School of Computer Science & Statistics

MSc/PG. Dip. Computer Science

2018–2019

Data Science
Future Networked Systems
Augmented & Virtual Reality
Intelligent Systems
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Disclaimers:

The information contained in this document is intended to provide a guide to those seeking admission to the programme, and to the students on the course. Trinity College Dublin reserves the right to update or change syllabi, timetables, or other aspects of the programme at any time. Changes will be notified to current students by email.

In the event of any conflict or inconsistency between the General Regulations published in the University Calendar and information contained in this handbook, the provisions of the General Regulations in the Calendar will prevail.
1 Welcome

Dear Student,

Welcome to the MSc in Computer Science programme and to Trinity College, if this is your first time studying here. You are going to have the opportunity now to both immerse yourself in the culture and history of Ireland’s oldest University with its fantastic campus and student life as well as participate in one of Ireland’s newest and state-of-the-art courses.

Please take the time to read this document carefully. There is quite a lot of information in here, much of which we will summarise during the introductory sessions early in the first term, but it is nonetheless important that you familiarise yourself with the course details as early as possible.

We have enjoyed putting this course together and hope that, with your input and co-operation, we can work to make this one of the world’s top MSc programmes.

Yours sincerely,

Professor Donal O’Mahony
Course Director
2 Introduction

The MSc in Computer Science is an exciting new one-calendar-year programme aimed at excellent students who are keen to deepen their existing knowledge of computing. The expectation of graduates is that this course enables them to have rewarding careers in Computing or in a profession that has Computing or IT as a core component. This course is also a suitable preparation for PhD studies. The course allows students to specialize in one of four technical strands: Data Science, Future Networked Systems, Augmented & Virtual Reality and Intelligent Systems.

2.1 About the Strands

Each strand consists of a mix of core, specialist and optional modules, drawn from a shared pool of modules, to ensure breadth and depth of technical content. Students can expect to be at the leading edge of research associated with these strands.

Data Science or Big Data has become a hugely important topic in recent years finding applications in Healthcare, Finance, Transportation, Smart Cities and elsewhere. In this strand, Trinity’s leading experts in this field will guide you through how to gather and store data (using IoT and cloud computing technologies, process it (using advanced statistics and techniques such as machine learning) and deliver new insights and knowledge from the data.

The Augmented & Virtual Reality strand equips students with the theoretical and practical knowledge to enable them to participate in the design and development of the technology that underpins fast moving video game market as well as providing transferable skills relevant for careers in the wider industries of interactive entertainment, new media and communication. This strand is a modified version of the well-established and successful MSc in Interactive Entertainment Technology and is built on research expertise in the Trinity Centre for Creative Technologies. This Centre is based on a unique collaboration of Computer Science, Engineering, Drama and the Arts. The focus is on the creative technologies including film, interactive multimedia, games, and simulation.

Computer networking has transformed society over the past 20 years and is continuing to enable new advances from social networking through Internet-of-Things to Cloud computing. The Future Networked Systems strand builds on research activity within the CONNECT research centre and a long history of innovation and start-up companies at the school.

The Intelligent Systems strand focuses on smart, interactive web applications and systems, which are becoming an integral part of our daily lives - at home, in the workplace, and in social interaction. Designing and building these systems requires expertise in artificial intelligence, human language understanding and generation, web systems and applications, data analytics and knowledge engineering. This strand is closely linked to the school’s research groups involved in the ADAPT centre for Digital Content Technology.

For further information, please see the following link:
https://www.scss.tcd.ie/postgraduate/msc-cs/course-structure.php
2.2 Course Duration
The MSc programme commences in September of each year and runs for one full year until August of the following year. Each module runs only for a set number of weeks during the year and is not repeated. Thus, students can only be admitted to the course in September of each year.

2.3 Course Fees
For details of fees for this course, please go to:
http://www.tcd.ie/academicregistry/fees-payments/assets/world/PG%20Fees%20201718_v5.pdf

2.4 Entry Requirements
Other than in exceptional circumstances, applicants for the MSc programme should have an upper second-class honours degree, or better, in computing, information technology or another numerate discipline such as engineering, mathematics, statistics, or physics. In general, we expect all applicants to have substantial programming experience preferably, though not necessarily, including exposure to object-oriented programming (in a language such as C++ or Java). Some experience of concurrent (i.e., multi-threaded) programming and computer graphics programming would also be useful.

Please see the following link for information on entry requirements:
https://www.scss.tcd.ie/postgraduate/msc-cs/application.php
### 2.5 Course Calendar

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Postgraduate Induction organised by Graduate Students Union</td>
<td>27th-31st August, 2018</td>
</tr>
<tr>
<td>Course Induction Day</td>
<td>7th September, 2018</td>
</tr>
<tr>
<td>Start of Semester 1 Teaching (Michaelmas Term)</td>
<td>10th September, 2018</td>
</tr>
<tr>
<td>Semester 1 Reading Week</td>
<td>22nd October, 2018</td>
</tr>
<tr>
<td>End of Semester 1 Teaching</td>
<td>30th November, 2018</td>
</tr>
<tr>
<td>First Examination Session</td>
<td>10th-16th December, 2018</td>
</tr>
<tr>
<td>Start of Semester 2 Teaching (Hillary Term)</td>
<td>21st January, 2019</td>
</tr>
<tr>
<td>Dissertation Proposals Due</td>
<td>November, 2018 (TBC)</td>
</tr>
<tr>
<td>Semester 2 Reading Week</td>
<td>5th – 10th March, 2019</td>
</tr>
<tr>
<td>End of Semester 2</td>
<td>12th April, 2019</td>
</tr>
<tr>
<td>Second Examination Session</td>
<td>22nd-27th April, 2019</td>
</tr>
<tr>
<td>Dissertation State of the Art and Work plan Due</td>
<td>May, 2018 (TBC)</td>
</tr>
<tr>
<td>Dissertation Oral Exams</td>
<td>22nd July – 2nd August, 2019</td>
</tr>
<tr>
<td>Dissertation Submission Deadline</td>
<td>TBC 15th August, 2019 @ 3pm</td>
</tr>
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</table>

