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

Department of Civil, Structural and Environmental Engineering

MSc in Engineering Handbook 2023-2024

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2 COVID

Further to the guidelines as set out by the Vice Provost we note that due to the ongoing presence of COVID-19, it is important to follow familiar guidelines relating to hand hygiene, wearing of face masks. This is part of your individual responsibility for managing symptoms or illness of any kind. Mask wearing is not mandatory but we strongly recommend students wearing masks in lecture settings, libraries and other venues where people may be in close quarters. We know this mitigation is effective in limiting transmission.

We also encourage staying away from class for 7 days if you test positive. We will support you during this period by offering online resources as usual where practical. We will make best efforts to enable online streaming of lectures where facilitated in College lecture theatres. This may not always be possible because of the nature of the lecture/tutorial or laboratory material. Specific resources that can be made available to students in such situations will likely differ across modules and learning situations and your module coordinators will make this clear as we go through the semester.

3 Introduction / Welcome message

Welcome to the MSc In Engineering (Environmental / Structural and Geotechnical / Sustainable Energy / Transport Engineering Policy and Planning) at the Department of Civil, Structural and Environmental Engineering, Trinity College Dublin.

This course aims to develop Engineers with specialist understanding in one of the following streams: Environmental Engineering; Structural and Geotechnical Engineering; Transport Engineering; or Sustainable Energy Engineering. In addition, the course offers students the opportunity to obtain knowledge in complimentary subject areas within Civil Engineering.

This Course Handbook provides details of the structure and methods of assessment of the programme modules, and other relevant information about the course.

4 Student Supports

Trinity College provides a wide range of personal and academic supports for its students.

4.1 Tutors

A tutor is a member of the academic staff who is appointed to look after the general welfare and development of the students in his or her care. Whilst your tutor may be one of your lecturers, the role of tutor is quite separate from the teaching role. Tutors are a first point of contact and a source of support, both on arrival in college and at any time during your time in college. They provide confidential help and advice on personal as well as academic issues or on anything that has an impact on your life. They will also, if necessary, support and defend your point of view in your relations with the college. The course coordinator Prof David O'Connell (DAVID.OCONNELL@tcd.ie) will act as your tutor. Senior Tutor's website: https://www.tcd.ie/seniortutor/

4.2 Student Counselling Service

The Student Counselling Service, 3rd Floor, 7-9 South Leinster Street, College.

Opening hours: 9:15 am to 5:10 pm Monday to Friday during lecture term.

Tel: 01 896 1407

Email: student-counselling@tcd.ie

Web: https://www.tcd.ie/Student_Counselling/

4.3 College Health Service

The Health Centre is situated on Trinity Campus in House 47, a residential block adjacent to the rugby pitch.

Opening hours: 09:00 – 16:40 with emergency clinics from 09:00 – 10:00.

Tel: 01 896 1591 or 01 896 1556

Web: https://www.tcd.ie/collegehealth/

4.4 Chaplaincy

The Chaplains are representatives of the main Christian Churches in Ireland who work together as a team, sharing both the college chapel and the chaplaincy in House 27 for their work and worship.

Steve Brunn (Anglican Chaplain): brunns@tcd.ie; tel: 01 896 1402

Julian Hamilton (Methodist Chaplain): julian.hamilton@tcd.ie; tel: 01 896 1901

Alan O'Sullivan (Catholic Chaplain): aeosulli@tcd.ie; tel: 01 896 1260

Peter Sexton (Catholic Chaplain): sextonpe@tcd.ie; tel: 01 896 1260

Web: https://www.tcd.ie/Chaplaincy/

4.5 Trinity Disability Service

Declan Treanor, Disability Services Coordinator

Room 3055, Arts Building

Email: dtreanor@tcd.ie

Tel: 01 896 3475

Web: https://www.tcd.ie/disability/

4.6 Niteline

A confidential student support line run by students which is open every night of term from 9pm to 2:30am.

Tel: 1800 793 793

Web: https://niteline.ie/

4.7 Students' Union Welfare Officer

House 6, College

Email: welfare@tcdsu.org

Web: https://www.tcdsu.org/welfare

4.8 Maths Help Room

The Maths Help Room offers free assistance to students who are having difficulty with Mathematics, Statistics or related courses. It runs every week of term and at certain times out of term. The Maths help-room is a drop in centre, where you can bring in a maths or stats question and get some help.

The Help room is located in the New Seminar Room In House 20 in the School of Mathematics in the Hamilton Building.

Web: https://www.maths.tcd.ie/Info_for_Schools/Maths_Helproom.php

4.9 Student Learning Development

Student Learning Development provides learning support to help students reach their academic potential. They run workshops, have extensive online resources and provide individual consultations. To find out more, visit their website at https://student-learning.tcd.ie/

4.10 Student 2 Student (S2S)

S2S offers trained Peer Supporters for any student in the College who would like to talk confidentially with another student, or just to meet a friendly face for a chat. This service is free and available to everyone. To contact a Peer Supporter you can email student2student@tcd.ie.

Web: https://student2student.tcd.ie/peer-support/

4.11 Trinity Careers Service

Trinity Careers Service

As a Trinity College Dublin student you have access to information, support and guidance from the professional team of Careers Consultants throughout your time at Trinity and for a year after you graduate. The support offered includes individual career guidance appointments, CV and LinkedIn profile clinics and practice interviews. The Trinity Careers Service and the School of Computer Science and Statistics also hold an annual Careers Fair in October which gives you the opportunity to find out about career prospects in a wide range of companies.

· Visit https://www.tcd.ie/Careers/ for career and job search advice

· Sign into MyCareer to book appointments, find information about vacancies and bursaries, and book your place on upcoming employer events.

· Follow the service on Instagram for career news and advice @trinity.careers.service

4.12 Co-curricular activities

Trinity College has a significant number of diverse student societies which are governed by the Central Societies Committee. They provide information on the societies including how to get involved and even how to start your own society. See http://trinitysocieties.ie/ for more details. Students are encouraged to get involved.

Trinity College also has a huge range of sports clubs which are governed by the Dublin University Athletic Club (DUCAC). See https://www.tcd.ie/Sport/student-sport/ducac/ for more details.

