS4100 - CS4450 and</td>
<td></td>
</tr>
<tr>
<td>75 credits from Module List: IS5102 - IS5150, CS5010 - CS5089, ID5059 and</td>
<td></td>
</tr>
<tr>
<td>60 credits from Module List: IS5198 - IS5199, CS5098 - CS5099</td>
<td></td>
</tr>
</tbody>
</table>

**MPhil:**

120 credits from Taught Element of Computing and Information Technology plus a 40,000-word thesis

**Compulsory modules:**

<table>
<thead>
<tr>
<th>IS5101 Masters Core Skills</th>
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</thead>
<tbody>
<tr>
<td><strong>SCOTCAT Credits:</strong></td>
</tr>
<tr>
<td>Planned timetable:</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Programme module type:</th>
<th>Compulsory for all Postgraduate Programmes except European Masters in Dependable Software Systems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning and teaching methods and delivery:</td>
<td><strong>Weekly contact:</strong> Lectures, seminars, tutorials and practical classes.</td>
</tr>
<tr>
<td>Assessment pattern:</td>
<td>Coursework = 100%</td>
</tr>
<tr>
<td>Module coordinator:</td>
<td><a href="mailto:dopgt-cs@st-andrews.ac.uk">dopgt-cs@st-andrews.ac.uk</a></td>
</tr>
</tbody>
</table>
**EITHER**

### CS5001 Object-Oriented Modelling, Design and Programming

<table>
<thead>
<tr>
<th>SCOTCAT Credits:</th>
<th>15</th>
<th>SCQF Level 11</th>
<th>Semester:</th>
<th>1</th>
</tr>
</thead>
</table>

**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.

**Programme module type:** Compulsory for Advanced Computer Science, Artificial Intelligence, Computer Communication Systems and Software Engineering Postgraduate Programmes, except when exempted following satisfactory performance in an assessment conducted by the school.
Compulsory for European Masters in Dependable Software Systems Postgraduate Programme
Either CS5001 or CS5002 is compulsory for Human Computer Interaction and Computing and Information Technology Postgraduate Programmes.
Optional for Data-Intensive Analysis, Information Technology and Management and Information Technology Postgraduate Programmes.

**Anti-requisite(s):** CS5002

**Required for:** CS5011, CS5022, CS5031, CS5052

**Learning and teaching methods and delivery:** Weekly contact: Lectures, tutorials and practical classes.

**Assessment pattern:** Coursework = 100%

**Module coordinator:** dopgt-cs@st-andrews.ac.uk

### OR

### CS5002 Programming Principles and Practice

<table>
<thead>
<tr>
<th>SCOTCAT Credits:</th>
<th>15</th>
<th>SCQF Level 11</th>
<th>Semester:</th>
<th>1</th>
</tr>
</thead>
</table>

**Planned timetable:** Variable

This module introduces computational thinking and problem solving skills to students who have no or little previous programming experience. It covers general programming concepts used in the development of software applications, such as data structures, functions, choice, iteration, recursion and input/output. An easy-to-learn programming language is used to illustrate these concepts, and programming skills are reinforced through practical assignments.

**Programme module type:** Either CS5001 or CS5002 is compulsory for Computing and Information Technology and Human Computer Interaction Postgraduate Programmes.
Optional for Data-Intensive Analysis, Information Technology and Management and Information Technology Postgraduate Programmes.

**Anti-requisite(s):** CS5001

**Required for:** CS5003

**Learning and teaching methods and delivery:** Weekly contact: Lectures, tutorials and practical classes.

**Assessment pattern:** Coursework = 100%

**Module coordinator:** dopgt-cs@st-andrews.ac.uk
CS5003 Masters Programming Projects

<table>
<thead>
<tr>
<th>SCOTCAT Credits:</th>
<th>15</th>
<th>SCQF Level 11</th>
<th>Semester:</th>
<th>2</th>
</tr>
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</table>

Planned timetable: Variable

This module reinforces key programming skills gained in CS5002, by means of a series of coursework assignments posed as small programming projects. These are designed to offer increasing depth and scope for creativity as the module progresses.


Pre-requisite(s): CS5002

Anti-requisite(s): ISS108

Learning and teaching methods and delivery: Weekly contact: Lectures, tutorials and practical classes.