#### MSc Computer Science Year Structure 2018-19

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 27-Aug-18</td>
<td>Michaelmas Term Semester 1</td>
</tr>
<tr>
<td>2 3-Sep-18</td>
<td>Orientation Week</td>
</tr>
<tr>
<td>3 10-Sep-18</td>
<td>Teaching Week 1</td>
</tr>
<tr>
<td>4 17-Sep-18</td>
<td>Teaching Week 2</td>
</tr>
<tr>
<td>5 24-Sep-18</td>
<td>Teaching Week 3</td>
</tr>
<tr>
<td>6 1-Oct-18</td>
<td>Teaching Week 4</td>
</tr>
<tr>
<td>7 8-Oct-18</td>
<td>Teaching Week 5</td>
</tr>
<tr>
<td>8 15-Oct-18</td>
<td>Teaching Week 6</td>
</tr>
<tr>
<td>9 22-Oct-18</td>
<td>Study/Review Week</td>
</tr>
<tr>
<td>10 29-Oct-18</td>
<td></td>
</tr>
<tr>
<td>11 5-Nov-18</td>
<td>Teaching Week 7</td>
</tr>
<tr>
<td>12 12-Nov-18</td>
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</tr>
<tr>
<td>13 19-Nov-18</td>
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</tr>
<tr>
<td>14 26-Nov-18</td>
<td>Teaching Week 11</td>
</tr>
<tr>
<td>15 3-Dec-18</td>
<td>Revision Week</td>
</tr>
<tr>
<td>16 10-Dec-18</td>
<td></td>
</tr>
<tr>
<td>17 17-Dec-18</td>
<td>Christmas Period</td>
</tr>
<tr>
<td>18 24-Dec-18</td>
<td>Christmas Period</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>31-Dec-19</td>
<td>Christmas Period</td>
</tr>
<tr>
<td>7-Jan-19</td>
<td>Schol Exams</td>
</tr>
<tr>
<td>14-Jan-19</td>
<td>Marking/Results Week</td>
</tr>
<tr>
<td>21-Jan-19</td>
<td>Teaching Week 1</td>
</tr>
<tr>
<td>28-Jan-19</td>
<td>Teaching Week 2</td>
</tr>
<tr>
<td>4-Feb-19</td>
<td>Teaching Week 3</td>
</tr>
<tr>
<td>11-Feb-19</td>
<td>Teaching Week 4</td>
</tr>
<tr>
<td>18-Feb-19</td>
<td>Teaching Week 5</td>
</tr>
<tr>
<td>25-Feb-19</td>
<td>Teaching Week 6</td>
</tr>
<tr>
<td>4-Mar-19</td>
<td>Study/Review Week</td>
</tr>
<tr>
<td>11-Mar-19</td>
<td>Teaching Week 7</td>
</tr>
<tr>
<td>18-Mar-19</td>
<td>Teaching Week 8</td>
</tr>
<tr>
<td>25-Mar-19</td>
<td>Teaching Week 9</td>
</tr>
<tr>
<td>1-Apr-19</td>
<td>Teaching Week 10</td>
</tr>
<tr>
<td>8-Apr-19</td>
<td>Teaching Week 11</td>
</tr>
<tr>
<td>15-Apr-19</td>
<td>Revision Week</td>
</tr>
<tr>
<td>22-Apr-19</td>
<td>Assessment Week</td>
</tr>
<tr>
<td>29-Apr-19</td>
<td>Trinity Week</td>
</tr>
<tr>
<td>6-May-19</td>
<td>Marking/Results 3 Weeks</td>
</tr>
<tr>
<td>13-May-19</td>
<td>Marking/Results 3 Weeks</td>
</tr>
<tr>
<td>20-May-19</td>
<td>Marking/Results 3 Weeks</td>
</tr>
<tr>
<td>27-May-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>3-Jun-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>10-Jun-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>17-Jun-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>24-Jun-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>1-Jul-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>8-Jul-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>15-Jul-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>22-Jul-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>29-Jul-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>5-Aug-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>12-Aug-19</td>
<td>Research - 13 weeks</td>
</tr>
<tr>
<td>19-Aug-19</td>
<td>Research - 13 weeks</td>
</tr>
</tbody>
</table>
**Course Structure and Modules**

The MSc in Computer Science programme takes one calendar year to complete. In the first two semesters, students take a range of taught modules, and then from April to August work full-time on their individual dissertations. All students take a set of core modules and also specialise in one of four strands: Data Science, Future Networked Systems, Augmented & Virtual Reality and Intelligent Systems.

### Data Science Strand Modules

**1st Sem. (Sept-Dec)**
- Machine Learning
- Data Analytics
- Research Methods
- Innovation
- Scalable Computing

**2nd Sem. (Jan-March)**
- Optimisation Algorithms for Data Analysis
- Applied Statistical Modelling
- Data Visualisation
- Security & Privacy
- Option 1

**3rd Sem. (April-August)**
- Dissertation

Option 1 and Option 2 are elective modules selected from the other strands.

### Future Networked Systems Strand Modules

**Michaelmas Term (Sept-Dec)**
- Machine Learning
- NS Elective 1
- Research Methods
- Innovation
- Scalable Computing

**Hilary Term (Jan-March)**
- Urban Computing
- Security & Privacy
- Advanced Software Engineering
- Distributed Systems
- Option 2

**Summer Term (April-August)**
- Dissertation
Option 1
The NS Elective is selected from: Internet of Things or Next Generation Networks. Option 1 and Option 2 are elective modules selected from the other strands.

**Augmented & Virtual Reality Strand Module Summary**

<table>
<thead>
<tr>
<th>Michaelmas Term (Sept-Dec)</th>
<th>Hilary Term (Jan-March)</th>
<th>Summer Term (April-August)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Learning</td>
<td>Real-time Rendering</td>
<td>Dissertation</td>
</tr>
<tr>
<td>Research Methods</td>
<td>Augmented Reality</td>
<td></td>
</tr>
<tr>
<td>Innovation</td>
<td>Real-time Animation</td>
<td></td>
</tr>
<tr>
<td>Computer Vision</td>
<td>Advanced Software Engine</td>
<td></td>
</tr>
<tr>
<td>Computer Graphics*</td>
<td>Option 2</td>
<td></td>
</tr>
<tr>
<td>Mathematics of Light &amp; Sound</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Computer Graphics is mandatory for all AVR students, but students who can demonstrate that they have covered this material elsewhere may choose an option from other strands.

Option 2 is an elective module selected from the other strands and students can also choose EE5C1 Digital Media Systems.

**Intelligent Systems Strand Module Summary**

<table>
<thead>
<tr>
<th>Michaelmas Term (Sept-Dec)</th>
<th>Hilary Term (Jan-March)</th>
<th>Summer Term (April-August)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Learning</td>
<td>Text Analytics</td>
<td>Dissertation</td>
</tr>
<tr>
<td>Information Retrieval &amp; Web Search</td>
<td>Artificial Intelligence</td>
<td></td>
</tr>
<tr>
<td>Knowledge &amp; Data Engineering</td>
<td>Adaptive Applications</td>
<td></td>
</tr>
<tr>
<td>Research Methods</td>
<td>Advanced Software Engine</td>
<td></td>
</tr>
<tr>
<td>Innovation</td>
<td>Option 2</td>
<td></td>
</tr>
</tbody>
</table>

Option 1 and Option 2 are elective modules selected from the other strands.

### 2.7 Module Descriptors

#### 2.7.1 ECTS
The ECTS, or European Credit Transfer System, is a standardised measure of effort associated with modules in educational programmes across the European Union.
The ECTS weighting for a module is a measure of the student input or workload required for that module, based on factors such as the number of contact hours, the number and length of written or verbally presented assessment exercises, class preparation and private study time, laboratory classes, examinations, clinical attendance, professional training placements, and so on as appropriate. There is no intrinsic relationship between the credit volume of a module and its level of difficulty. 1 credit represents 20-25 hours estimated student input, so a 10-credit module will be designed to require 200-250 hours of student input including class contact time, assessments and examinations. ECTS credits are awarded to a student only upon successful completion of the programme year.

### 2.7.2 Option Selection

Please note that if there are insufficient numbers of students selecting a module, that module may be withdrawn.

