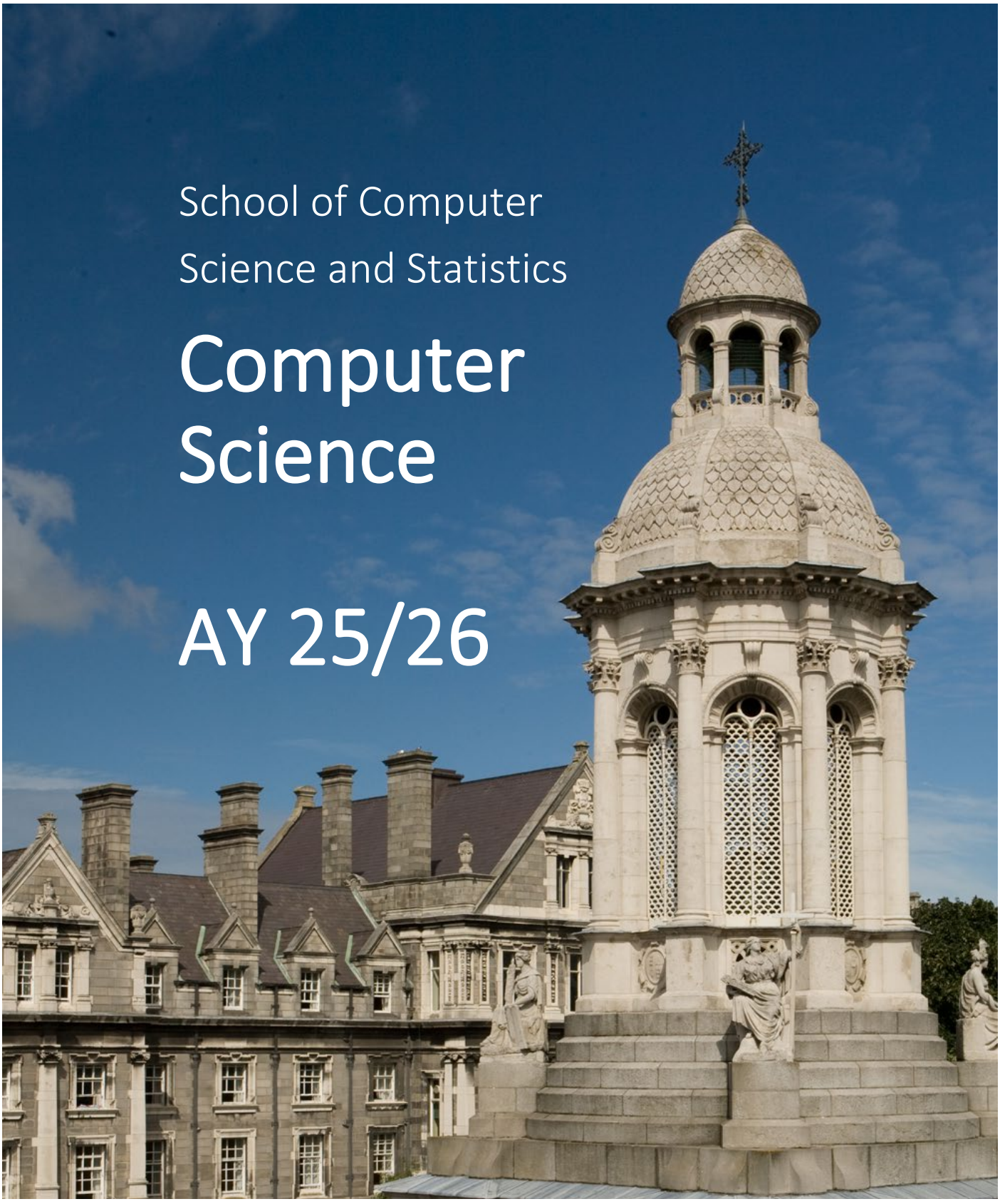
Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



School of Computer Science and Statistics

Computer Science

AY 25/26

Contents

1 General Course Information

Alternative formats of the Handbook can be made on request.

1.1 Introduction

This is the course-specific handbook of the Computer Science degree programme offered by the School of Computer Science and Statistics in Trinity College Dublin. It must be read alongside the School Course Handbook, which provides information and regulations relevant to all programmes taught by the school.

The integrated Computer Science degree programme leads to a BA Moderatorship in Computer Science degree after four years and a master's in computer science (MCS) degree after five. This handbook contains information and regulations for all Computer Science degree programme students. It provides a guide to what is expected of you on this programme, and the academic and personal support available to you. Please retain it for future reference.

Yvette Graham, ICS Course Director
Goetz Botterweck, Director of Undergraduate Teaching and Learning

1.2 Other Regulations and Sources of Information

Information provided in this handbook is believed to be accurate at the time of preparation. Please note that, in the event of any conflict or inconsistency between the regulations published in the University Calendar and information contained in course handbooks, the provisions of the calendar regulations will prevail.