4.13 Trinity College Students' Union

The Trinity College Students' Union (TCDSU) is run for the students by students. TCDSU represent students at college level, fight for students' rights, look after students' needs, and are here for students to have a shoulder to cry on or as a friend to chat with over a cup of tea. Students of Trinity College are automatically members of TCDSU. It has information on accommodation, jobs, campaigns, as well as information pertaining to education and welfare. For more information see https://www.tcdsu.org/

4.14 Trinity Graduate Students' Union

Second Floor, House 6, College

Email: president@tcdgsu.ie

Web: https://www.tcdgsu.ie/

4.15 Graduate Studies

Students on our Postgraduate Taught Programmes can find information on Fees and Registration, Exams, the University Calendar and Thesis Submission on this webpage https://www.tcd.ie/graduatestudies/students/taught/

4.16 Mature Student Office

A mature student is a person over 23 years of age on the 1st January in the year of application. There is no upper age limit. To be considered as a mature student you must also be an EU applicant.

The Mature Student Office runs a Welcome Programme for incoming first year students in September; we engage a successful student led Peer Mentoring Programme and have an active Mature Student Society. These are just some of the supports you can rely on to make your transition to college a smooth one.

4.17 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 in their phone under ICE (In Case of Emergency).

4.18 Data Protection

https://www.tcd.ie/info_compliance/data-protection/student-data/

4.19 Research Ethics

Where research is carried out under the auspices of Trinity College Dublin, the College requires compliance with the policies set out by the Research Ethics Policy Committee. Further information on the policy on good research practice,

https://www.tcd.ie/research/dean/assets/pdf/FINAL_Good%20Research%20Practice%20policy_COUNCIL%20APPROVEDandminutedgg.pdf

5 Introduction

The Course Director, Dr. David O'Connell along with the Head of Department, Prof. Brian Caufield, have responsibility for the MSc in Engineering Programme. The Module Co-ordinators are identified in the relevant Module Outline sheets and should be consulted in relation to module specifics. Planning and review of the programme is undertaken in series of meetings held each summer.

5.1 Contact Details

Year Coordinator
Asst. Prof. David O'Connell, Director of MSc in Engineering Email: DAVID.OCONNELL@tcd.ie Tel: 01 896 3892

OFFICE SUPPORT	
Mary Curley Administrator 3 (MAI & MSc in Engineering) Department of Civil, Structural & Environmental Engineering, Museum Building email: curleyma@tcd.ie Tel: 896 2217 / 086 0661924	George Oatridge Executive Officer (Undergraduate) Department of Civil, Structural & Environmental Engineering, Museum Building Tel: 896 1457 / 896 2217 email: oatridgg@tcd.ie

5.2 Academic Staff

ACADEMIC STAFF	
Asst. Prof Muhammad Ali Aras an Phiarsaigh email: MUHAMMAD.ALI@tcd.ie Tel: 896 XXXX	**Prof. Brian Broderick** Simon Perry Building email: bbrodrck@tcd.ie Tel: 8962348
Prof. Biswajit Basu Simon Perry Building email: basub@tcd.ie Tel: 8962389	**Prof. Brian Caulfield** **Head of Department** Simon Perry Building email: brian.caulfield@tcd.ie Tel: 8962534
Asst. Prof. Julie Clarke Simon Perry Building	**Asst. Prof. Breiffni Fitzgerald** Simon Perry Building

email: Julie.clarke@tcd.ie	email: fitzgeb@tcd.ie Tel: 8961146
Asst. Prof. John Gallagher Simon Perry Building email: j.gallagher@tcd.ie Tel: 8961638	**Asst. Prof. Mohammad Reza Ghaani** Áras an Phiarsaigh email: Mohammad.Ghaani@tcd.ie Tel: 8965019
Assoc. Prof. Bidisha Ghosh Simon Perry Building email: bghosh@tcd.ie Tel: 8961047	**Prof. Laurence Gill** Museum Building email: laurence.gill@tcd.ie Tel: 8961047
Dr. John Hickey Aras an Phiarsaigh email: MUHAMMAD.ALI@tcd.ie **Tel: 8965012**	**Asst. Prof. David Igoe** Old Civil Engineering Labs Email: igoed@tcd.ie Tel: 8963805
Prof. Sarah McCormack Simon Perry Building email: mccorms1@tcd.ie Tel: 8963321	**Prof. Aonghus McNabola** Simon Perry Building email: amcnabol@tcd.ie Tel: 8963837
Asst. Prof Patrick Morrisey Aras an Phiarsaigh email: MUHAMMAD.ALI@tcd.ie Tel: 896 XXXX	**Asst. Prof David O'Connell** Watts Building email: oconnedw@tcd.ie Tel: 8963892
Prof. Alan O'Connor Simon Perry Building email: alan.oconnor@tcd.ie Tel: 8961822	**Assoc. Prof. Dermot O'Dwyer** Museum Building email: dwodwyer@tcd.ie Tel: 8962532
Assoc. Prof. Brendan O'Kelly Simon Perry Building email: bokelly@tcd.ie Tel: 8962387	**Prof. Margaret O'Mahony** Museum Building email: margaret.omahony@tcd.ie *Tel: 8962084*
Assoc. Prof. Sara Pavia Simon Perry Building email: pavias@tcd.ie Tel: 8962516	**Assoc. Prof. Liwen Xiao** Simon Perry Building Email: lxiao@tcd.ie Tel: 8963741

ADJUNCT STAFF	
Adj. Prof. Niamh Harty Museum Building email: hartyn@tcd.ie	**Adj. Prof. Paul Johnston** Museum Building email: pjhnston@tcd.ie
Adj. Prof. Bruce Misstear Museum Building email: bmisster@tcd.ie	**Adj. Prof. Trevor Orr** Museum Building email: torr@tcd.ie Tel: 8961204
Adj. Prof. Roger West Museum Building email: rwest@tcd.ie Tel: 8961204	

TECHNICAL SUPPORT	
Mr. David McAuley, Chief Technical Officer Old Civil Engineering Laboratory email: damcaley@tcd.ie Tel: 896 2386 /1010	Mr. Patrick Veale, Environmental Technical Officer New Civil Engineering Building email: vealep@tcd.ie Tel: 896 3013
Mr. Michael Grimes, Chief Technical Officer Specialist, New Civil Engineering Building email: migrimes@tcd.ie Tel: 896 2388	Mr. Robert Fitzpatrick Technical Officer, New Civil Engineering Building Email: robert.fitzpatrick@tcd.ie Tel: 896 8578
Vacant Technical Officer, New Civil Engineering Building Email: Tel: 896 8578	Mr. Mark Gilligan, Senior Lab Attendant, New Civil Engineering Building email: mailto:gilligma@tcd.ie Tel: 896 2386

6 Key Dates

6.1 Examination Dates:

Semester 1 Assessment: **11th December 2023 to 15th December 2023**

Semester 2 Assessment: **29th April 2024 to 3rd May 2024**

Reassessment – Semesters 1 & 2: Dates to be advised.