### 2.8 Modules

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Name</th>
<th>ECTS</th>
<th>Semester</th>
<th>Link</th>
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</thead>
<tbody>
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<td>CS7CS1</td>
<td>Research Methods</td>
<td>5</td>
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</tr>
<tr>
<td>CS7CS2</td>
<td>Innovation</td>
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<td><a href="https://www.scss.tcd.ie/modules/?m=CS7CS2">https://www.scss.tcd.ie/modules/?m=CS7CS2</a></td>
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<tr>
<td>CS7CS4</td>
<td>Machine Learning</td>
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<tr>
<td>CS7CS3</td>
<td>Advanced Software Engineering</td>
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<td><a href="https://www.scss.tcd.ie/modules/?m=CS7CS3">https://www.scss.tcd.ie/modules/?m=CS7CS3</a></td>
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<tr>
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<td><strong>Data Science</strong></td>
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<tr>
<td>CS7DS1</td>
<td>Data Analytics</td>
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<td>CS7DS2</td>
<td>Optimisation Algorithms for Data Analysis</td>
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<td>2</td>
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</tr>
<tr>
<td>CS7DS3</td>
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</tr>
<tr>
<td></td>
<td><strong>Augmented &amp; Virtual Reality</strong></td>
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<tr>
<td>CS7GV1</td>
<td>Computer Vision</td>
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</tr>
<tr>
<td>CS7GV2</td>
<td>Mathematics of Light and Sound</td>
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<td>1</td>
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</tr>
<tr>
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<td>2</td>
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</tr>
<tr>
<td>CS7GV5</td>
<td>Real-time Animation</td>
<td>5</td>
<td>2</td>
<td><a href="https://www.scss.tcd.ie/modules/?m=CS7GV5">https://www.scss.tcd.ie/modules/?m=CS7GV5</a></td>
</tr>
</tbody>
</table>

**Intelligent Systems**

| CS7IS1 | Knowledge and Data Engineering | 5 | 1 | https://www.scss.tcd.ie/modules/?m=CS7IS1 |
| CS7IS2 | Artificial Intelligence | 5 | 2 | https://www.scss.tcd.ie/modules/?m=CS7IS2 |
| CS7IS3 | Information Retrieval & Web Search | 5 | 1 | https://www.scss.tcd.ie/modules/?m=CS7IS3 |
| CS7IS4 | Text Analytics | 5 | 2 | https://www.scss.tcd.ie/modules/?m=CS7IS4 |
| CS7IS5 | Adaptive Applications | 5 | 2 | https://www.scss.tcd.ie/modules/?m=CS7IS5 |

**Future Networks Systems**

| CS7NS1 | Scalable Computing | 5 | 1 | https://www.scss.tcd.ie/modules/?m=CS7NS1 |
| CS7NS2 | Internet of Things | 5 | 1 | https://www.scss.tcd.ie/modules/?m=CS7NS2 |
| CS7NS3 | Next Generation Networks | 5 | 1 | https://www.scss.tcd.ie/modules/?m=CS7NS3 |
| CS7NS4 | Urban Computing | 5 | 2 | https://www.scss.tcd.ie/modules/?m=CS7NS4 |
| CS7NS5 | Security and Privacy | 5 | 2 | https://www.scss.tcd.ie/modules/?m=CS7NS5 |
| CS7NS6 | Distributed Systems | 5 | 2 | https://www.scss.tcd.ie/modules/?m=CS7NS6 |

**Additional Modules for Augmented & Virtual Reality**
### Additional Modules for Intelligent Systems

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title</th>
<th>Credits</th>
<th>Year</th>
<th>Module Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI7870</td>
<td>Advanced Syntactic Theory</td>
<td>10</td>
<td>2</td>
<td>See Linguistics: <a href="http://www.tcd.ie/slscs/">http://www.tcd.ie/slscs/</a></td>
</tr>
</tbody>
</table>

#### 2.9 Research Dissertation

The dissertation represents the most significant component of the MSc programme. Students will take on a substantial piece of work worth 30 ECTS and are expected to work part-time during teaching term and full-time over the summer on the dissertation project. The workload for this 30 ECTS module is estimated to be about 600-750 hours.

**2.9.1 Oral Examination**

An oral exam will be held for each student submitting a dissertation. The oral exam will be held prior to the submission date of the final written dissertation report and will be attended by two examiners. Other members of academic staff and postgraduate students may also be invited to attend the oral examination. This exam is not explicitly marked but rather serves as a means of introducing examiners to the content of the dissertation before reading it and affording them the opportunity to ask questions relating to the work.

**2.9.2 Ethical Approval**

Any research project that involves human participation conducted through this course (for example, a questionnaire or survey, or system user-evaluation, etc.) must have independent review by a Research Ethics Committee before its commencement.

Individual applications are considered on their own merits. A basic principle is that prospective participants should be fully informed about the research and its implications for them as participants, with time to reflect on the possibility for participation prior to being asked to sign an informed consent form. Informing prospective participants fully includes declaring potential conflicts of interest that the researcher may have in conducting the research, detailing how participants may withdraw data associated with their participation from further analysis within the study, explaining the preservation of their anonymity within the study, warning them about potential consequences of discovery during the study of issues that would necessarily have precedence over assurances of anonymity, and so on.
Application forms, with guidelines, can be found here: https://www.scss.tcd.ie/postgraduate/ethics/

The Research Ethics Committee will consider each application and normally provide a response within two weeks but not more than one month later.

**It takes time to prepare an application for research ethics approval, to have the application considered, and to respond to feedback on the application where issues are raised. You should plan in your work for the time it takes to obtain research ethics approval.**

To apply for research ethics approval, email your application to research-ethics@scss.tcd.ie. You will **not** receive an automated acknowledgement that your application has been received (therefore, you can be certain that when you receive mail about your application, it has been addressed).

Applications must be reviewed and signed by your Supervisor. This confirms that the application is complete not that it has ethical approval. Unsigned or incomplete forms will be returned and may incur delays.

**Retrospective approval will not be granted.**

Research conducted in the School should comply with the TCD Guidelines for Good Research Practice.

http://www.tcd.ie/about/policies/assets/pdf/TCDGoodResearchPractice.pdf

### 2.9.3 College Regulations

Students should read the college regulations in the TCD Calendar, Part III, Section I, page 27, referring to the submission of Theses and Dissertations in TCD. Specific guidelines for the MSc Computer Science are provided in the Appendices of this handbook.

### 2.10 Attendance Requirements

Graduate students on taught courses must normally attend College whenever instruction is scheduled for the course. Students must take part fully in the academic work of their class throughout the period of their course. The onus lies on students to inform themselves of the dates, times and venues of their lectures and other forms of teaching by consulting these timetables. This includes the research period, which takes place during the summer months.
3 Assessment

Assessment regulations for the MSc in Computer Science programme are stated in the TCD Calendar Part III [http://www.tcd.ie/calendar](http://www.tcd.ie/calendar) (Assessment section under School of Computer Science and Statistics) which all students must familiarize themselves with.

The information below provides detail that is more specific for the MSc in Computer Science.

### 3.1 Examinations

Modules undertaken in the 1st semester are examined at the end of the semester as specified in the course calendar above. Modules for the 2nd semester are examined in the annual examination period as specified in the course calendar above. In general the pass mark is 50% and the distinction level is 70%.

### 3.2 Qualifications Achieved

The detailed regulations for this course are set out in Part III of the University Calendar - see link above.