In some cases, this handbook references these regulations in the Calendar in the form [CalGeneral, §1] for general regulations and [CalSCSS, §1] for regulations in the specific regulations for courses in computer science and statistics (for details, see "References" at the end of this document). The University Calendar is available at https://www.tcd.ie/calendar/

This handbook is available from the School of Computer Science and Statistics website at https://teaching.scss.tcd.ie/

The handbook is subject to change. It should be read in conjunction with the generic School of Computer Science and Statistics Undergraduate Student Handbook, which you can find on the same website at https://teaching.scss.tcd.ie/

1.3 Contact Details

Staff Name	Role/Title	Contact
Gregory O'Hara	Head of School	
Goetz Botterweck	Director of UG Teaching and Learning (DUTL)	scss-dutl@tcd.ie
Yvette Graham	Course Director	scss-cd-ics@tcd.ie
Luiza Tortora	Executive Officer	Teaching-Unit@rt.scss.tcd.ie
Eimear Morhan	Internship Coordinator	internships@scss.tcd.ie

1.4 Key Locations

- The School of Computer Science and Statistics is based in the O'Reilly Institute (ORI). More information can be found at https://www.tcd.ie/scss/contact/
- The Academic Registry office is located in the Watts Building. More information can be found at https://tcd.ie/academicregistry
- The IT Services office is based on the Ground Floor of the Áras An Phiarsaigh building. More information can be found at Printing, Scanning, Copying - IT Services | Trinity College Dublin
- More information on the school libraries can be found at The Library of Trinity College Dublin - Trinity College Dublin
- More information on Equality, Diversity and Inclusion can be found at Religion - Equality, Diversity and Inclusion | Trinity College Dublin

References/Sources

- Interactive College Map
- Blackboard
- Academic Registry

1.5 Key Dates

Key dates of the academic year are published in the calendar at https://www.tcd.ie/calendar/

This includes information on teaching weeks, reading weeks, assessment (examinations), and breaks like the Christmas Period.

References/Sources

- Academic Year Structure

1.6 Timetable

Timetables are available on the website https://my.tcd.ie/ under "Timetables", for instance, as Student Timetable or Module Timetable.

References/Sources

- My TCD

1.7 Internships/Placements for Credit

It is possible for students to spend the third year of the programme studying abroad. Details are provided in the Study Abroad/Erasmus section.

An industry/research lab placement is an integral part the fourth year of the five-year MCS programme. For more information about internships, please visit https://www.scss.tcd.ie/internships/ or contact Eimear Morhan (internships@scss.tcd.ie).

References/Sources

- Internships and Placements Policy

1.8 Study Abroad/Erasmus

There are two types of opportunities to study abroad: Erasmus/EU and Non-EU Exchanges.

1.8.1 Erasmus/EU Exchanges

Erasmus+ is the EU's programme to support education, training, youth, and sport in Europe. Studying abroad, for one semester or a full year, is a central part of Erasmus+.

While on Erasmus, students can study at one of Trinity's 180 European partner universities across 20 countries. Where you can study abroad on Erasmus, however, is dependent on the Subject-specific exchanges which are set up between the School and partner universities.

Whether you are embarking on an Erasmus/EU Exchange or a Non-EU Exchange, it is important that you fully consider the impact that studying abroad will have on your studies.

More information on the Erasmus / EU exchanges can also be found on Trinity's Study Abroad website https://www.tcd.ie/study/study-abroad/

1.8.2 Non-EU Exchanges

Non-EU exchanges (also referred to as International Exchanges), or international exchanges, are with universities outside Europe, so if you're interested in studying in the USA, Canada, China, Hong Kong, Singapore, or other such destinations, this is the exchange programme for you.

The school holds an information session on Non-EU Exchanges every September. This session will take place after the International Exchange and Erasmus Information session, which is held by the Study Abroad office. Students will need to attend both sessions.

If you are selected for participation in the Study Abroad programme, you will have to consider your module choices very carefully to ensure that they are roughly the same as you would study at Trinity, that they are at an appropriate level, and that you satisfy any prerequisites that may be in force for those modules.

Prior to making your Study Abroad application, you must gain approval for your university and module choices from the School of Computer Science and Statistics. This will require you to submit the SCSS Study Abroad Module Form with your selected universities and corresponding modules to the Academic Coordinator for review.

Students interested in a non-EU exchange should read through the information available on the Study Abroad website. Here you will find a list of all Trinity's International Partner Universities as well as details on how to apply: https://www.tcd.ie/study/study-abroad/

2 SCHOLARSHIPS AND PRIZES

Many of the scholarships and prizes are described in the School Handbook. In addition, students on the Computer Science programme are eligible for the following prizes:

2.1 Foundation Scholarships

Students in their Senior Freshman year are eligible to take the Foundation Scholarship examinations. In exceptional circumstances, students may defer them to the following year.

A Foundation or Non-Foundation scholarship is tenured for five years, during which time the Scholar is entitled to free Trinity accommodation, their evening meal free of charge at Commons, a waiver of their tuition fees or student contribution (non-EU students' fees are reduced by the value of EU fees) and a small annual stipend. Scholars are also entitled to use the post-nominal letters "sch." after their name. This scholarship is a very prestigious and substantial award given to approximately 60 students each year.

Information regarding the structure and duration of papers can be found at

https://www.tcd.ie/academicregistry/exams/scholarship/

References/Sources

- Calendar Part II, D 10: Foundation and Non-Foundation Scholarships

2.2 Prizes, Medals, and Other Scholarships

Locally awarded items, including eligibility and information on how each item is awarded.