6.2 CE7M05 – Research Methods 1

- Ethics Approval Report – **Friday of Week 1, Semester 2***
- Experimental Design – **Friday of Week 3, Semester 2***
- Scoping Literature Review – **Friday of Week 4, Semester 2***

**Awaiting on Semester 2 timetable to be finalised, dates are subject to change.*

6.3 CE7M04 – Engineering Project

(i) Data Analysis: Quantitative and Qualitative Review of Research Literature

- **Systematic mapping and meta-analysis**
  Submission date: **Monday of Week 1, Semester 2***
- **Literature review and peer review process**
  Submission date: **Monday of Week 7, Semester 2***

(ii) GIS Assignment
Submission date: **Monday of Week 8, Semester 2***

(iii) Lunchtime Lectures (6 reports)

- **Report (a)** Lunch Time Lecture – 3 reports
  Submission date: **Friday of Week 7, Semester 2***
- **Report (b)** Lunch Time Lecture – 3 reports
  Submission date: **Friday of Week 12, Semester 2***

** Dates are subject to change.*

6.4 CE7M03 – Dissertation

- Interim Presentation – **20th March 2024***
- Final Dissertation Submission – **6th August 2024***
- Final Poster Presentation – date to be advised – **September 2024***

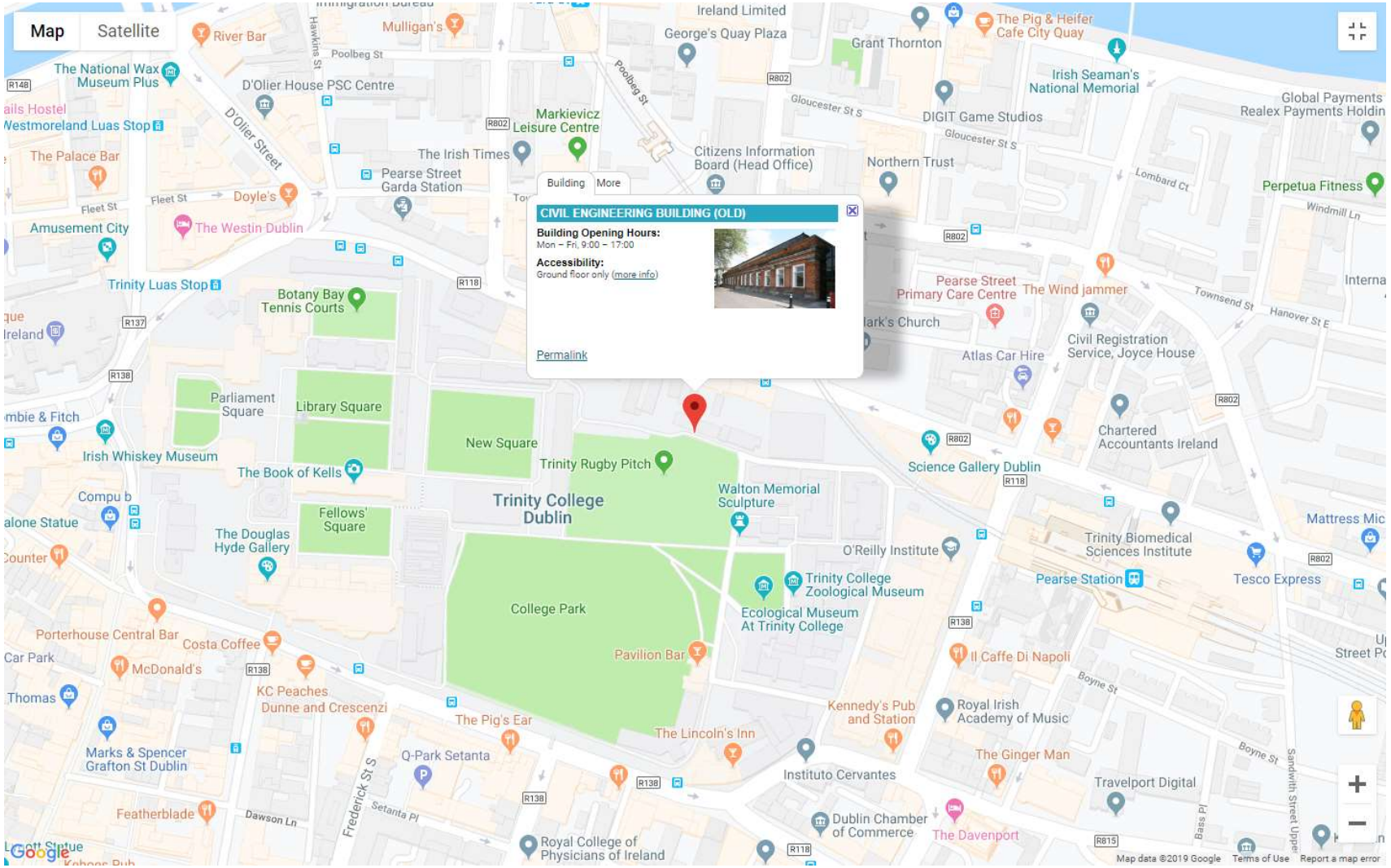
**Awaiting on Semester 2 timetable to be finalised, dates are subject to change*

7 Timetable

MSc in Engineering timetable will be issued with the handbook. The timetable will be available from Thursday, 7th September 2023.

8 Academic Calendar 2023/2024

9 Key Locations



Lectures will be held in the **SPSR Room**, Simon Perry Seminar Room and the Demo Room, **Demonstration Room** in Simon Perry Building.

9.1 Computing Facilities

Students have access to College computing facilities. In addition, the computer laboratory in the Old Civil Engineering Building (Red Brick Building) may be used by MSc students, when not in use by other scheduled classes.

