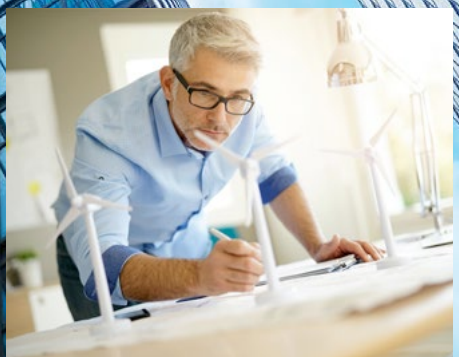
SCHOOL OF ENGINEERING

ME / BE (Hons)
Civil, Structural and Environmental Engineering

UCC

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh



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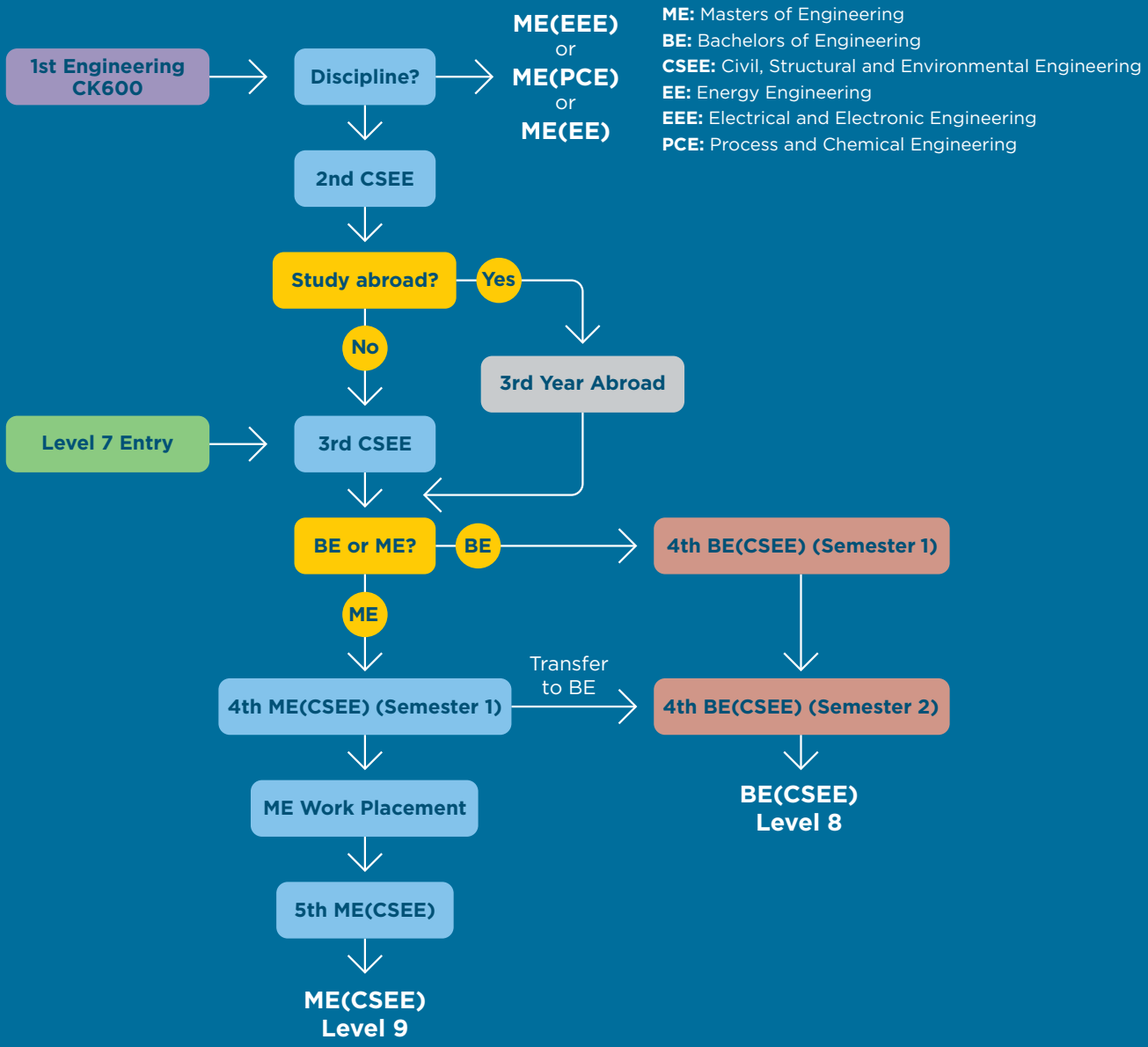
Decision tree for students who wish to gain a qualification in Civil, Structural & Environmental Engineering (CSEE)



ME: Masters of Engineering
BE: Bachelors of Engineering
CSEE: Civil, Structural and Environmental Engineering
EE: Energy Engineering
EEE: Electrical and Electronic Engineering
PCE: Process and Chemical Engineering

Welcome to Civil, Structural and Environmental Engineering at UCC

Civil, Structural and Environmental Engineers are responsible for the design and construction of infrastructure, sustainable cities, high rise buildings, highways, traffic management, rail transport systems, bridges, flood studies, coastal protection, water supply, waste management and environmental protection. The work of a civil engineer is broad and varied.