2.2.1 Gold Medals

Gold medals are awarded by the Board to candidates of the first class who have shown exceptional merit (and for this programme that means achieving an overall average of 80.0% or above in their BA(Mod) degree result). See https://www.tcd.ie/academicregistry/exams/assets/local/tep-gold-medals-criteria.pdf for more details.

2.2.2 Computer Science Prizes

The following prizes are listed in the University Calendar for the Computer Science programme.

2.2.2.1 The Professor John G. Byrne Prize

This prize was established in 2014 with funds provided by Alumni of the School in honour of Professor John G. Byrne, Chair of Computer Science 1973–2003, and Head of the Department of Computer Science from its founding in 1969 to 1987 and from 1990 to 2001. In celebration of

excellence, the prize is awarded annually to the student who achieves the highest overall result in the Master's Year of the Computer Science course, provided the result is at Distinction level. Value, €1,024.

2.2.2.2 The Victor W. Graham Prize

This prize, founded in 1986 from funds subscribed by friends and pupils to mark Mr V. W. Graham's retirement, is awarded to the Year 1 student in the moderatorship in computer science course who obtains the highest mark in the summer examination in pure mathematics. Value, €750.

2.2.2.3 The Ludgate Prize

This prize was instituted in 1991 in memory of Percy E. Ludgate, an Irish designer of an analytical engine. It is awarded to the student who submits the best project in Year 4 of the moderatorship in computer science. Value, €127.

2.2.2.4 The William Nurock Prize

This prize was founded in 1938 by a bequest from William Nurock. The conditions for the award of the prize were changed in 1984 and in 2021. It is now awarded annually to the student obtaining the highest result in the moderatorship in computer science, providing that such student also attains gold medal standard. Value, €1,000.

3 ACADEMIC WRITING

3.1 The Use and Referencing of Generative AI

In general, the following College guidelines apply for the use of AI and Generative AI:

> *Aligned with the College Statement on Artificial Intelligence and Generative AI in Teaching, Learning, Assessment & Research (2024), the use of GenAI is permitted unless otherwise stated. Where the output of GenAI is used to inform a student's document or work output, this usage should be acknowledged and appropriately cited, as per Library guidelines on acknowledging and reference GenAI. From an academic integrity perspective, if a student generates content from a GenAI tool and submits it as his/her/their own work, it is considered plagiarism, which is defined as academic misconduct in accordance with College Academic Integrity Policy.*

Each lecturer might put other restrictions in place around the use of Generative AI in their particular module. Those restrictions are usually explicitly stated in module descriptions in the Blackboard VLE and/or in Programme Handbooks.

References/Sources

- College Statement on Artificial Intelligence and Generative AI in Teaching, Learning, Assessment and Research
- Library guidelines on acknowledging and reference GenAI.

3.2 Academic Integrity and Referencing Guide

It is clearly understood that all members of the academic community use and build on the work and ideas of others. However, it is essential that we do so with integrity, in an open and explicit manner, and with due acknowledgement. Any action or attempted action that undermines academic integrity and may result in an unfair academic advantage or disadvantage for any member of the academic community or wider society may be considered as academic misconduct. Examples of academic misconduct can be found in the curriculum glossary.

3.2.1.1 Academic misconduct in the context of group work

Students should normally submit assessments and/or examinations done in co-operation with other students only when the co-operation is done with the full knowledge and permission of the lecturer concerned. Without this permission, submitting assessments and/or examinations, which are the product of collaboration with other students, may be considered to be academic misconduct. 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, or that any other academic misconduct has taken place. Further information on academic misconduct procedures and how to avoid academic misconduct can be found at the links below:

References/Sources

- Calendar Part II, B: General Regulations & Information, 'Academic Integrity'
- College Statement on Academic Integrity
- Academic Integrity Policy
- Library Guides - Academic Integrity
- Coversheet Declaration

3.3 Research Ethics

The SCSS Research Ethics Committee (REC) was established in 2009 as a subcommittee of the School Research Committee to review and advise on any ethical issues that may arise during the course of a research project or study. The SCSS REC consists of a REC Chair and six members of academic staff from the school.

Any research project that involves human participation conducted through a research project or study, including questionnaires, surveys or system user-evaluations, must have independent review by a Research Ethics Committee. Approval must be obtained prior to the commencement of data collection and cannot be applied for or granted retrospectively. This requirement applies to studies to be undertaken by staff, postgraduates and undergraduates.

All members of staff and students undertaking research should do so with cognizance of the Trinity College Guidelines for Good Research Practice no matter what their research project entails.

All applications must be reviewed and signed by the research Supervisor or Principal Investigator on the project. This signature confirms an assertion that the application is complete in terms of its formal requirements; it does not stand as proxy for ethical approval. Forms which are not signed or not presented at an acceptable standard (e.g., incomplete or containing excessive typographical or grammatical errors) will be returned and may therefore incur delays for the researchers involved.

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. Furthermore, retrospective approval will not be granted.

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 both risk and benefit derived from 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.

References/Sources

- Research Ethics
- Policy on Good Research Practice
- Ethics Policy

4 TEACHING AND LEARNING

4.1 Programme Architecture

4.1.1 Available Pathways

The Integrated Computer Science programme (in the regulations known as "Moderatorship in Computer Science and Master in Computer Science (MCS)") has two pathways [CalSCSS, §§ 8-10].