9.2 Keys

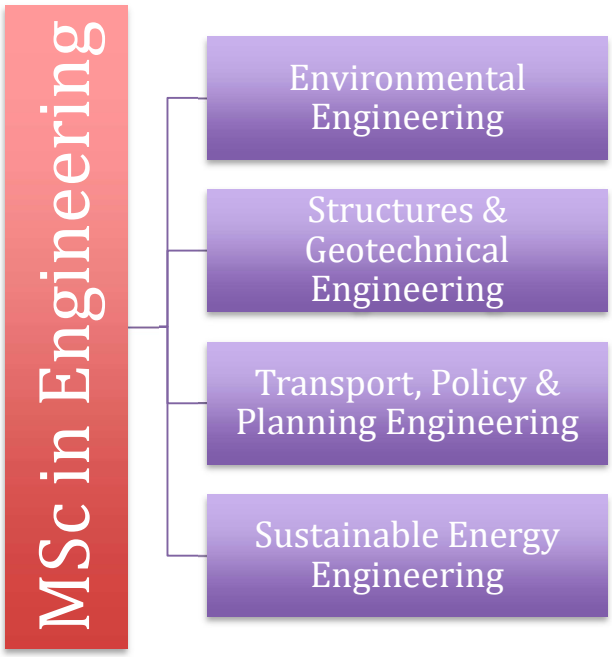
Keys to the front doors of the Simon Perry Building ca be obtained from Mr. David McAuley, Chief Technician, damcaley@tcd.ie, for a returnable deposit.

10 Health and Safety Statements

In any safety queries or compliants arise, they should be brought to the attention of the Departmental Safety Officer (Dr. David Igoe, igoed@tcd.ie, Red Brick Building) or another member of the technical staff. All students working in the laboratories must be aware of the safety procedures of the laboratory and must wear appropriate footwear. Students working on-site must wear appropriate footwear and hard hats.

11 Programme Overview

11.1 MSc in Engineering Structure



Engineering (Environmental / Structural and Geotechnical / Transport, Policy and Planning / Sustainable Energy) (M.Sc./P. Grad. Dip.)

11.2 Programme Learning Outcomes:

This course aims to develop engineers with specialist understanding in one of the areas: Environmental Engineering; Structural and Geotechnical Engineering; Transport and Planning Engineering; or Sustainable Energy Engineering. In addition, the course offers students the opportunity to obtain knowledge in complementary subject areas within the Civil Engineering Discipline.

11.3 Graduate Attributes:

Trinity College Dublin has identified specific Graduate Attributes that students are expected to demonstrate upon graduation. They are important because they will:

- Enhance your learning. Working on them will help you become a better and more successful student,
- Help to prepare you for your future and lifelong learning give the changing nature of society,

- Enhance your employability as they are highly desired skills by employers

The Trinity **Graduate Attributes** are:

11.4 Admission Requirements:

Candidates for this course must normally hold a first or second class, first division Honors Bachelor degree in Engineering, Science or a cognate discipline and pursue the course full-time for a period of not less than 12 consecutive months. Alternatively the course may be taken part-time over two years. Students register on the Masters course in the first instance.

11.5 Course Structure:

Candidates must take twelve modules, namely the four mandatory modules (CE7M01, CE7M03, CE7M04 and CE7M05), together with at least four of the modules in their chosen specialisation and four other modules, which in total amount to 90 credits.

Full-time Programme

In the first semester, candidate pursuing the course full time must take modules CE7M01, CE7M04 and CE7M05 along with four five-credit modules selected from options (including at least two from their selected specialisation), listed below.

In the second semester, candidates pursuing the course full time must take module CE7M03 along with four five-credit modules selected from options (including at least two from their selected specialisation), listed below.

Mandatory modules

CE7M01 Civil Engineering Management (10 credits)
CE7M03 Research Dissertation (30 credits)
CE7M04 Engineering Project (5 credits)
CE7M05 Research Methods 1 (5 credits)

Environmental Engineering

CE7E03 Air Pollution (5 credits)
CE7E04 Waste Management and Energy Recovery (5 credits)
CE7E05 Water Quality and Hydrological Modelling (5 credits)
CE7E06 Water Resource Planning and Climate Change (5 credits)
CE7E07 Sustainable Water Supply and Sanitation (5 credits)
CEP55E06 Groundwater and Pollution (5 credits)

Structural and Geotechnical Engineering

CE7S01 Geotechnical Engineering (5 credits)
CE7S02 Advanced Structural Analysis (5 credits)
CE7S03 Wind and Earthquake Engineering (5 credits)
CE7S04 Bridge Engineering (5 credits)
CE7S05 Advanced Concrete Technology (5 credits)
CE7S06 Offshore Geotechnical Engineering (5 credits)
CE7S07 A Unified Theory of Structures (5 credits)
CE7S09 Advanced Theory of Structures (5 credits)

Sustainable Energy

CE7J01 Wind Energy (5 credits)
CE7J02 Solar Energy Conversion and Applications (5 credits)
CE7J04 Energy Policy and Energy Storage (5 credits)
CE7J06 Wave and Hydro Energy (5 credits)

Transport Engineering, Policy and Planning

CE7T01 Transportation Policy (5 credits)
CE7T02 Transportation Modelling and Planning (5 credits)
CE7T04 Intelligent Transportation Systems (ITS) (5 credits)
CE7T05 Transport Design (5 credits)

Common

CE7C04 Façade Engineering (5 credits)
CE7C05 Advanced Spatial Analysis using GIS (5 credits)
EEP55C23 Computation for Transportation Engineering
EEP55C24 Simulations for Geophysical Modelling

Some of the module options in either semester may be withdrawn from time to time and some new modules may be added, subject to demand. In the event, that insufficient module options are available to meet the minimum module requirements of a particular specialisations then an alternative specialisation or a general Civil Engineering specialisations may be chosen.

Postgraduate Diploma candidates will be assessed on the basis of written examinations and successful completion of the Research Methodology and Engineering Project modules. M.Sc. candidates will, in addition, completed a substantial research project and submit a dissertation of approximately 30,000 words.

