



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

**SCHOOL OF ENGINEERING
UNIVERSITY OF DUBLIN, TRINITY COLLEGE
PhD PROGRAMME**

**Eligible Level 9 Postgraduate Modules
2025/2026**

1 Introduction

The School of Engineering requires each PhD student to accumulate a minimum of 10 ECTS (European Credit Transfer and Accumulation System) credits on Level 9 postgraduate modules to be taken in the early stage of their postgraduate studies. These credits are required in order to qualify for graduation along with submission of their examined PhD thesis.

The credits can be gained through participation and completion (that is, satisfying the Examiners in examinations or continuous assessment, depending on the course) of a number of modules that are available free of charge to PhD students.

There follows a list of modules which are deemed eligible for selection in obtaining these credits. When a student has selected their preferred module, they should discuss their selection with their Supervisor. When the choice is agreed, the module co-ordinator should be contacted to ensure that the module is running and that there is room for the student on the module. Then the student needs to register for the module by informing the Postgraduate Officer by e-mail of their choice so that their participation is registered with the Examinations Office. If a student withdraws from a module for any reason, they should inform both the course co-ordinator and the Postgraduate Officer.

The timetable for each module can be found in the Departmental MAI [timetable](#) for current undergraduate students.

2. Eligible PhD modules

2.1 School of Engineering

5th MAI year / MSc modules

Civil

Module Code	Module Title	Sem	ECTS	Module Coordinator
CE7M01	Civil Engineering Management	1	10	John Gallagher
CE7M05	Research Methods	1&2	5	Mohammad Reza Ghaani
CE7C05	Advanced Spatial Analysis using GIS	1	5	Patrick Morrissey
CEP55E03	Air Pollution: Monitoring, Assessment & Control	1	5	John Gallagher
CE7E04	Waste Management and Energy Recovery	1	5	Liwen Xiao
CE7E05	Water Quality and Hydrological Modelling	2	5	Laurence Gill
CE7E06	Water Resource Planning and Climate Change	2	5	David O'Connell
CE7E07	Sustainable Water Supply and Sanitation	1	5	Laurence Gill
CEP55E06	Groundwater and Pollution Control	2	5	David O'Connell
CE7J01	Wind Energy	2	5	Breiffni Fitzgerald
CE7J02	Solar Energy Conversion and Applications	1	5	Sarah McCormack
CE7J04	Energy Policy and energy Storage	1	5	Sarah McCormack
CE7J06	Wave Energy	2	5	Biswajit Basu
CE7T01	Transportation Policy	1	5	Bidisha Ghosh
CE7T02	Transport Modelling and Planning	1	5	Brian Caulfield
CE7T04	Intelligent Transportation Systems	2	5	Bidisha Ghosh
CE7T05	Transportation Design	2	5	Margaret O'Mahony
CE7S01	Geotechnical Engineering	2	5	Brendan O'Kelly
CE7S02	Advanced Computation for Structures	1	5	Dermot O'Dwyer
CE7S03	Wind and Earthquake Engineering	1	5	John Hickey
CE7S04	Bridge Engineering	2	5	Alan O'Connor
CE7S06	Offshore Geotechnical Engineering	2	5	David Igoe

CE7S09	Advanced Theory of Structures	1	5	Breiffni Fitzgerald
CEP55E05	Civil Engineering Materials	2	5	Sara Pavia
CEPCAE01	Introduction to Climate Adaptation Engineering	1	5	Rui Teixeira
CEPCAE03	Climate Adaptation Engineering Challenge	2	5	John Gallagher
CEPCAE02	Adaptation Planning for Infrastructure	2	10	Aimee Byrne

Mechanical

ME5B03	Advanced Thermal Fluids Design	2	10	Anthony Robinson
ME5B09	Control Engineering II	1	5	Dermot Geraghty
ME5B10	Instrumentation and Experimental Techniques	2	5	Dermot Geraghty
MEP55B15	Low Carbon Transport Technology	1&2	10	Charles Stuart
MEP55B16	Low Carbon Power Technology	1&2	10	Stephen Spence
ME5E4	Introduction to Computational Fluid Mechanics	1	5	Seamus O'Shaughnessy
ME5MM1	Advanced Manufacturing II – Additive Manufacturing and Laser Processing	2	5	Moyinoluwa Otubela
ME5MM3	Supply Chain Management	1	5	Garret O'Donnell
ME5MM7	Risk Management and Safety Assessment Systems	1	5	Garret O'Donnell
MEP55M11	Nanotechnology and Additive Manufacturing II	2	5	Amir Pakdel
MEP55M1	Turbomachinery	2	5	Charles Stuart
MEP55B14	Engineering Vibrations & Noise	2	5	John Kennedy
MEP55B10	Finite Element Analysis	1	5	Triona Lally
MEP55E04	Computational Fluid Mechanics	1	5	Seamus O'Shaughnessy

Electronic

Music and Media Technologies

EEP55C37	Introduction to Motion Picture Engineering	2	5	Anil Kokaram
EEP55C05	Digital Signal Processing	1	5	Naomi Harte
EE5C04	Speech Technology	2	5	Naomi Harte
EEP55C09	Self Organising Technological Networks	1	5	Nicola Marchetti
EEP55C26	Open Reconfigurable Networks	2	5	Marco Ruffini
EEP55C28	Digital Wireless Communications	1	5	Arman Farhang
EE5C16	Deep Learning and its Applications	1	10	Francois Pitie
EEPMMT07*	Audio Production Engineering	1	5	Jimmy Eadie
EEMT16*	Audio Production Techniques	1&2	5	Jimmy Eadie