1. Moderatorship in Computer Science (4-year Degree) (BA Mod)
    - Final year project in 4th year
2. Master in Computer Science (5-year Degree) (MCS)
    - Industry internship or research lab in the 4th year AND
    - Project with independent research leading to a dissertation in 5th year.

The eligibility (to choose a pathway and exit with a particular degree) is based on qualification [CalSCSS, §§ 14-15]. For details, see Sections 4.12 "Progression Regulations", 4.13 "Awards", and 4.14 "Changing Pathways".

⚠ **Note that initially choosing the 5-year MCS pathway and then switching to the 4-year pathway to leave with a BA Mod is strongly discouraged, only possible under certain conditions, and may require completion of additional modules. For details, see Section 4.14 "Changing Pathways".**

References/Sources

- Trinity Pathways

4.2 Programme Structure

4.2.1 Year 1 – Junior Fresh

In Year 1 (referred to as the Junior Fresh (JF) year in Trinity), students take the following full-year and half-year modules:

Semester 1	**Semester 2**
CSU11001 Mathematics I	CSU12002 Mathematics II
CSU11011 Introduction to Programming I	CSU11012 Introduction to Programming II
CSU11021 Introduction to Computing I	CSU11022 Introduction to Computing II
CSU11026 Digital Logic Design	
CSU11031 Electronics and Information	STU11002 Statistical Analysis I
CSU11081 Computers and Society	CSU11013 Programming Project I

Full details, including learning outcomes, book recommendations and important evaluation and assessment criteria are available at https://teaching.scss.tcd.ie/integrated-computer-science/ics-year-1/

4.2.2 Year 2 – Senior Fresh

In Year 2 (referred to as the Senior Fresh (SF) year in Trinity), students take the following full-year and half-year modules:

Semester 1	**Semester 2**
CSU22011 Algorithms and Data Struc-	CSU22012 Algorithms and Data Structures II
CSU22014 Systems Programming I	CSU23016 Concurrent Systems and Operating Systems
CSU22041 Information Management I	CSU23021 Microprocessor Systems
CSU22022 Computer Architecture I	CSU22013 Software Engineering Project I
MAU22C00 Discrete Mathematics	
STU22004 Applied Probability I	STU22005 Applied Probability II

Full details, including learning outcomes, book recommendations and important evaluation and assessment criteria are available at https://teaching.scss.tcd.ie/integrated-computer- science/ics-year-2/

4.2.3 Year 3 – Junior Sophister Year

In Year 3 (referred to as the Junior Sophister (JS) year in Trinity), students take the following half-year modules:

Semester 1	Semester 2
CSU33012 Software Engineering	CSU33013 Software Engineering Project II
CSU34011 Symbolic Programming	CSU33061 Artificial Intelligence I
CSU33031 Computer Networks	CSU34041 Information Management II
JS Computer Science Option *	JS Computer Science Option *
JS Computer Science Option *	JS Computer Science Option *
Trinity Elective module +	Trinity Elective module +

* JS Computer Science options are:

Semester 1	Semester 2
CSU33081 Computational Mathematics	CSU33014 Concurrent Systems I
CSU34016 Introduction to Functional Programming	CSU33032 Advanced Computer Networks
CSU34021 Computer Architecture II	CSU33071 Compiler Design I

+ See https://www.tcd.ie/trinity-electives/

All modules have an ECTS weighting of 5 credits. Full details, including learning outcomes, book recommendations, and important evaluation and assessment criteria, are available at https://teaching.scss.tcd.ie/integrated-computer-science/ics-year-3/

4.2.4 Year 4 – Senior Sophister Year

Shortly after publication of the annual Year 3 results, students have to decide whether they are going to take the 5-year Master's (MCS) programme or the 4-year Bachelor's (BA (Mod.)) programme. As a result, there are two possible versions of Year 4. For students taking the 5-year Master's programme:

Semester 1	Semester 2
Year 4 Options (5*5credits) ++	CS7091 Industrial / Research Lab Internship (30 credits) *+
CSU44097 Project methods (5 credits)	

* For more information about internships, please visit https://www.scss.tcd.ie/internships/
+ To take the internship, students must achieve 60% or more in their first attempt at the Year 3 examinations (see Section 4.12.1 "Eligibility for Master's Programme").

⚠ **Note that initially choosing the 5-year MCS pathway and then switching to the 4-year pathway to leave with a BA Mod is strongly discouraged, only possible under certain conditions, and may require completion of additional modules. For details, see Section 4.14 "Changing Pathways".**

For students taking the 4-year bachelor's programme (BA Mod):

Semester 1	Semester 2
Year 4 Options (5*5credits) ++	CSU44098 Group Design Project (10 credits)
CSU44099 Final Year Project (20 credits) **	
	CSU44081 Entrepreneurship and High-tech Venture Creation (5 credits)

** For more information about final year projects, please visit https://projects.scss.tcd.ie/
++ Students must choose a total of 25 ECTS from the Year 4 Options in the Options Table below. Please note that options may change from year to year.