Part-time Programme

Candidates may also take the course part-time over two years. In this case, during the first year, the candidates take eight modules, namely: the mandatory modules CE7M01, CE7M04 and CE7M05 along with five of the module options (including at least two from their chosen specialisation), which together amounts to 45 credits. During the second year, candidates must complete the compulsory CE7M03 module together with three other module options (including at least two from their chosen specialisation) which amounts to 45 credits. By the end of the course, part-time candidates must have completed the mandatory modules including the research dissertation, and at least four of their specialisation module options and four of the other module options, together with the compulsory modules, amounting to a total of 90 credits.

11.6 Assessment

The pass mark for all elements is 50%. Assessment methods used include:

- Continuous Assessment
- Formal Examination
- Oral Presentations of Individual Projects
- MSc Dissertation

Continuous assessment

Continuous assessment will form a significant part of certain modules, particularly CE7M05 and CE7M04 which are based on continuous assessment only. Continuous assessment includes class attendance, tutorials, class tests, reports, essays and other coursework. Failure to attend lectures will be reflected in the marks for the continuous assessment. **Coursework submitted after the deadline without permission will not be marked.**

Formal Examinations

Examinations will be held from 11th December to 15th December 2023 at the end of Semester 1 and from 29th April to 3rd May 2024 at the end of Semester 2. They consist of written questions of a variety of types including short questions, mathematical problems and essays. They serve to test factual knowledge and the development of theoretical understanding of the subjects. All examinations will be three hours in duration, unless stated otherwise. Formal examination questions are based on the content of the taught courses. The best guarantee of success there is to work steadily throughout the course, reviewing the contents of each lecture using both your notes and standard texts. Past papers are available to download through the Exam Papers link on the TCD homepage.

Oral Presentations of Individual Projects & MSc Dissertation

MSc dissertation will contribute to 90% of marks in CE7M03 Research Dissertation module. An additional 10% of CE7M03 marks will be awarded based on an interim project presentation.

11.7 Degree Award

1) The pass mark for all elements is 50%. The overall mark for the programme is the credit-weighted average of the mark awarded for each module. To pass the taught modules students must achieve an overall average mark on taught modules of at least 50% and pass taught modules amounting to 50 ECTS credits. In the event a student has failed up to 10 ECTS of taught modules it may be possible to "pass by compensation". To "pass by compensation" a student must (i) achieve an overall credit-weighted average mark of at least 50% AND (ii) achieve a pass mark in taught modules carrying a minimum of 40 credits AND (iii) obtain a module mark of at least 40% in any remaining module(s).
2) Students who have failed the taught modules (by virtue of not achieving the overall average mark of 50% and/or not passing taught modules amounting to 50 ECTS credits) may be re-assessed within the academic year with the agreement of the course coordinator. Re-assessment is only available for failed modules amounting to 20 ECTS where at most 15 ECTS of modules were failed

in any one semester and none of these modules could have been compensated according to regulations in 1) above.

3) Different modalities of assessment are permitted in the reassessment session as determined by the programme. The same compensation regulations apply to reassessed modules as outlined in 1) above.
4) To qualify for the award of the MSc degree, students must submit a dissertation and achieve a pass mark in both the CE7M03 Dissertation module and the taught modules.
5) In order to qualify for a Masters with Distinction, students must as a minimum a) pass all taught modules, b) achieve a final overall average mark for the programme of at least 70% and c) achieve a mark of at least 70% in the CE7M03 Dissertation module.
6) A Distinction cannot be awarded if a candidate has failed any credit during the programme.

11.8 Prizes

The student who achieves the highest overall mark based on the annual MSc in Engineering examinations is awarded the Robert Friel Prize, valued at €200. The student who achieves the highest overall mark based on their dissertation is awarded the best project prize, valued at €200.

12 College Calendar

Further information on the College Calendar.
Web: https://www.tcd.ie/calendar/general-information/

13 Modules and module descriptors

Mandatory modules		
CE7M01	Civil Engineering Management (10 credits)	Asst. Prof. John Gallagher [j.gallagher@tcd.ie]
CE7M05	Research Methods 1 (5 credits)	Assoc. Prof. Bidisha Ghosh (bghosh@tcd.ie)
CE7M03	Research Dissertation (30 credits)	Your Project Supervisor
CE7M04	Engineering Project(5 credits)	Prof. Biswajit Basu (basub@tcd.ie)
Environmental Engineering		
CEP55E03	Air Pollution: Monitoring, Assessment & Control (5 credits)	Asst. Prof. John Gallagher [j.gallagher@tcd.ie]
CE7E04	Waste Management and Energy Recovery (5 credits)	Assoc. Prof. Liwen Xiao (Liwen.Xiao@tcd.ie)
CE7E05	Water Quality and Hydrological Modelling (5 credits)	Prof. Laurence Gill (Laurence.gill@tcd.ie)
CE7E06	Water Resource Planning and Climate Change (5 credits)	Asst Prof. David O'Connell (david.oconnell@tcd.ie)
CE7E07	Sustainable Water Supply and Sanitation (5 credits)	Prof. Laurence Gill (Laurence.gill@tcd.ie)
CEP55E06	Groundwater and Pollution Control (5 credits)	Asst Prof. David O'Connell (david.oconnell@tcd.ie)
Structural and Geotechnical Engineering		
CE7S01	Geotechnical Engineering (5 credits)	Assoc. Prof. Brendan O'Kelly (bokelly@tcd.ie)
CE7S02	Advanced Structural Analysis (5 credits)	Assoc. Prof. Dermot O'Dwyer (dwodwyer@tcd.ie)
CE7S03	Wind and Earthquake Engineering (5 credits)	Prof. Brian Broderick (bbrodrck@tcd.ie)