Assessment pattern: Coursework = 100%

Module coordinator: dopgt-cs@st-andrews.ac.uk

One of:

CS5098 Group Project and Dissertation in Computer Science

<table>
<thead>
<tr>
<th>SCOTCAT Credits:</th>
<th>60</th>
<th>SCQF Level 11</th>
<th>Semester:</th>
<th>Summer</th>
</tr>
</thead>
</table>

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.

Programme module type: Either CS5099 or CS5098 is compulsory for the Advanced Computer Science, Artificial Intelligence, Data-Intensive Analysis, Human Computer Interaction, Computer Communication Systems and Software Engineering MSc

Pre-requisite(s): Admission to dissertation phase of MSc and permission of the Head of School

Anti-requisite(s): CS5099

Learning and teaching methods and delivery: Weekly contact: Meetings with supervisor.

Assessment pattern: Coursework = 100%

Module coordinator: dopgt-cs@st-andrews.ac.uk
### CS5099 Dissertation in Computer Science

<table>
<thead>
<tr>
<th>SCOTCAT Credits:</th>
<th>60</th>
<th>SCQF Level 11</th>
<th>Semester:</th>
<th>Summer</th>
</tr>
</thead>
</table>

**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.

**Programme module type:** Either CS5099 or CS5098 is compulsory for the Advanced Computer Science, Artificial Intelligence, Data-Intensive Analysis, Human Computer Interaction, Computer Communication Systems and Software Engineering MSc

**Pre-requisite(s):** Admission to dissertation phase of MSc and permission of the Head of School

**Anti-requisite(s):** CS5098

**Learning and teaching methods and delivery:** Weekly contact: Meeting with supervisor.

**Assessment pattern:** Coursework = 100%

**Module coordinator:** dopgt-CS@st-andrews.ac.uk

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### IS5198 Group Project and Dissertation in Information Technology

<table>
<thead>
<tr>
<th>SCOTCAT Credits:</th>
<th>60</th>
<th>SCQF Level 11</th>
<th>Semester:</th>
<th>Summer</th>
</tr>
</thead>
</table>

**Availability restrictions:**

**Planned timetable:** To be arranged.

This module is a group-based MSc project on an approved topic in Information Technology which shows appropriate competences in the field. 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, the development of a software system or skilled use of one or more applications, a critical analysis and evaluation of the project outputs. 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.

**Programme module type:** Either IS5198 or IS5199 is compulsory for the Information Technology MSc. One of: IS5198, IS5199, CS5198, CS5199 is compulsory for the Computing and Information Technology MSc

**Pre-requisite(s):** Admission to dissertation phase of MSc and the consent of the Head of School

**Anti-requisite(s):** IS5199

**Learning and teaching methods and delivery:** Weekly contact: Meeting with supervisor.

**Assessment pattern:** Coursework (Dissertation) = 100%

**Module coordinator:** dopgt-CS@st-andrews.ac.uk
**IS5199 Dissertation in Information Technology**

<table>
<thead>
<tr>
<th>SCOTCAT Credits:</th>
<th>60</th>
<th>SCQF Level 11</th>
<th>Semester:</th>
<th>Summer</th>
</tr>
</thead>
</table>

**Availability restrictions:**

**Planned timetable:** To be arranged.

This module is an individually supervised MSc project on an approved topic in Information Technology which shows appropriate competences in the field. The project 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, the development of a software system or skilled use of one or more applications, a critical analysis and evaluation of the project outputs. Students are required to give a presentation of their work.

**Programme module type:** Either IS5198 or IS5199 is compulsory for the Information Technology MSc. One of: IS5198, IS5199, CS5198, CS5199 is compulsory for the Computing and Information Technology MSc

**Pre-requisite(s):** Admission to dissertation phase of the MSc

**Anti-requisite(s):** IS5198

**Learning and teaching methods and delivery:**

Weekly contact: Meeting with supervisor

**Assessment pattern:** Coursework (Dissertation) = 100%

**Module coordinator:** dopgt-cs@st-andrews.ac.uk

Optional modules are available - see the pdf online called Computer Science - optional modules 2017 - 2018.