Year 4 Options
CSU44000 Internet Applications
CSU44001 Fuzzy Logic and Control Systems
CSU44004 Formal Verification
CSU44033 Machine Learning Application To Radio And Optical Networks
CSU44031 Next Generation Networks

CSU44051 Human Factors
CSU44052 Computer Graphics
CSU44053 Computer Vision
CSU44061 Machine Learning
CSU44062 Advanced Computational Linguistics
STU44003 Data Analytics
STU45006 Strategic Information Systems

Please note that not all options may run in a given year, depending on demand and availability of appropriate staff to teach the options. Students may change options by informing the teaching unit up to the end of the first week of Semester 1. Late changes are not accepted. Full details, including learning outcomes, book recommendations, and important evaluation and assessment criteria are available at https://teaching.scss.tcd.ie/integrated-computer-science/ics-year/

4.2.5 Year 5 – MCS Year

In Year 5, in addition to one compulsory course, students select five options and a major dissertation topic:

Semester 1	**Semester 2**
CS7CS6 Research and Innovation (5 credits)	
CS7092 MCS Dissertation (30 credits) *	

Year 5 Options (25 credits) +

* For more information about dissertations, please visit https://projects.scss.tcd.ie/
\+ Students must select options totaling 25 credits from the Year 5 Options below.

Please note that not all options may run in a given year and some options have prerequisites. Students should be aware that they should not take modules with significant overlap with modules that they took in year 4 (e.g., students who took CSU44061 should not take CS7CS4). Students may change options by informing the teaching unit up to the end of the second week of the semester in which the options are run. Late changes are not accepted.

Year 5 Options
CSU44081: Entrepreneurship and HighTech Venture Creation
CSP55040: Machine Learning Application To Radio And Optical Networks
CS7CS4: Machine Learning
CS7DS1 Data Analytics

CS7DS2: Optimisation Algorithms for Data Analysis
CS7DS3: Applied Statistical Modelling
CS7DS4: Data Visualisation
CS7GV1: Computer Vision
CS7GV2: Mathematics of Light and Sound
CS7GV3: Real-Time Rendering
CSP7GV7: Extended Reality
CS7GV5: Real-time Animation
CS7GV6: Computer Graphics
CS7IS1: Knowledge and Data Engineering
CS7IS2: Artificial Intelligence
CS7IS3: Information Retrieval and Web Search
CS7IS4: Text Analytics
CS7IS5: Adaptive Applications
CS7NS1: Scalable Computing
CS7NS2: Internet of Things
CS7NS3: Next Generation Networks
CS7NS4: Urban Computing
CS7NS5: Security and Privacy
CS7NS6: Distributed System

Full details, including learning outcomes, book recommendations and important evaluation and assessment criteria are available at https://teaching.scss.tcd.ie/integrated-computer-science/ics-year-5/

4.3 Learning Outcomes

Our programme's outcomes conform to those required by Engineers Ireland to satisfy the education standard for the professional title of Chartered Engineer. For (Mod) graduates, those outcomes are:

1. Advanced knowledge and understanding of the mathematics, sciences, engineering sciences and technologies underpinning their branch of engineering.
2. The ability to identify, formulate, analyse and solve complex engineering problems.
3. The ability to perform the detailed design of a novel system, component process using the analysis and interpretation of relevant data.
4. The ability to design and conduct experiments and to apply a range of standard and specialised research (or equivalent) tools and techniques of enquiry.
5. An understanding of the need for high ethical standards in the practice of engineering, including the responsibilities of the engineering profession towards people and the environment.

6. The ability to work effectively as an individual, in teams and in multi-disciplinary settings together with the capacity to undertake lifelong learning.
7. The ability to communicate effectively on complex engineering activities with the engineering community and with society at large.

For ordinary BA graduates, we expect similar outcomes but obviously as a lesser level, and significantly not including the development of a novel system on an individual basis. Our MCS graduates achieve all of these programme outcomes. By the time our graduates finish, they are capable of dealing with complex multi-disciplinary problems and with problems that are ill-defined. They can design to professional codes of practice and can deal with novel problems, where they must proceed working cautiously from first principles, relying on their knowledge of engineering science. The aim of the programme is to equip its graduates with the knowledge, skills and experience to be able to:

1. Develop and apply computer systems from a broad base of knowledge in mathematics, computer science, computer technology and human factors.
2. Identify and formulate advanced technical challenges and demonstrate judgement to design appropriate computer science solutions.
3. Design systems, components or processes to meet specified functional objectives and to measure and analyse performance against these objectives.
4. Understand and express the role of computer science in the community, including the need for high standards of ethical behaviour and professional responsibility.
5. Work effectively, independently and within multidisciplinary teams, and act as a mentor in team settings and engage in lifelong learning.
6. Communicate effectively both professionally with other computing professionals and with the wider community.
7. Participants in contemporary research activity as appropriate and demonstrate the knowledge and skills needed to undertake independent research.

4.4 Module Descriptors & Compulsory Reading Lists

The School reserves the right to amend the list of available modules and, in particular to withdraw and add modules. Timetabling may restrict the availability of modules to individual students. Brief descriptions of the modules are provided on the course website. Full details, including learning outcomes, book recommendations and important evaluation and assessment criteria are available at https://teaching.scss.tcd.ie/integrated-computer-science/

References/Sources

- Policy on the Trinity Learning Management System (LMS)

4.5 Registration

Students in Years 3 and 4 of Integrated Computer Science will be invited during the Second Semester to indicate their preferences for the following year of their studies, including Computer Science options

and Trinity Electives (taken in year 3 only) as per their course structure.