CE7S04	Bridge Engineering (5 credits)	Prof. Alan O'Connor (alan.oconnor@tcd.ie)
CE7S06	Offshore Geotechnical Engineering (5 credits)	Asst. Prof. David Igoe (igoed@tcd.ie)
CE7S07	A Unified Theory of Structures (5 credits)	Prof. Roger West (rwest@tcd.ie)
CE7S09	Advanced Theory of Structures (5 credits)	Asst. Prof. Breiffni Fitzgerald (fitzgeb7@tcd.ie)
Sustainable Energy		
CE7J01	Wind Energy (5 credits)	Asst. Prof. Breiffni Fitzgerald (fitzgeb7@tcd.ie)
CE7J02	Solar Energy Conversion and Applications (5 credits)	Assoc. Prof. Sarah McCormack (Sarah.McCormack@tcd.ie)
CE7J04	Energy Policy and Energy Storage (5 credits)	Assoc. Prof. Sarah McCormack (Sarah.McCormack@tcd.ie)
CE7J06	Wave and Hydro Energy (5 credits)	Prof. Biswajit Basu (basub@tcd.ie)
Transport Engineering, Policy and Planning		
CE7T01	Transportation Policy (5 credits)	Assoc. Prof. Bidisha Ghosh (bghosh@tcd.ie)
CE7T02	Transportation Modelling and Planning (5 credits)	Assoc. Prof. Brian Caulfield (brian.caulfield@tcd.ie)
CE7T04	Intelligent Transportation Systems (ITS) (5 credits)	Assoc. Prof. Bidisha Ghosh (bghosh@tcd.ie)
CE7T05	Transport Design (5 credits)	Prof. Margaret O'Mahony (Margaret.omahony@tcd.ie)
Common		
CE7C05	Advanced Spatial Analysis using GIS (5 credits)	Asst. Prof. Niamh Harty (Niamh.harty@tcd.ie)
EEP55C23	Computation for Transportation Engineering	Prof. Biswajit Basu
EEP55C24	Simulations for Geophysical Modelling	Prof. Biswajit Basu

You will find all information on this link:
https://www.tcd.ie/Engineering/undergraduate/bai/year-5/

14 Selection of Modules

An important decision that you will have to make early in the programme, is which optional modules you are going to take examinations in. **You must confirm which module options you are taking in both the first and second semesters by completing the form and submit it by Friday, 22nd September 2023.** You will not have access to modules on blackboard or in your student portal until you have registered your selection as instructed here.

15 Selection of Research Project for M.Sc. Dissertation

The MSc Dissertation is a very important part of the MSc programme. It allows the students to carry out in-depth research about a topic and to carry out laboratory/field/numerical work. In the first semester, a list of possible projects will be compiled by the academic staff and distributed to the MSc class. The students will be requested to choose a project in their specialisation (Environmental / Structural and Geotechnical / Sustainable Energy / Transport, Policy and Planning) for their MSc Dissertation, having discussed and agreed beforehand with the relevant supervisor. Students are also welcome to suggest their own topics for projects and they may proceed with these projects once a suitable supervisor has been found from the academic staff. **The students must confirm which research project they are taking for their MSc dissertation by Wednesday, 4th October 2023**. The students should contact their potential supervisors to discuss the research projects as soon as possible, these will be issued on a first come basis.

16 MSc Dissertation

MSc dissertation will contribute to 90% of marks in CE7M03 module, which will run from semester one until the end of August 2023; and include a significant research component. An additional 10% of M3 marks will be awarded based on an interim project presentation. The MSc dissertation is a major undertaking requiring maturity, planning, analysis and a considerable amount of hard work.
The dissertation must be submitted onto Blackboard no later than **6th August 2024**. **The MSc dissertation submitted after the deadline without permission will not be marked.**

Recommendations for the format and presentation of dissertations are given in an appendix.

The marks for the dissertation (90%) are awarded on the following basis:

1. Presentation = 25%
2. Amount of own work done = 25%
3. Understanding and difficulty = 25%
4. Conclusions = 25%

Also important is the initiative and commitment shown by the student and two presentations. It is mandatory that students make a presentation of the project to their class and the Civil Engineering Staff, normally in March, and also to the External Examiner in September. The dates, schedule and format of presentations will be issued closer to the date.

17 Teaching Methods

A wide range of teaching methods are employed on the program. The teaching method reflects the teaching objectives and includes formal lectures, seminars, group design projects and site visits. Students are encouraged to ask questions during or after lectures or seminars if points require clarification, or if their own experience provides useful insight into the subject in hand.

18 Learning Methods

Success on the course is strongly linked to study skills. While each individual has a different style of learning, the following points will help you do well on the course.

1. **Work steadily**
   Successful students take a serious and committed attitude to their subject from the first day of the course. Last minute rushes to meet deadlines and panic cramming invariably decreases the quality of learning.

2. **Review all teaching promptly and thoughtfully**
   Most effective learning takes place outside the lecture theatre. It is advisable to go through lecture notes as soon as possible after each lecture, even if only a few minutes are spent for each lecture. Compare what has been heard and discussed with the information in the reference and recommended texts. Consider the information and distinguish between learning single facts and understanding the subject matter. The lecturer will be happy to clarify any queries that may arise at the next lecture or personally, by appointment, at a later date.

3. **Attend regularly**
   No lecturer is likely to explain material in a lecture a second time to someone who was absent the first time. Failure to attend lectures will be reflected in the marks for the relevant assessment.

4. **Plan your time carefully**
   It maybe helpful to draw up a schedule of commitments: reviewing lectures, preparing laboratory reports, essays and exam revision. An estimate should be made of how much time will be needed for each task, working backwards form each deadline to find out when the next task should be started.

5. **Working with colleagues**
   Working with a few colleagues in a group will often help everyone to learn effectively. For example, it maybe necessary to set time aside each day to review lecture notes together. Working together may help with your personal discipline, while discussing a subject often clarifies many of the issues and concepts involved. **However, it should be pointed out that working together is not the same as copying another person's work. Copying another person's work is considered as plagiarism.** Plagiarism is considered as a major offence, and subject to the disciplinary procedures of the University. More information about plagiarism can be found in the Calendar, Part III, General Regulations & Information, section 67:

   https://www.tcd.ie/calendar/graduate-studies-higher-degrees/complete-part-III.pdf

   A link to the Library Guidelines for Avoiding Plagiarism, https://libguides.tcd.ie/friendly.php?s=plagiarism

   Declaration text for submitted assignments: https://libguides.tcd.ie/plagiarism/declaration

19 Feedback and Evaluation

The Staff/Student Committee meets once a semester to discuss matters of interest and concern to student and staff. It comprises class representatives from each year. A programme level survey is issued online to students towards the end of Semester 2.

20 The European Credit Transfer and Accumulation System (ECTS)

The European Credit Transfer and Accumulations System (ECTS) is an academic credit system based on the estimated student workload required to achieve the objectives of a module or programme of study. It is designed to enable academic recognition for periods of study, to facilitate student mobility and credit accumulation and transfer. The ECTS is the recommended credit system for higher education in Ireland and across the European Higher Education Area.