EEMT17*	Spatial Audio	2	5	Enda Bates
EEMT18*	Introduction to MAX	1	5	Stephen Roddy
EEMT21*	Introduction to XR: Applications and Technologies	2	5	Fionnuala Conway
EEPMMT35	Acoustics and Auditory Perception	1	5	Nils Peters
EEP55C10	Statistical Signal Processing and Machine Learning	1	5	Anthony Quinn
EEP55C21	Cyber Physical Systems & Control	1	5	Harun Siljak
EEP55C36	Computational Methods and Algorithms	1	5	Hossein Javidnia
EEP55C31	Data Science and AI for Transportation Engineering	2	5	Biswajit Basu
EEP55C24	Simulations for Geophysical Modelling	2	5	Biswajit Basu
EEP55C32	VSLI Design	2	5	George Floros
EEP55C33	Power System Analysis	2	5	Jin Zhao
EEP55C34	Advanced AI	2	5	Hossein Javidnia
EE5M02	Microelectronic Circuits	1	5	Philip Christie
EEP55C30	Algorithms for Quantum Computing II	1&2	10	Biswajit Basu
EEP55M08	Digital Image and Video Processing	2	5	Francois Pitie
EE5M01	Integrated Systems Design	1	5	Shreejith Shanker

Computer (subject to change)

CSU55001	Fuzzy Logic and Control Systems	1	5	Ahmad Khurshid
CSU55004	Formal Verification	1	5	Koutavas Vasileios
CS7CS3	Advanced Software Engineering	1&2	10	Siobhan Clarke
CS7CS4	Machine Learning	1	5	Douglas leith
CS7DS1	Data Analytics	1&2	10	Alessio Benavoli
CS7DS2	Optimisation Algorithms for Analysis	2	5	Douglas Leith
CS7DS4	Data Visualisation	1	5	John Dingliana
CS7GV1	Computer Vision	1	5	Subrahmanyam Murala
CS7GV2	Mathematics of Light and Sound	1	5	Fergal Shevlin
CS7GV4	Augmented Reality	2	5	Gareth Young
CS7IS1	Knowledge and Data Engineering	1	5	Declan O'Sullivan

CS7IS2	Artificial Intelligence	2	5	Ivana Dusparic
CS7IS3	Information Retrieval and Web Search	1	5	Yvette Graham
CS7IS4	Text Analytics	2	5	Carl Vogel
CS7NS1	Scalable Computing	1	5	Ciaran McGoldrick
CS7NS2	Internet of Things	2	5	Stefan Weber
CS7NS3	Next Generation Networks	1	5	Marco Ruffini
CS7NS4	Urban Computing	1	5	Mohit Garg
CS7NS5	Security and Privacy	2	5	Stephen Farrell
CS7NS6	Distributed Systems	2	5	Vinny Cahill

Biomedical

MEP56BM1	Medical device design innovation project	1&2	10	Bruce Murphy
ME5BIO7	Advanced Medical Imaging	2	5	Brooke Tornifoglio
MEP56BM9	Medical Device Design Fundamentals	1	5	Bruce Murphy
ME7B04	Basic Medical Sciences	2	5	Roisin Mc Mackin
ME7B24	Experimental and Research Methods in Biomedical Engineering	1	5	David Hoey
ME7B09	Current Research Topics in Cell & Tissue Engineering	1&2	10	Daniel Kelly
ME7B16	Laboratory Techniques in Cell & Tissue Engineering	1	5	Mark Ahearne
ME7B18	Case Study/ Design and Innovation	2	10	Brooke Tornifoglio
MEP55BM8	Active Implanted Devices and Systems	2	10	Alejandro Lopez Valdes
MEP55B21	Neural Signal Analysis	1	10	Alejandro Lopez Valdes

2.2 Postgraduate Diploma courses

DPDEG-SENE-1P	Sustainable Engineering		60	Sarah McCormack
DPDEG-ABRC -1P	Applied Building Repair and Conservation		45	Sara Pavia
DPDEG-CLCA-1P	Construction Law and Contract Administration		45	Tom Grey

DPDEG-SENE-1P	Sustainable Energy and the Environment		45	Mohammad Reza Ghaani
DPDEG-FSPR-1P	Fire Safety Practice		45	Tom Grey
DPDEG-PMAN-1P	Project Management		45	Muhammad Ali

Although these are 45 ECTS courses, PhD students electing to take these weekend courses must attend lectures for two semesters and pass the two examinations, (but not complete the 15 ECTS coursework component) to obtain the ECTS requirement. However, if the coursework and exams are satisfactorily completed, the candidate will be eligible to graduate with the relevant PGDip qualification. Permission from the Course Co-ordinator and the Dean of Graduate Studies has to be obtained to attend these PGDip courses. If the PGDip course fee is more than the research degree fee for that year, the higher fee must be paid if the course is taken in full.

2.3 School of Computer Science and Statistics

[PG Cert Statistics course**](#)

ST7001	Base Module	1	10	
ST7002	Introduction to Multiple Linear Regression	2	10	Myra O'Regan
ST7003	Design and Analysis of Experiments	2	10	Tin Lok James Ng

**Although this is a 30 ECTS course, all students must take the Base Module. Permission from the Course Co-ordinator and the Dean of Graduate Studies has to be obtained to attend these PGDip courses.

2.4 External Modules

[Tangent, Trinity's Ideas Workspace](#)

Postgraduate Certificate in Innovation and Enterprise Development
Postgraduate Certificate in Climate Entrepreneurship