Students will be advised on how to do this and where to find relevant module information several weeks before they are invited to register. Timetabling may restrict the availability of modules to individual students.

Reference/Source:

Trinity Pathway Selection

4.6 Coursework Requirements

Coursework is an integral part of Computer Science, and it is essential that every student participates fully in the coursework associated with each module. If a student does not make a serious attempt at the coursework in a module this is considered in the same way as if a student does not make a serious attempt at an examination. Any student who submits less than two thirds of their coursework in a module is considered as not making a serious attempt. In such circumstances, if the student fails the module overall, they may be excluded from the degree programme at the discretion of the Examination Board. Timely submission of coursework is particularly important as this is a vital professional skill.

Penalties for late submission of coursework are specified in the School Handbook. If there are extenuating circumstances warranting late submission students must request extensions through their tutors in advance of the deadline for submission. Extenuating circumstances include only serious circumstances such as certified medical conditions and bereavements. Coursework marks are normally computed and returned as numerical values (e.g. as percentages). Guidelines for the presentation and submission of work are provided separately for each module. It is the responsibility of each student to retain a copy of any coursework that they submit.

4.6.1 Grade Descriptors

The requirements of each piece of coursework differ depending on the year of study as well as the nature of the problem. To give an idea of what each grade equates to in a qualitative fashion, the following is an indication of the standard expected of dissertations/projects that are done in year 4:

- **I+ (80 - 100 Marks)** An upper first project is one which is exceptionally good for an undergraduate and which displays: – thorough understanding of the project area – excellent knowledge of the relevant literature – comprehensive development of the technical theme including an element of originality – exemplary presentation and analysis of results – sound critical evaluation – well organised and excellently presented report
- **I (70 - 79 Marks)** A standard first-class project is one which rates as very good for an undergraduate and which displays: – good understanding of the project area – sound least some novel thinking – comprehensive presentation and full analysis of the results – clear evidence of an ability to critically evaluate – logically organised and very well-presented report
- **II.1 (60 - 69 Marks)** An upper second-class project is one which clearly rates as a good project and which displays: – reasonably good understanding of the project area – some knowledge of the relevant literature – sound development of the technical theme – clear presentation and relevant analysis of results – some critical evaluation, perhaps limited in scope – well organised and well-presented report
- **II.2 (50 - 59 Marks)** A lower second-class project is one which rates as moderately good and which displays: – some understanding of the project area – limited knowledge and appreciation of the relevant literature – limited development of the technical theme 23 – basic presentation and analysis of results – no originality or critical evaluation – insufficient attention to organisation and presentation of report
- **III (40 - 49 Marks)** A third-class project is one that generally rates as weak and displays: – very limited understanding of the project area – scant knowledge and appreciation of the relevant literature – sparse development of the technical theme – confused presentation and incomplete analysis of results – weak level of technical discussion – poorly organised and presented report
- **Fail (0 - 39 Marks)** A project graded as a fail represents an unsatisfactory project containing significant errors or omissions: – flawed understanding of the project area – very superficial knowledge and appreciation of the relevant literature – lack of development in the technical theme – poor or incomplete presentation of results; inadequate or flawed analysis – discussion confused or erroneous – very poor overall presentation.

References/Sources

- Student Learning Development
- Accessible Information Policy

4.7 Capstone Project

In Trinity College, a Capstone project is a common element across all degree exit routes. It requires a significant level of independent research by the student. It should:

- be an integrative exercise that allows students to showcase skills and knowledge that they have developed across a range of subject areas and across the four years of study
- result in the production of a significant piece of original work by the student
- provide students with the opportunity to demonstrate their attainment of the four graduate attributes: to think independently, to communicate effectively, to develop continuously, and to act responsibly.

The final year project (in the fourth year of the BA Mod pathway) and the dissertation (in the fifth year of the MCS pathway) fulfill the requirement of a capstone project.

References/Sources

- Capstone website
- Policy on Good Research Practice

4.8 Marking Scale

All undergraduate programmes are required to provide clear grade descriptors representing a pass. Where the institutional marking scale is employed, programmes may refer to the Calendar. Programmes where this scale is not in use, such as a number of those in the Faculty of Health Sciences, must include information on the School/programme marking scale.

Grades for individual subjects and overall grades in years 1-5 are awarded based on the (rounded) percentage achieved as follows:

Years 1-4		Year 5	
Grade	**Mark**	**Grade**	**Mark**
I	70%–100%	Distinction	70%–100%
II.1	60%–69%	Pass	50%–69%
II.2	50%–59%		

III	40%–49%

References/Sources

- Calendar II, Part B: General Regulations and Information

4.9 Attendance Requirements

You are required to attend all lecture, laboratory, tutorial or other sessions associated with your programme of study and to participate fully in the academic work of your class.

You must notify the lecturer concerned or your Tutor as early as possible if you are unable to attend. If you are absent for medical reasons, you should notify your tutor, and you may be required to provide a medical certificate. This is particularly important if you will miss required assessment components (e.g. in-class tests or demonstrations of your work).