Students who clear the taught component of the course ON THE FIRST SITTING – will be permitted to PROCEED TO DISSERTATION and will work full-time on that dissertation in the 3rd Semester, submitting in August. If they clear the dissertation, they are eligible for the award of MSc in Computer Science.

Students who fail to clear the taught component of the course ON THE FIRST SITTING will not be permitted to continue with their dissertation, but may undertake supplemental examinations and, if successful, be awarded a Postgraduate Diploma in Computer Science.

Both the MSc and PGDip are defined as Level 9 qualifications according to the Irish National Framework for Qualifications NFQ ([http://www.nfq-qqi.com/](http://www.nfq-qqi.com/)).

### 3.3 Individual Work and Plagiarism

It is important to highlight that all work submitted must be your own, and not taken directly from the internet or other sources. The College takes plagiarism seriously. The College regulations governing plagiarism in the college calendar and are copied in Appendix 5. You are expected to be familiar with these rules and to understand what is considered plagiarism.

Before beginning your first assignment, you must complete the online tutorial on avoiding plagiarism ‘Ready, Steady, Write’, located at [https://www.tcd.ie/library/support/plagiarism/story_html5.html](https://www.tcd.ie/library/support/plagiarism/story_html5.html). You are also encouraged to use the College Library’s repository of resources on plagiarism and its avoidance at [https://www.tcd.ie/library/support/plagiarism/story_html5.html](https://www.tcd.ie/library/support/plagiarism/story_html5.html).

In the case of group work, groups should establish some mechanism to ensure that no member engages in plagiarism. Do not sign the Group Assignment Declaration if you have not assured yourself that the whole assignment is original.

We reserve the right to use plagiarism detection technology to investigate suspicions of plagiarism and your work may be submitted to such software to assist in detection.
3.4 Court of Examiners

The Court of Examiners is chaired by the Director of Teaching & Learning (Postgraduate) and is comprised of the Course Director, External Examiner, Course Lecturers and Dissertation Supervisors.

There are two formal meetings of the Court of Examiners each year. The first meeting takes place following student annual examinations in May. The second meeting takes place in October following submission of student dissertations.

Results from the Court of Examiners are published via my.tcd.ie

3.5 Absence from Examinations

Postgraduate students who consider that illness may prevent them from attending an examination (or any part thereof) should consult their medical advisor and request a medical certificate for an appropriate period. If a certificate is granted, it must be presented to the student’s Course Coordinator/Director within three days of the beginning of the period of absence from the examination. Such medical certificates must state that the student is unfit to sit examinations. Medical certificates will not be accepted in explanation for poor performance; where an examination has been completed, subsequent withdrawal is not permitted. Further details of procedures subsequent to the submission of medical certificates are available in course handbooks or from Course Co-ordinators/Directors.

Postgraduate students who consider that other grave cause beyond their control may prevent them from attending an examination (or any part thereof) must consult and inform their Course Coordinator/Director. The Course Co-ordinator/Director will then make representations to the Dean of Graduate Studies requesting that permission be granted for absence from the examination.

The acceptance of medical disability is entirely at the discretion of the Dean of Graduate Studies, who may ask for a report from the medical officers in charge of the Student Health Service. The report will be strictly confidential to the Dean of Graduate Studies.

Reference: Calendar Part III. Sec. III: https://www.tcd.ie/calendar/graduate-studies-higher-degrees/complete-part-III-hl.pdf
4 Course Staff

The course is run by the School of Computer Science and Statistics. In the event of any queries, relating to the course, the administration or the facilities you should contact the Teaching Unit and/or the course director. For any specific queries, relating to module content or courseware you should contact the lecturer responsible directly.

4.1 Course Director

Professor Donal O’Mahony
Location: Oriel.3.10
Tel: +353 1 896 8445
Email: Donal.OMahony@cs.tcd.ie

4.2 Strand Coordinators

Each course strand has an academic responsible for the coherence and running of the strand. These are as follows:

<table>
<thead>
<tr>
<th>Strand</th>
<th>Strand Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Science</td>
<td>Dr. Bernardo Nipoti</td>
</tr>
<tr>
<td></td>
<td>(<a href="mailto:Bernardo.Nipoti@scss.tcd.ie">Bernardo.Nipoti@scss.tcd.ie</a>            )</td>
</tr>
<tr>
<td>Intelligent Systems</td>
<td>Dr. Seamus Lawless</td>
</tr>
<tr>
<td></td>
<td>(<a href="mailto:Seamus.Lawless@scss.tcd.ie">Seamus.Lawless@scss.tcd.ie</a>             )</td>
</tr>
<tr>
<td>Future Networked Systems</td>
<td>Dr. Melanie Bouroche</td>
</tr>
<tr>
<td></td>
<td>(<a href="mailto:Melanie.Bouroche@scss.tcd.ie">Melanie.Bouroche@scss.tcd.ie</a>           )</td>
</tr>
<tr>
<td>Augmented &amp; Virtual Reality</td>
<td>Dr. Michael Manzke</td>
</tr>
<tr>
<td></td>
<td>(<a href="mailto:Michael.Manzke@scss.tcd.ie">Michael.Manzke@scss.tcd.ie</a>             )</td>
</tr>
</tbody>
</table>

4.3 Course Administration

Course Administrator
Sarah-Jade Evenden

F.10, O’Reilly Institute
School of Computer Science & Statistics
Trinity College
Dublin 2
Tel: +353 1 896 1765
Email: postgraduate@scss.tcd.ie

4.4 Other Key School Personnel

Associate Director for Teaching and Learning (Responsible for Taught Programmes)
Dr. John Dingliana
Email: John.Dingliana@tcd.ie

Director for Teaching and Learning (Postgraduate)
Prof. Owen Conlan
Email: Owen.Conlan@scss.tcd.ie

Head of School
Prof. Carol O’Sullivan
Email: Carol.OSullivan@scss.tcd.ie
4.5 External Examiner

The External Examiner is the independent academic, nominated by the college and is responsible for reviewing the course contents and for ensuring the appropriate quality levels across modules, coursework, exams and dissertations. The current External Examiner is Prof. Jon Crowcroft from Cambridge University.

4.6 Course Committee

A course committee, consisting of the course director, course administrator, executive officer, student representative and 4 other members of academic staff, is responsible for the continued development of the program. The committee meets at least twice every academic year to review programme content and delivery, monitor student intake and report annually to the Postgraduate Teaching and Learning Committee. The current members of the committee are as follows:

<table>
<thead>
<tr>
<th>MSc in Computer Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Director (Chair)</td>
</tr>
<tr>
<td>Director of Teaching &amp; Learning (Postgraduate)</td>
</tr>
<tr>
<td>Committee Representative 1</td>
</tr>
<tr>
<td>Committee Representative 2</td>
</tr>
<tr>
<td>Committee Representative 3</td>
</tr>
<tr>
<td>Committee Representative 4</td>
</tr>
<tr>
<td>Committee Representative 5 (External)</td>
</tr>
<tr>
<td>Student Representative</td>
</tr>
<tr>
<td>Course Executive Officer (Committee Secretary)</td>
</tr>
</tbody>
</table>

4.7 Dissertation Supervisors

An important component of the MSc programme is the completion of an independent dissertation on a research subject of your choosing. Each student has a supervisor to guide them through their dissertation and to assist with any difficulties the student might face. Supervisors (and dissertation topics) are chosen prior to the end of teaching week 10. A list of topics will be provided, but students are also encouraged to propose their own topics, which will be assessed for suitability by the course director.