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, ad so on as appropriate. There is no intrinsic relationship between the credit volume of the module and its level of difficulty.

The European norm for full-time study over one academic year is 60 credits. 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. Progression from one year to the next is determined by the programme regulations. Students who fail a year of their programme will not obtain credit for that year even if they have passed certain component. Exceptions to this rule are one-year and part-time visiting students, who are awarded credit for individual modules successfully completed.

21 Guidelines on Grades

The following descriptors are given as a guide to the qualities that assessors are seeking in relation to the grades usually awarded. A grade is the anticipated degree class based on consistent performance at the level indicated by an individual answer. In addition to the criteria listed examiners will also give credit for evidence of critical discussion of facts or evidence.

Mark Range	Criteria
90-100	IDEAL ANSWER; showing insight and originality and wide knowledge. Logical, accurate and concise presentation. Evidence of reading and thought beyond course content. Contains particularly apt examples. Links materials from lectures, practicals and seminars where appropriate.
80-89	OUTSTANDING ANSWER; falls short of the 'ideal' answer either on aspects of presentation or on evidence of reading and thought beyond the course. Examples, layout and details are all sound.
70-79	MAINLY OUTSTANDING ANSWER; falls short on presentation and reading or thought beyond the course but retains insight and originality typical of first class work.
65-69	VERY COMPREHENSIVE ANSWER; good understanding of concepts supported by broad knowledge of subject. Notable for synthesis of information rather than originality. Sometimes with evidence of outside reading. Mostly accurate and logical with appropriate examples. Occasionally a lapse in detail.
60-64	LESS COMPREHENSIVE ANSWER; mostly confined to good recall of coursework. Some synthesis of information or ideas. Accurate and logical within a limited scope. Some lapses in detail tolerated.
55-59	SOUND BUT INCOMPLETE ANSWER; based on coursework alone but suffers from a significant omission, error or misunderstanding. Usually lacks synthesis of information or ideas. Mainly logical and accurate within its limited scope and with lapses in detail.
50-54	INCOMPLETE ANSWER; suffers from significant omissions, errors and misunderstandings, but still with understanding of main concepts and showing sound knowledge. Several lapses in detail.
45-49	WEAK ANSWER; limited understanding and knowledge of subject. Serious omissions, errors and misunderstandings, so that answer is no more than adequate.

40-44	VERY WEAK ANSWER; a poor answer, lacking substance but giving some relevant information. Information given may not be in context or well explained but will contain passages and words which indicate a marginally adequate understanding.
35-39	MARGINAL FAIL; inadequate answer, with no substance or understanding, but with a vague knowledge relevant
30-34	CLEAR FAILURE; some attempt made to write something relevant to the question. Errors serious but not absurd. Could also be a sound answer to the misinterpretation of a question.
0-29	UTTER FAILURE; with little hint of knowledge. Errors serious and absurd. Could also be a trivial response to the misinterpretation of a question.

Guidelines on Marking Projects/Dissertation Assessment

Mark Range	Criteria
90-100	Exceptional project report showing broad understanding of the project area and exceptional knowledge of the relevant literature. Exemplary presentation and analysis of results, logical organisation and ability to critically evaluate and discuss results coupled with insight and novelty/originality. Overall an exemplary project report of publishable quality (e.g. peer reviewed scientific journal/patent application).
80-89	An excellent project report clearly showing evidence of wide reading far above that of an average student, with excellent presentation and in-depth analysis of results. Clearly demonstrates an ability to critically evaluate and discuss research findings in the context of relevant literature. Obvious demonstration of insight and novelty/originality. An excellently executed report overall of publishable quality (e.g. short peer reviewed conference paper such as IEEE) with very minor shortcomings in some aspects.

70-79	A very good project report showing evidence of wide reading, with clear presentation and thorough analysis of results and an ability to critically evaluate and discuss research findings in the context of relevant literature. Clear indication of some insight and novelty/originality. A very competent and well-presented report overall but falling short of excellence in some aspects. Sufficient quality and breadth of work similar to the requirements for an abstract at an international scientific conference.
60-69	A good project report which shows a reasonably good understanding of the problem and some knowledge of the relevant literature. Mostly sound presentation and analysis of results but with occasional lapses. Some relevant interpretation and critical evaluation of results, though somewhat limited in scope. General standard of presentation and organisation
50-59	A moderately good project report which shows some understanding of the problem but limited knowledge and appreciation of the relevant literature. Presentation, analysis and interpretation of the results at a basic level and showing little or no novelty/originality or critical evaluation. Insufficient attention to organisation and presentation of the
40-49	A weak project report showing only limited understanding of the problem and superficial knowledge of the relevant literature. Results presented in a confused or inappropriate manner and incomplete or erroneous analysis. Discussion and interpretation of result severely limited, including some basic misapprehensions, and lacking any novelty/originality or critical evaluation. General standard of presentation poor.
20-39	An unsatisfactory project containing substantial errors and omissions. Very limited understanding, or in some cases misunderstanding of the problem and very restricted and superficial appreciation of the relevant literature. Very poor, confused and, in some cases, incomplete presentation of the results and limited analysis of the results including some serious errors. Severely limited discussion and interpretation of the results revealing little or no ability to relate experimental results to the existing literature. Very poor overall standard of presentation.

0-19	A very poor project report containing every conceivable error and fault. Showing virtually no understanding or appreciation of the problem and of the literature pertaining to it. Chaotic presentation of results, and in some cases incompletely presented and virtually non-existent or inappropriate or plainly wrong analysis. Discussion and interpretation seriously confused or wholly erroneous revealing basic misapprehensions.

22 Attendance requirements

Please note that attendance at lectures, tutorials and laboratory sessions is mandatory as is the submission of all work subject to continuous assessment. With regard to online teaching, attendance is mandatory at live lectures, tutorial and labs. Pre-recorded lectures should be viewed at the allocated slot on the timetable. Students who prove lacking in any of these elements may be issued with a Non-Satisfactory form and asked for an explanation for their poor attendance or performance. Students who do not provide a satisfactory explanation can be prevented from sitting the annual examinations.