The innovation of civil engineers will be required to solve the great challenges climate action will pose. What will replace diesel and petrol as a fuel for cars, trucks, ships and planes? Can public transport systems and bicycles reduce the number of cars and lead to liveable sustainable cities with clean air? How will buildings fuel themselves whilst having a carbon neutral or negative footprint? How will we provide clean drinking water to billions of people in a future highly populated world? How will we deal with our wet organic wastes (such as slurries and sewage) whilst minimising fugitive methane emissions? How will we design our infrastructure to deal with more frequent storms of greater intensity coupled with storm surges and increased sea level?

UCC is one of Ireland's oldest Universities, originally founded in 1845. Civil Engineering was one of the first disciplines, with a Professor of Civil Engineering in place since 1849. I am honoured to be only the 12th Professor of Civil Engineering in University College Cork over the intervening 170 years.

UCC was ranked in the top 2% of universities worldwide, was named as Ireland's Sunday Times University of the Year in 2016, and again in 2017. In 2007, UCC became the first University in the world to be awarded a Green Flag for its initiatives in environmental education and sustainability and is currently ranked the world's number one University for responsible consumption and production.

We have a fantastic team of brilliant Civil Engineering academics to teach and mentor the next generation of civil engineering graduates. We host the Science Foundation Ireland (SFI) centre for energy, climate and marine, a centre which has accumulated €65M in research funding, 50 industry partners and 200 researchers. The infrastructure and expertise associated with this centre such as the LIR National Ocean Test Facility and the Biofuels Laboratory are world class. You will benefit from these facilities, and associated research-led teaching from world leading academics. This is complimented with lectures from industry leading professional engineers, architects and planners. The expertise in UCC will ensure that you the next generation of civil engineers will work on the world stage in solving the big infrastructure questions in climate mitigation and adaptation.

I hope you find the Civil, Structural and Environmental programme to be as fascinating as I did in the 1980's and enjoy your Engineering career as much as I have.

Jerry D. Murphy
Professor of Civil Engineering,
University College Cork

Civil, Structural and Environmental (CSE) Engineering

Programme Overview

Civil, Structural and Environmental engineers design, construct and operate a wide range of infrastructure, vital to the needs of a modern economy. All the infrastructure around us, including roads, bridges, hospitals, universities, airports, water, wastewater and energy facilities is the product of civil, structural and environmental engineering. Civil, Structural and Environmental engineering is the application of science to planning, design and construction for the benefit of society while minimising environmental impact. Engineers are curious about how the world works. They enjoy solving problems and are creative and inventive people.

The BE (Hons) and ME Civil, Structural and Environmental Engineering degrees are particularly rewarding as engineers have excellent job prospects, both within engineering and in other careers such as management consultancy, finance, software development and biomedical technology.

As part of your fundamental engineering training, you will use mathematics and science to solve practical problems, acquire excellent IT skills, develop creativity through design projects and learn to communicate effectively as individuals and in teams.

The courses include lectures on engineering principles, laboratory classes, fieldwork, design projects and opportunities to study abroad. Our graduates have strong transferable skills including communication, teamwork, management, and leadership.

The first year of the BE is a broad education in engineering fundamentals. At the end of the first year you can choose to enter Civil, Structural and Environmental Engineering. Your chosen area of specialisation in second year will also offer routes to further branches of engineering at Masters level. At the end of a successful 3rd year, students enter 4th year, which is a pathway to either the 5th Year Integrated ME for eligible students or exiting with a BE(Hons). Year 4 of the ME finishes with a Professional Work Placement that takes place during the 2nd semester and the summer break (8 months).

Further details on the course structure can be found through the link below:

www.ucc.ie/admin/registrar/calendar/engineering/eng002.html

Detailed descriptions of module content, assessment and other relevant information can be accessed through the UCC Book of Modules:
www.ucc.ie/admin/registrar/modules/

My decision to pursue the BE(Civil) Degree at UCC was undoubtedly the best one I have ever made. The program not only provided me with a sound background in civil engineering itself, but it also ensured I gained valuable skills in a wide range of associated areas, such as mathematics and computer programming.