Supervisors for the MSc dissertation are normally chosen from the School’s lecturing staff. Although in most cases supervision is performed by lecturers who teach on the MSc, supervisors or co-supervisors may also be included from outside of the course lecturing staff. A full list of academic staff in the School Computer Science and Statistics qualified to supervise MSc projects is available at https://studentprojects.scss.tcd.ie/.

5 Computer Facilities

Note that the Information System Services (ISS) Department looks after the computer facilities in the college as a whole. The School of Computer Science and Statistics also has a local computer support group that serves its specialised needs. ISS also look after your connection from home https://www.tcd.ie/itservices/.

When you register in college, you are given a username and password. This has been allocated to you by ISS. The Computer Science system administrators get a copy of these details and set up a local account for you in addition to your college wide identity. This account will have the same username and password that was given to you at registration.
Once you have your Computer Science account you can use the computers in the School of Computer Science Statistics. You will also be able to use labs and computers outside of the school. Labs that are non-computer science are known as Public Access Labs. With each of these accounts (the ISS and CS accounts), you will receive a storage space allocation which you can use to store your files. This storage is backed up and should be used for all-important files. To access this storage you will use a drive (often the U: drive on PCs). You will be shown this during a lab session early in the first term. It is also highly recommended that you purchase a USB drive for your own personal use and to ensure you make backups of all-important files on this USB drive. All machines in the College network are subject to periodic wiping and reformatting (note this does not apply to files stored in your CS or ISS account space), so make sure not to rely on storage other than your account storage or your own USB drive.

To see where the Public Access Labs are located within college go to https://www.tcd.ie/itservices/facilities/kb/map.php

For a full set of policies and rules & regulations, relating to the use of College IT facilitates please visit the IS Services policy pages at: http://www.tcd.ie/itservices/general/policies.php

5.1 Email

Note that you will have email accounts provided by IT Services (username@tcd.ie). Important messages, including formal course related announcements, may be sent to this account, so you must ensure that you regularly check your email at this address.

Full details on the college Information Systems support are available at http://www.tcd.ie/itservices/.

5.2 Wireless LAN

There are a number of WIFI networks operating within the College Campus. For further information on registration for wireless access across college please visit the IS Services website at: http://www.tcd.ie/itservices/network/tcdconnect.php

A more dedicated service albeit with more limited coverage is provided specifically for Postgraduates in the School of computer Science and Statistics. See: https://support.scss.tcd.ie/COMPSCIwireless2 (login required).

5.3 Gamelab

The Gamelab located in Lab G37 in the ground floor of the O’Reilly Building is a lab provided for use by students of the MSc Programme. The Gamelab is comprised of high-performance work-stations for students on the course as well as group-work facilities including projectors and discussion areas. The lab has full network access for student laptops. A projection system and wide-screen display with Dolby 5.1 surround audio system is provided for lectures, student presentations and courseware demonstrations.

5.3.1 Student Owned Equipment

You are encouraged to own a laptop and to use this as desired within the lab however this is not a requirement. Much of the software used during the course is available, free of charge, either online or from the School of Computer Science and Statistics. Contact the course director for any further information regarding gaining access to this software.
It is also strongly encouraged that you make your own personal backups of any important files or data. Make sure not to leave any personal belongings in the lab after you leave. The College will not be liable for any loss or damage to personal belongings or data stored on college owned machines.

5.4 Course Website

The Course website is located at https://www.scss.tcd.ie/postgraduate/msc-cs/ and is publicly accessible. The website contains up to date information about course contents, the course timetable and important dates, and also includes a news section.

During the course of the year, you may also be required to work with restricted access pages, which you should be able to access with your CS or TCD username.

5.5 School of Computer Science and Statistics Resources

Hardware and software support for lab machines related to the MSc programme is provided by the School. In all cases, you can email help@scss.tcd.ie. The TCD helpdesk (helpdesk@tcd.ie) also provides student IT support for machines and networks provided to the college at large.

For details see: http://support.scss.tcd.ie/

The School of Computer Science and Statistics subscribes to the Microsoft Developer Network Academic Alliance: MSDNAA. This gives us access to a wide range of software, which can be downloaded, freely for use during your studies. You can access this via https://msdn60.e-academy.com/mandnaa_qh6799/index.cfm?loc=main

Additionally, student licenses for a range of Microsoft software is available through the DreamSpark Program: https://www.dreamspark.com/

6 Useful Information

6.1 Map of Trinity College

The map in Figure 11 shows the Trinity College campus and the locations of the main buildings. For other maps of TCD see: http://www.tcd.ie/Maps/
6.2 Campus Facilities

Some of the facilities that you will be required to use during your studies on the MSc are listed below:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GameLab / LG37</td>
<td>O’Reilly Building LG.37 lab, the GameLab, is located on the ground floor of the O’Reilly Building and is accessed via the door on the outside of the building (you will need to use your student card to gain access).</td>
</tr>
<tr>
<td>Lloyd Building LB 01-08, LB107 / LB120</td>
<td>Lecture Halls 1-8 are located on the basement floor of the Lloyd Building. Seminar rooms 1.07 and 1.20 are on the 1st floor.</td>
</tr>
<tr>
<td>LCR</td>
<td>O’Reilly Building Large Conference Room, located on the main floor (1st) of the O’Reilly Building directly opposite the Computer Science reception desk.</td>
</tr>
<tr>
<td>Hamilton Building</td>
<td>The Hamilton building houses the main technical library and a number of lecture halls that may occasionally be used by students.</td>
</tr>
<tr>
<td>Phoenix House, South Leinster Street</td>
<td>This facility on the 4th Floor of Phoenix house was prepared as the primary learning space for the course and houses labs of workstations, group meeting spaces and special equipment room and a lecture theatre for small modules.</td>
</tr>
</tbody>
</table>
6.3 Swipe Card Access

Your student ID card acts as a door access card and the locations for which you should have access are encoded with the card on registration. There can be administrative errors in this assignment which may result in you not having access to a required room. In such cases please contact the associated lecturer responsible or contact the course director and the card can be quickly updated. The update process does not require handing in your card.

REMEMBER: YOU MUST NEVER ALLOW ANY UNAUTHORISED PERSONNEL INTO ANY BUILDING ON CAMPUS WITH YOUR SWIPE CARD OR ACCESS CODE.

6.4 Graduate Students Union

Located on the second floor of House Six, the Graduate Students' Union is an independent body within College that represents postgraduate students throughout College. Upon registration, all postgraduates are automatically members. It is run by two full-time sabbatical officers; this year they are the President, Shane Collins, and the Vice-President, Madhav Bhargav. As the head and public face of the Union, Shane is responsible for strategy and policy formulation, whilst sitting on a wide range of committees. Madhav is the Union's Education and Welfare Officer and advises students on matters such as academic appeals and supervisor relationships. He is also here to help on more personal matters, such as financial concerns, illness and bereavement. Any discussions about such concerns are treated with the strictest confidentiality. Contact us at either: president@tcdgsu.ie or vicepresident@tcdgsu.ie

6.5 Postgraduate Advisory Service

The Postgraduate Advisory Service is a unique and confidential service available to all registered postgraduate students in Trinity College. It offers a comprehensive range of academic, pastoral and professional supports dedicated to enhancing your student experience.