The College Calendar outlining the College policy on attendance and related issues, please look at page 38:
https://www.tcd.ie/calendar/graduate-studies-higher-degrees/complete-part-III.pdf

23 Absence from examinations

The following is an extract from the College Calendar outlining the College Policy on absence from Examinations:

ABSENCE FROM EXAMINATIONS

11 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 Programme Co-ordinator/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 programme handbooks or

from Programme Co-ordinators/Directors. 12 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 Programme Co-ordinator/Director. The Programme Coordinator/Director will then make representations to the Dean of Graduate Studies requesting that permission be granted for absence from the examination. 13 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.

24 Examination of Dissertation

The following is an extract from the College Calendar outlining the College Policy on Examination of Dissertation:

16 Graduate students who require an extension on the submission date of their dissertation (on medical or ad misericordiam grounds) must contact their Programme Co-ordinator/Director prior to the submission date and must provide documentary evidence to support their case. Such extensions will be at the discretion of the programme committee. Where a programme requires graduate students to undertake an oral examination of the dissertation work, this will take place before the examination board meeting takes place. Dissertations may be graded fail/pass/pass with distinction. Graduate students who have achieved a pass / pass with distinction for their dissertation may, subject to the approval of the programme committee, be granted a one month extension free of fees for minor revisions / corrections prior to submitting the final hardbound copy of the dissertation. No extensions to this period will be permitted.

25 Assessment and Progression Regulations

The following is an extract from the College Calendar outlining the College Policy on Assessment and Progression:

16 *Graduate students who require an extension on the submission date of their dissertation (on medical or ad misericordiam grounds) must contact their Programme Co-ordinator/Director prior to the submission date and must provide documentary evidence to support their case. Such extensions will be at the discretion of the programme committee. Where a programme requires graduate students to undertake an oral examination of the dissertation work, this will take place before the examination board meeting takes place. Dissertations may be graded fail/pass/pass with distinction. Graduate students who have achieved a pass / pass with distinction for their dissertation may, subject to the approval of the programme committee, be granted a one month extension free of fees for minor revisions / corrections prior to submitting the final hardbound copy of the dissertation. No extensions to this period will be permitted. 17 Where failure of a dissertation is contemplated and an oral examination has not been held as a matter of programme, graduate students are entitled to an oral examination. This must take place prior to, or during the examination board meeting. The candidate must be informed of the reason for the oral examination. Candidates who have attended an oral examination as a matter of programme may not avail of another. The format of an oral examination is at the discretion of the programme committee.*

ASSESSMENT AND PROGRESSION REGULATIONS

18 *The following regulations apply in all courses of study leading to the award of a Masters degree or Postgraduate Diploma. Graduate students must obtain credit for each academic year of their course by satisfactory completion of course requirements as laid down in the relevant course handbook.*

19 *To qualify for the relevant postgraduate award, students must, as a minimum, (i) achieve an overall pass mark which is normally the credit-weighted average mark for all taught modules taken, and (ii) achieve a pass mark in all modules designated as non-compensatable in the course handbook, and (iii) In the case of a Masters degree, achieve a pass mark in the research element or dissertation, and*

18. *Additional requirements for specific courses are laid down in the relevant course handbook.*

19. *Students failing to pass individual taught modules may present for supplemental examination or re-submit required work if and as provided for in the course regulations. Students who, following the supplemental examination or re-assessment, have failed to pass the requisite taught modules as provided for in the course*

regulations above will be deemed to have failed the course, and may apply to the relevant school for permission to repeat it. (vi) Students on a Masters course who do not achieve a pass mark in the research element or dissertation, will be deemed to have failed the course, and may apply to the relevant school for permission to repeat it. Alternatively, and where this is provided for in the Course regulations, such students may be awarded an associated Postgraduate Diploma.

20. *In order to qualify for the award of Masters with Distinction students must have not failed any component during the period of study and must as a minimum, either (i) achieve a final overall average mark for the course of at least 70% and a mark of at least 70% in the dissertation or research element, or (ii) achieve a mark of at least 70% in the dissertation or research element, and achieve at least 68% in the unrounded overall average mark for the taught modules, where modules amounting to at least half of the credits attaching to the taught modules (normally 30 credits) each have a mark of at least 70%, or (iii) in courses in which the modules are assigned grades only, achieve a distinction in the dissertation or research element and distinctions in modules amounting to at least half of the required credit for the taught element of the course.*

21. *In order to qualify for the award of Postgraduate Diploma with Distinction students must not have failed any component during the period of study and must as a minimum either (a) achieve an overall credit-weighted average mark of at least 70% across all modules, or (b) achieve at least 68% in the overall credit-weighted average mark and achieve a minimum mark of 70% in individual modules which together amount to at least half of the required credits for the award of the Postgraduate Diploma associated with the student's registered course or (c) in courses in which the modules are assigned grades only, achieve the grade of distinction in individual modules which amount to at least half of the required credit for the Postgraduate Diploma.*

21 *The following information relates to all examination results: i. All postgraduate examination results are published anonymously under a student's registered number. ii. Students who successfully complete their programme will have the qualification, where appropriate, awarded under their registered name and within grade.*

26 Plagiarism

The following is an extract from the College Calendar outlining the College Policy on Plagiarism:

49 *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 the author of any work to ensure that he/she does not commit plagiarism.

Plagiarism is considered to be academically fraudulent, and an offence against academic integrity that is subject to the disciplinary procedures of the University.

50 *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.

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.

***51** 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.

***52** 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.*

***53** Avoiding Plagiarism Students should ensure the integrity of their work by seeking advice from their lecturers, tutor or supervisor on avoiding plagiarism. All schools and departments must include, in their handbooks or other literature given to students, guidelines on the appropriate methodology for the kind of work that students will be expected to undertake. In addition, a general set of guidelines for students on avoiding plagiarism is available at http://tcd-ie.libguides.com/plagiarism*

***54** If plagiarism as referred to in §49 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 (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 (Other General Regulations).

55 *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. The student is required to submit a new piece of work as a supplemental assessment during the next available session. Provided the work is of passing standard, the assessment mark and the module mark will be capped at the pass mark. Discretion lies with the Dean of Graduate Studies (as appropriate) in cases where there is no standard opportunity 24 for a supplemental assessment under applicable course regulations.

Provided that the appropriate procedure has been followed and all parties in 54 above 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 Programme Director and, where appropriate, the Programme 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 Section 5 (Other General Regulations). 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 (Other General Regulations).

56 *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.*