Students whose attendance has not been satisfactory in either semester may be reported to the Senior Lecturer's Office as "non-satisfactory" for both semesters in a year may be refused permission to take semester two assessments or examinations and may be required to repeat the year in full.

⚠ **Unless otherwise specified for a programme or an individual module, a student's attendance and participation may be deemed to be "non-satisfactory" if they miss more than one third of their course of study in a semester.**

References/Sources

- Calendar Part II, B: General Regulations and Information, 'Attendance'

4.10 Absence from Examinations

Students who in any term have been unable, through illness or other unavoidable cause, to attend the prescribed lectures satisfactorily, as determined by the relevant school, department or programme, may be granted credit for the term by the Senior Lecturer and must perform such supplementary exercises as the Senior Lecturer may require.

Such requests will only be considered in extraordinary circumstances and should be made by the student's tutor to the Senior Lecturer (via student cases) and only after consulting the general and more detailed school or course regulations regarding absence from lectures or examinations through illness. [CalGeneral, Section II, §§51]

⚠ **If illness or other grave circumstances prevent a student from taking part in examinations, then corresponding requests (for instance, to defer the examinations to the reassessment session) must be made IN ADVANCE of the examination. Where illness occurs during the writing of an examination paper, it should be reported immediately to the chief invigilator. Where an examination/assessment has been completed, retrospective withdrawal will NOT be granted. [CalGeneral, Section II, §§52-55]**

References/Sources

- Calendar Part II, B: General Regulations and Information, 'Absence'
- Academic Policies

4.11 External Examiner

The course is examined annually by an external examiner who is involved in ensuring that the examinations in fourth and fifth year are run properly (in terms of how the exam papers are set and marked, and how the results are moderated).

References/Sources

- Procedure for the Transfer to External Examiners of Students' Assessed Work

4.12 Progression Regulations

The regulations concerning Progression are split between the College Calendar and this Handbook.

For one-semester modules students are examined at the end of the semester and for one-year modules, they are examined at the end of the second semester. To complete an academic year (and hence progress to the next year of the programme or exit with a degree award), students must be successful at the Annual or Supplemental Examinations.

To be successful in the Annual or Supplemental Examinations, students must pass all modules. The pass mark in years 1-4 is 40%, and in year 5 is 50%. Alternatively, students may pass by compensation if they (i) achieve an overall weighted average pass mark and (ii) pass modules totaling

50 credits, and (iii) get a 'Qualified Pass' mark (35% in years 1-4 and 45% in year 5) in the failed module(s) (either one 10-credit module or one/two 5-credit modules).

If a student is successful in the Annual Examinations, his/her overall mark will be calculated as the average of each module's mark weighted by its ECTS rating and an overall grade awarded

(according to the scale above). If a student is unsuccessful in the Annual Examinations, he/she is required to take a supplemental examination or assessment in all modules in which they have not achieved a pass mark, as indicated in the examination results. Permission to take supplemental examinations will not normally be granted to students who the court of examiners considers not to have made a serious attempt at the annual examinations and coursework in each module, unless an adequate explanation is furnished. The method of assessment of modules varies between annual and supplemental examinations. Supplemental examinations are held in Michaelmas term each year (i.e., towards the end of the summer break). If a student is successful in the Supplemental Examinations, his/her overall mark will be calculated as the average of each module's mark (weighted by its ECTS rating) and an overall grade awarded (according to the scale above). This average is based on the marks achieved in the supplemental examinations together with the marks achieved in the annual examinations for the modules in which supplemental examinations/assessments were not required.

A student who does not feel their returned mark is correct should first ask to view their script with the examiners and may (through their tutor), if they still believe that something is incorrect, request a recheck, remark (of the full class), or lodge an appeal. A student who does not pass in either the Annuals or the Supplementals is required to repeat the year in full.

4.12.1 Eligibility for Master's Programme

Students must achieve an average of at least 60% **at the first attempt** of their third year exams to qualify for the Master's internship in fourth year. Those who pass third year but don't proceed to the fourth year of the five-year master's programme (either by choice or because they don't meet the internship requirements) can instead complete the final year of the four-year BA Mod programme [CalSCSS, §14].

Students who fail the 4th year of the MCS can repeat the 4th year, but must exit with BA Mod. In other words, when repeating, they automatically switch to the BA Mod pathway [CalSCSS, §15].

4.13 Awards

4.13.1 Ordinary BA Degree (exit only)

Students who have passed their Year 3 examinations may have an ordinary BA degree conferred if they do not choose, or are not allowed, to proceed to Year 4 of the programme or if they fail to complete satisfactorily Year 4 of the course. Except by permission of the University Council, on the recommendation of the Executive Committee of the School of Computer Science and

Statistics, an ordinary BA degree may be conferred only on candidates who have spent at least two years in the University.

4.13.2 Moderatorship Degree

The BA (Moderatorship) degree result is awarded if a student has successfully completed Years 3 and 4, based on a combined mark from the Year 3 examinations (which count for 30% of the moderatorship result) and Year 4 examinations (which count for 70% of the moderatorship result).

Where students are awarded an honors degree, the class of degree awarded is based on the weighted average mark achieved as follows: First Class Honors: 70%–100%, Second Class Honors, First Division:

60%–69%, Second Class Honours, Second Division: 50%–59%, Third Class Honors: 40%–49%. Students who have been successful in their Year 4 examinations may have the BA (Mod) degree conferred if they do not choose, or are not allowed, to proceed to the fifth year of the programme.