Who?
The Postgraduate Advisory Service is led by the Postgraduate Support Officer who provides frontline support for all Postgraduate students in Trinity. The Postgrad Support Officer will act as your first point of contact and a source of support and guidance regardless of what stage of your Postgrad you’re at. In addition, each Faculty has three members of Academic staff appointed as Postgraduate Advisors who you can be referred to by the Postgrad Support Officer for extra assistance if needed.

Contact details of the Postgrad Support Officer and the Advisory Panel are available on our website: https://www.tcd.ie/Senior_Tutor/postgraduateadvisory/

Where?
The PAS is located on the second floor of House 27. We are open from 8.30 – 4.30, Monday to Friday. Appointments are available from 9am to 4pm.
Phone: 8961417
Email: pgsupp@tcd.ie

What?
The PAS exists to ensure that all Postgrad students have a contact point who they can turn to for support and information on college services and academic issues arising. Representation assistance to Postgrad students is offered in the area of discipline and/ or academic appeals arising out of examinations or thesis submissions, supervisory issues, general information on Postgrad student life and many others. If in doubt, get in touch! All queries will be treated with confidentiality. For more information on what we offer, see our website.

If you have, any queries regarding your experiences as a Postgraduate Student in Trinity do not hesitate to get in touch with us.

6.6 Other University Policies and Regulations

The following are links to some key University regulations, policies and procedures

- A comprehensive listing of Academic Policies is available at: http://www.tcd.ie/teaching-learning/academic-policies/
- Student Complaints Procedure: https://www.tcd.ie/about/policies/160722_Student%20Complaints%20Procedure_PUB.pdf
- Dignity and Respect Policy: https://www.tcd.ie/equality/policy/dignity-respect-policy/

6.7 Emergency Procedure

In the event of an emergency, dial Security Services on extension 1999.

Security Services provide a 24-hour service to the college community, 365 days a year. They are the liaison to the Fire, Garda and Ambulance services and all staff and students are advised to always telephone extension 1999 (+353 1 896 1999) in case of an emergency.

Should you require any emergency or rescue services on campus, you must contact Security Services. This includes chemical spills, personal injury or first aid assistance.

It is recommended that all students save at least one emergency contact in their phone under ICE (In Case of Emergency).
Appendix 1: Useful Web links

There are many useful sites in TCD. Here are a number of them. If you find any other, TCD links that you think would be useful for the class please e-mail the Teaching Unit (teaching-unit@scss.tcd.ie).

<table>
<thead>
<tr>
<th>Site</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Website</td>
<td><a href="https://www.scss.tcd.ie/postgraduate/msc-cs/">https://www.scss.tcd.ie/postgraduate/msc-cs/</a></td>
</tr>
<tr>
<td>TCD Website</td>
<td><a href="http://www.tcd.ie">http://www.tcd.ie</a></td>
</tr>
<tr>
<td>TCD Maps</td>
<td><a href="http://www.tcd.ie/maps">http://www.tcd.ie/maps</a></td>
</tr>
<tr>
<td>Library</td>
<td><a href="http://www.tcd.ie/library">http://www.tcd.ie/library</a></td>
</tr>
<tr>
<td>Information System Services</td>
<td><a href="http://www.tcd.ie/students/supports-services/">http://www.tcd.ie/students/supports-services/</a></td>
</tr>
<tr>
<td>Graduate Studies</td>
<td><a href="http://www.tcd.ie/IGraduate_Studies">http://www.tcd.ie/IGraduate_Studies</a></td>
</tr>
<tr>
<td>Student Counselling</td>
<td><a href="http://www.tcd.ie/Student_Counselling/">http://www.tcd.ie/Student_Counselling/</a></td>
</tr>
<tr>
<td>School of Computer Science and Statistics</td>
<td><a href="http://www.scss.tcd.ie">http://www.scss.tcd.ie</a></td>
</tr>
<tr>
<td>Course Timetable</td>
<td><a href="https://www.scss.tcd.ie/postgraduate/timetables/">https://www.scss.tcd.ie/postgraduate/timetables/</a></td>
</tr>
<tr>
<td>People finder</td>
<td><a href="http://peoplefinder.tcd.ie">http://peoplefinder.tcd.ie</a></td>
</tr>
<tr>
<td>Graduate Students Union</td>
<td><a href="https://www.tcdgsu.ie/">https://www.tcdgsu.ie/</a></td>
</tr>
<tr>
<td>Global Relations</td>
<td><a href="http://www.tcd.ie/globalrelations/">http://www.tcd.ie/globalrelations/</a></td>
</tr>
<tr>
<td>General Listing of Student Services</td>
<td><a href="http://www.tcd.ie/students/supports-services/">http://www.tcd.ie/students/supports-services/</a></td>
</tr>
</tbody>
</table>

Extra-Curricular Activities:

| TCD Societies                          | http://trinitysocieties.ie/                           |
| TCD Sports Clubs                      | http://www.tcd.ie/Sport/student-sport/clubs/          |
Appendix 2: Examination sheets for MSc dissertation

M.Sc. in Computer Science
CS7CS5 – M.Sc. Dissertation (30 ECTS)
Supervisors/2nd Reader Report

Project title:
___________________________________________________________________

Student name: _______________________  Student number: ______________________

Supervisor: _______________________  Second Reader: ______________________

Project Execution

(a) What were the scope and aims of the project?

Mention whether the project was part of a larger body of work, such as a group or continuation project, or was carried out in collaboration with industry.

(b) What are the main achievements/results/conclusions of the project?

Comment on the extent to which any results and conclusions have been objectively evaluated.

(c) What, if any, were the creative/innovative aspects of the project?

(d) What were the major technical difficulties encountered?

Comment on the appropriateness of the solutions, if any, offered.
(e) Mention any difficulties that may have adversely affected the project in a significant way.
Include both difficulties beyond the students control such as equipment unavailability or personal issues, and other factors in the students’ work, such as a poor workplan, etc.

Dissertation

(a) Does the dissertation accurately describe the achievements and execution of the project?

(b) Does the dissertation:
- motivate the goals of the project and explain the context for the work?
- state the achievements of the project and any specific results or conclusions reached?
- describe both the state of the art in the area of the project and relevant related work?
- describe the execution of the project clearly (i.e., any design and/or implementation work carried out)?
- describe the evaluation of the project results?

(c) Is the work immediately suitable for publication in a conference or journal? If so, suggest which.
Yes [ ] No [ ]

(d) Assess the clarity and readability of the dissertation.
Comment on the structure and organisation of the report, the relevance of sections, the clarity of expression, the use of diagrams/tables/graphs, etc.
(e) Are all sources used properly acknowledged (e.g., by citation)?
Comment on the quality of references used.

(f) Note any points that emerged from the demonstration that were not adequately covered in the dissertation.

Signed: ______________________________
Appendix 3: Submission of MSc Dissertations

Process to follow when submitting your dissertation:

Step 1. Print off (at least) two copies of your dissertation and send them to the binder. You are required to submit one hardbound and one soft bound copy of your dissertation.

Step 2. Print off two copies of the single A4 page abstract of your dissertation, which should include your name, full title of degree, dissertation title, supervisor’s name, year, text of abstract.

Step 3. Electronic versions of the dissertations should be submitted using the online dissertation submission form. When you know your SCSS password, upload your dissertation and abstract as separate PDF files by clicking on the link "Upload Dissertation" on the webpage https://www.scss.tcd.ie/publications/theses/diss/

For this, you will need the password of your computer account on School of Computer Science and Statistics (SCSS) machines. Note that this is not necessarily the same password you use for college computer services provided by IS Services. If you have trouble accessing the above page, please contact help@scss.tcd.ie.

- Upload your dissertation as a single PDF file.
- Upload the abstract of your dissertation as a single A4 page in PDF format. The Abstract page should include
  1. Your name
  2. Full title of your degree
  3. Title of your dissertation
  4. Name of your supervisor
  5. Year
  6. Text of abstract of your dissertation
  7. [OPTIONAL] Link to online video (e.g. on youtube or vimeo).

When you have successfully submitted your dissertation and abstract pdf’s, an email receipt will be sent to you and the Teaching Unit.

Step 4. Collect your bound dissertations from the binder.

Step 5. Sign the declarations in two copies of your dissertation.

Step 6: Hand the two signed copies of your dissertation and the copies of your abstract (which should include):

1. Your name
2. Full title of your degree
3. Title of your dissertation
4. Name of your supervisor
5. Year
6. Text of abstract of your dissertation

The DEADLINE for submissions this year is 3pm on 15th August, 2019

To Front Office *personally* in the O’Reilly Institute, before the submission date specified in the course calendar above, (please don’t all arrive at once!). There will be a sign-in sheet for you to sign on dropping off the dissertation copies + abstract.
Additional notes:

- It is the responsibility of all students to ensure that the bound hardcopy and the electronic version are consistent; in case of any discrepancy, the hardcopy will be considered the authoritative version and will be exclusively used for grading the dissertation.
- Binding takes time. You may want to call the binder in advance to find out how long you need.
- Do not leave your dissertation in a mailbox or with anyone else, as various checks are necessary before the dissertation is accepted.
- After all presentations are finished you will be required to ensure that all books and equipment from the lab or borrowed from the School have been returned, and that you have taken any files that you wish to retain (all PCs will be erased shortly after the submission deadline for dissertations). This will be a condition of your degree award and failure to return or replace equipment may result in any award being withheld.

And the bottom line:

**The deadline is absolute. If you miss the deadline, you will not be eligible for the award of an MSc**
Appendix 4: Regulations for Candidates on Submission of MSc Dissertations

Regulations for candidates on submission of an MSc dissertation in Computer Science

1. Methods of production
   Use a computer/word processor and print your manuscript using a laser or inkjet printer. Colour may be used in photographs, figures, graphs, etc. but you need to make sure that when the colour pages are photocopied into black and white that they make sense and match the text.

2. Typescript and illustrations
   The dissertation must be printed on good quality, A4 white paper. The type must be black and not less than 10 point. Use one and a half or double spacing between lines. You may print double-sided, but please ensure that the paper is of sufficient quality not to show through. The margin on the left-hand side of the page should be at least 2.54 cm to allow for binding.

3. Pagination
   Pages should be numbered consecutively through the dissertation starting with the first page following the table of contents and including appendices but excluding photographs and/or diagrams, which are not embodied in the text. The page numbers should be located centrally at the bottom of the page.

4. Length
   There is no minimum length for an MSc dissertation at TCD, but typically, this is expected to be the order of 20,000 words.

5. Cover
   The dissertation must be bound in hard dark blue covers. The title must appear in gold lettering and be centred on the front cover of the dissertation. The degree for which the dissertation has been submitted, MSc in Computer Science, the year, and the name of the candidate, in that order, should be lettered in gold, in 24pt or larger type, down the spine, so as to be readable when the volume is lying flat with the front cover uppermost.

6. Title page
   Include a title page giving the following information in the order listed:
   - the full title of the dissertation (as on the front cover) and the subtitle if any (ensure that the title describes the content of the dissertation accurately and concisely),
   - the full name of the author,
   - the qualification for which the dissertation is submitted i.e. MSc in Computer Science ( Mention Strand Name Here),
   - the name of the institution to which the dissertation is submitted (i.e. University of Dublin),
   - the year of submission (e.g. 2005).
   An example title page is included following these regulations.

7. Declaration
   The dissertation must contain immediately after the title page:
   - a declaration that it has not been submitted as an exercise for a degree at this or any other University,
   - a declaration that it is entirely the candidate’s own work (in the case of a dissertation for which the work has been carried out jointly, there must be a statement that it includes the
unpublished and/or published work of others, duly acknowledged in the text wherever included) and

- a signed statement that the candidate agrees that the Library may lend or copy the dissertation upon request.

Example declarations are included as an appendix to this document.

8. Acknowledgments
Any acknowledgments should be on the page following the declaration.

9. Abstract
One copy of an abstract, printed on a single sheet of A4 paper, must be submitted loose with each copy of the dissertation. The abstract must contain the title of the dissertation and the author’s full name as a heading and may be single-spaced. The abstract should also be present in the bound copy of the dissertation.

10. Table of contents
A table of contents should immediately follow the acknowledgements. It should list in sequence, with page numbers, all relevant subdivisions of the dissertation, including the list of abbreviations, titles of chapters and their sections and subsections; the list of references; the bibliography etc. This should be produced automatically.

11. Tables and illustrative material
Lists of tables and illustrations should follow the table of contents. All tables, photographs, diagrams etc., in the order in which they occur in the text, should be so listed. This should be produced automatically.

12. Abbreviations
Where abbreviations are used a key should be provided on a separate page.

13. References
Systematic and complete reference to sources used and a classified list of all sources used must be included in the dissertation. The titles of journals preferably should not be abbreviated; if they are, abbreviations must comply with an internationally recognised system.

14. Submission
Two signed hardbound copies of the dissertation must be submitted to the Computer Science Office in the O’Reilly Institute no later than the closing date which will be made available prior to the end of the second term. The phone number for this office is 8961765. An electronic version of the dissertation should be sent to the Teaching Unit and course director.

UPDATE 29.07.2019: Note that electronic copy should be submitted through blackboard

15. Supporting Materials
Any source code, executables, videos and other relevant assets should be included in a CD attached to the back cover of the dissertation.

16. The following pages contain examples of title and declaration pages. Text within angle brackets should be replaced appropriately.
<Title of the dissertation>

<Your name in full>

A dissertation submitted to the University of Dublin, in partial fulfilment of the requirements for the degree of Master of Science in Computer Science (Mention Name of Strand Here)

<Year of submission>
Declaration

I declare that the work described in this dissertation is, except where otherwise stated, entirely my own work, and has not been submitted as an exercise for a degree at this or any other university.

Signed: ______________________
<Your name in full>
<Date>
Permission to lend and/or copy

I agree that the Trinity College Library may lend or copy this dissertation upon request.

Signed: ___________________
<Your name in full>
<Date>
Appendix 5: Plagiarism

GENERAL
It is clearly understood that all members of the academic community use and build on the work and ideas of others. It is commonly accepted also, however, that we build on the work and ideas of others in an open and explicit manner, and with due acknowledgement. Plagiarism is the act of presenting the work or ideas of others as one’s own, without due acknowledgement. Plagiarism can arise from deliberate actions and also through careless thinking and/or methodology. The offence lies not in the attitude or intention of the perpetrator, but in the action and in its consequences.