4.13.3 Master in Computer Science Degree

Successful candidates at the Year 5 examinations will be awarded a classified BA (Moderatorship) based on their results in Years 3 and 4, as set out above, and a master's in computer science or a master's in computer science with Distinction. A distinction shall require at least 70 per cent in the dissertation and at least 70 per cent in the final credit-weighted average mark.

References/Sources

- [CalGeneral] (see References section at the end of this document)
- [CalSCSS] (see References section at the end of this document)
- National Framework for Qualifications
- Trinity Pathways
- Trinity Courses

4.14 Changing Pathways

4.14.1 Options to Change Pathways

If students decide to change their pathway (from MCS to BA Mod) they have the following options.

1. At the beginning of the 4th year, they can switch from MCS to BA Mod. The request for this needs to be made by the end of the 2nd week of the teaching term. If they do not

have an agreed capstone project (FYP) topic and supervisor, one will be assigned to them by the School.

2. After that, when the 4th year is underway, they have two choices [CalSCSS, §16]:
   (i) Choose not to do a capstone project and leave with a BA (ordinary) reflecting the first three years of the programme only.
   (ii) Complete fourth year taught/project modules (30 ECTS in Semester 1 and 10 ECTS as described in section 4.13.1) and apply to defer doing their capstone project (FYP) to the next academic year (which would have been their 5th year). This effectively is a request to go off-books with assessment (OBA).

Changing pathways in the opposite direction (from BA Mod to MCS) is not possible. Entering the MCS pathway is only possible by (i) fulfilling the eligibility criteria and (ii) choosing the MCS pathway at the end of 3rd year.

4.14.2 Credits for Internship and Capstone Project (FYP)

The 30 ECTS credits obtained in the internship in the MCS are split as follows:

- CS7091-Part1 (10 ECTS) – e.g., Mid-term Report, Presentation (usually in-company)
- CS7091-Part2 (20 ECTS) – e.g., Final Report

The second part (20 ECTS) is only part of the MCS pathway and has no ECTS credit in the BA Mod degree pathway.

Students switching from the MCS to the BA Mod pathway have two options to replace the 30 ECTS of the internship:

(i) Complete CS7091-Part1 (10 ECTS) in their 4th year and combine with the deferred capstone (FYP, 20 ECTS) taken **in the following academic year**.

(ii) Request to complete the Group Design Project (10 ECTS) instead of the internship and combine this with the deferred capstone project (FYP, 20 ECTS) taken **in the following academic year**. This request is only possible before the start of the second semester.

4.14.3 Implementation of Capstone Project (FYP) as Off-books Module (OBA)

Students effectively finish their capstone project (FYP) **in the next academic year**, following the year in which they would originally have completed their internship.

The assignment of projects, supervision, marking, and review at examination boards of deferred capstone projects (FYPs) is carried out in the same processes and timing as normal capstone projects (FYPs) in that academic year.

Thus, the student's final grade is only published by College in the academic year when they complete their capstone project (FYP), following the year in which they would have completed their internship.

4.14.4 Failing Other Modules

Due to the limit of 20 ECTS for off-books assessment, when deferring the capstone project (FYP) to the following academic year, it is **not possible** to take any other modules as off-books assessment (OBA).

Hence, a student choosing to switch from MCS to BA Mod, taking the capstone project in an off-books mode, and failing any other modules in their 4th year has two options:

(i) Choose to leave with a BA (ordinary).
(ii) Repeat the 4th year of the BA Mod degree in full.

4.14.5 Fees and Access to Services

Effectively, students taking the capstone project in the following academic year are OBA and, therefore, have the usual admin/exam fee for off-books assessment (at the time of writing, €382, subject to change).

If a student wants full access to all student services, they can register fully for the year (where they complete the capstone project) at full-year cost.

References/Sources

- National Framework for Qualifications
- Trinity Pathways
- Trinity Courses

4.15 Professional and Statutory Body Accreditation

The degree programme is professionally accredited by Engineers Ireland, see https://www.engineersireland.ie/Professionals/Membership/Become-a-member/Accredited-third-level-courses

4.16 Student Feedback and Evaluation

The school will conduct student surveys of modules on a regular basis (at least once every three years) typically around the middle of the semester and will provide feedback on the results of these surveys as soon as practical. It will also facilitate student fora with the class representatives towards the end of each semester.

References/Sources

- Student Evaluation and Feedback
- Student Partnership Policy
- Procedure for the Conduct of Focus Groups for Student Feedback on Modules and Programmes

REFERENCES

[CalGeneral] TCD Calendar, Undergraduate Studies, Part B – General Regulations, Section B1 General Regulations and Information, Calendar AY2025/2026, **General Regulations,** https://www.tcd.ie/media/tcd/calendar/undergraduate-studies/general-regulations-and-information.pdf

[CalSCSS] TCD Calendar, Undergraduate Studies, Part C – Specific Regulations, Section **C6** Faculty of Science, Technology, Engineering and Mathematics, Calendar 2025/2026, **Section II Courses in Computer Science and Statistics,** https://www.tcd.ie/media/tcd/calendar/undergraduate-studies/faculty-of-science-tech-eng-maths.pdf