It is the responsibility of each student to ensure that he/she does not commit plagiarism. Plagiarism is considered academically fraudulent, and an offence against academic integrity that is subject to the disciplinary procedures of the University.

EXAMPLES OF PLAGIARISM
Plagiarism can arise from actions such as:

a) copying another student’s work;
b) enlisting another person or persons to complete an assignment on the student’s behalf;
c) procuring, whether with payment or otherwise, the work or ideas of another;
d) quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format, including websites and social media;
e) paraphrasing, without acknowledgement, the writings of other authors.
f) Examples (d) and (e) in particular can arise through careless thinking and/or methodology where students:

   (i) fail to distinguish between their own ideas and those of others;
   (ii) fail to take proper notes during preliminary research and therefore lose track of the sources from which the notes were drawn;
   (iii) fail to distinguish between information which needs no acknowledgement because it is firmly in the public domain, and information which might be widely known, but which nevertheless requires some sort of acknowledgement;
   (iv) come across a distinctive methodology or idea and fail to record its source

All the above serve only as examples and are not exhaustive.

PLAGIARISM IN THE CONTEXT OF GROUP WORK
Students should normally submit work done in co-operation with other students only when it is done with the full knowledge and permission of the lecturer concerned. Without this, submitting work which is the product of collaboration with other students may be considered to be plagiarism.

When work is submitted as the result of a group project, it is the responsibility of all students in the group to ensure, so far as is possible, that no work submitted by the group is plagiarised. In order to avoid plagiarism in the context of collaboration and groupwork, it is particularly important to ensure that each student appropriately attributes work that is not their own.

SELF-PLAGIARISM
No work can normally be submitted for more than one assessment for credit. Resubmitting the same work for more than one assessment for credit is normally considered self-plagiarism.

AVOIDING PLAGIARISM
Students should ensure the integrity of their work by seeking advice from their lecturers, tutor or supervisor on avoiding plagiarism. A general set of guidelines for students on avoiding plagiarism is available at http://tcd-ie.libguides.com/plagiarism.
If plagiarism as referred to above is suspected, the Director of Teaching and Learning (Postgraduate) or his/her designate will arrange an informal meeting with the student, the student’s Supervisor and/or the academic staff member concerned, to put their suspicions to the student and give the student the opportunity to respond. Students may nominate a Graduate Students’ Union representative or PG advisor to accompany them to the meeting. The student will be requested to respond in writing stating his/her agreement to attend such a meeting and confirming on which of the suggested dates and times it will be possible for them to attend. If the student does not in this manner agree to attend such a meeting, the Director of Teaching and Learning (Postgraduate), or designate, may refer the case directly to the Junior Dean, who will interview the student and may implement the procedures as referred to in Section 5 of the University Calendar (Other General Regulations).

If the Director of Teaching and Learning (Postgraduate) forms the view that plagiarism has taken place, he/she must decide if the offence can be dealt with under the summary procedure set out below. In order for this summary procedure to be followed, all parties noted above must be in agreement and must state their agreement in writing to the Director of Teaching and Learning (Postgraduate) or designate. If one of the parties to the informal meeting withholds his/her written agreement to the application of the summary procedure, or if the facts of the case are in dispute, or if the Director of Teaching and Learning (Postgraduate) feels that the penalties provided for under the summary procedure below are inappropriate given the circumstances of the case, he/she will refer the case directly to the Junior Dean, who will interview the student and may implement the procedures set out in Section 5 of the University Calendar (Other General Regulations).

If the offence can be dealt with under the summary procedure, the Director of Teaching and Learning (Postgraduate) will recommend one of the following penalties:

(a) Level 1: Student receives an informal verbal warning. The piece of work in question is inadmissible. The student is required to rephrase and correctly reference all plagiarised elements. Other content should not be altered. The resubmitted work will be assessed and marked without penalty;

(b) Level 2: Student receives a formal written warning. The piece of work in question is inadmissible. The student is required to rephrase and correctly reference all plagiarised elements. Other content should not be altered. The resubmitted work will receive a reduced or capped mark depending on the seriousness/extent of plagiarism;

(c) Level 3: Student receives a formal written warning. The piece of work in question is inadmissible. There is no opportunity for resubmission.

Provided that the appropriate procedure has been followed and all parties are in agreement with the proposed penalty, the Director of Teaching and Learning (Postgraduate) should in the case of a Level 1 offence, inform the Course Director and, where appropriate, the Course Office. In the case of a Level 2 or Level 3 offence, the Dean of Graduate Studies must be notified and requested to approve the recommended penalty. The Dean of Graduate Studies may approve or reject the recommended penalty, or seek further information before making a decision. If he/she considers that the penalties provided for under the summary procedure are inappropriate given the circumstances of the case, he/she may also refer the matter directly to the Junior Dean who will interview the student and may implement the procedures as referred to under conduct and college. Notwithstanding his/her decision, the Dean of Graduate Studies will inform the Junior Dean of all notified cases of Level 2 and Level 3 offences accordingly. The Junior Dean may nevertheless implement the procedures as set out in Section 5 of the University Calendar (Other General Regulations).

If the case cannot normally be dealt with under summary procedures, it is deemed to be a Level 4 offence and will be referred directly to the Junior Dean. Nothing provided for under the summary procedure diminishes or prejudices the disciplinary powers of the Junior Dean under the 2010 Consolidated Statutes.
Appendix 6: Assessment Submission Forms

### Assessment Submission Form

<table>
<thead>
<tr>
<th>Student Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student ID Number</td>
<td></td>
</tr>
<tr>
<td>Course Title</td>
<td></td>
</tr>
<tr>
<td>Module Title</td>
<td></td>
</tr>
<tr>
<td>Lecturer(s)</td>
<td></td>
</tr>
<tr>
<td>Assessment Title</td>
<td></td>
</tr>
<tr>
<td>Date Submitted</td>
<td></td>
</tr>
<tr>
<td>Word Count</td>
<td></td>
</tr>
</tbody>
</table>

I have read and I understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: [http://www.tcd.ie/calendar](http://www.tcd.ie/calendar)

I have also completed the Online Tutorial on avoiding plagiarism ‘Ready, Steady, Write’, located at [http://tcd-ie.libguides.com/plagiarism/ready-steady-write](http://tcd-ie.libguides.com/plagiarism/ready-steady-write)

I declare that the assignment being submitted represents my own work and has not been taken from the work of others save where appropriately referenced in the body of the assignment.

Signed ........................................... Date .............................................
We have read and we understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: http://www.tcd.ie/calendar

We have also completed the Online Tutorial on avoiding plagiarism ‘Ready, Steady, Write’, located at http://tcd-ie.libguides.com/plagiarism/ready-steady-write

We declare that this assignment, together with any supporting artefact is offered for assessment as our original and unaided work, except in so far as any advice and/or assistance from any other named person in preparing it and any reference material used are duly and appropriately acknowledged. We declare that the percentage contribution by each member as stated above has been agreed by all members of the group, and reflects the actual contribution of the group members.

Signed and dated:

____________________  ______________________

____________________  ______________________

____________________  ______________________