Dr Gemma Cremen

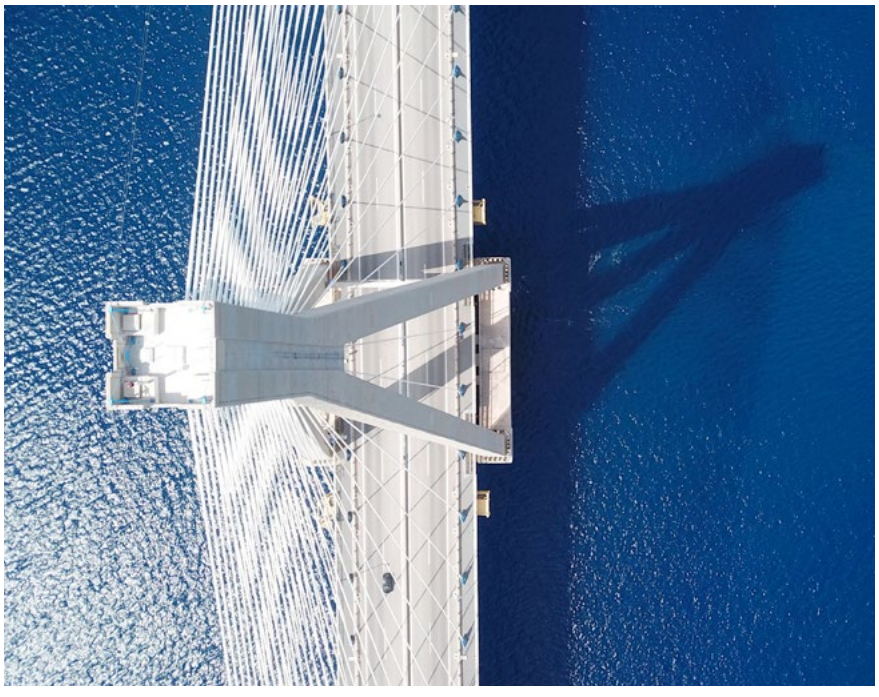
BE(Civil) 2014, PhD 2018 (Stanford)
Research Fellow in Earthquake Engineering, University College London

Second Year Civil, Structural and Environmental Engineering

Year Co-ordinator: Dr Marguerite Nyhan

The 2nd Year CSE Engineering programme provides a foundation in the broad CSE engineering discipline, building upon the 1st Year foundation in science subjects. This broad base provides the necessary skills that underpin engineering to deliver civil, structural and environmental engineering.

EG2001 Engineering Mechanics with Transform Methods (5 credits)
EG2002 Numerical Methods and Programming (5 credits)
CE2001 Solid and Structural Mechanics I (5 credits)
CE2002 Solid and Structural Mechanics II (5 credits)
CE2003 Fluids I (5 credits)
CE2004 Fluids II (5 credits)
CE2005 Surveying - Theory and Practice (5 credits)
CE2007 Design Studio I (5 credits)
CE2009 BIM 1: Modelling and Visualisation (5 credits)
MA2013 Mathematics for Engineering (5 credits)
PE2003 Heat Transfer (5 credits)
ST1051 Introduction to Probability and Statistics (5 credits)



The skill set which was developed through both my BE (Civil) and MEngSc education within UCC played a significant part in allowing me to fulfil the requirements of my role as Consultant Energy Engineer.

Ciarán Dennehy

BE (Civil) 2010, MEngSc (Sus Eng) 2013
Consultant Energy Engineer, System Dynamics Group, Dublin

Third Year Civil, Structural and Environmental Engineering

Year Co-ordinator: Dr Paraic Ryan

The 3rd Year CSE Engineering programme introduces more depth in CSE engineering by introducing concepts such as: structural engineering design; geotechnical engineering; environmental engineering and sustainable energy.

CE3002 Solid and Structural Mechanics III (5 credits)
CE3003 Design Studio II (Steel and Timber) (5 credits)
CE3004 Mechanics of Soils I (5 credits)
CE3005 Mechanics of Soils II (5 credits)
CE3006 Construction Project Management (5 credits)
CE3007 Hydraulics I (5 credits)
CE3008 Design Studio III
(Reinforced Concrete and Masonry) (5 credits)
GL3006 Geology for Engineers (5 credits)
CE3009 Environmental Engineering - Wet (5 credits)
CE3010 Energy in Buildings (5 credits)
CE3012 Materials and Sustainability (5 credits)
NE3003 Sustainable Energy (5 credits)

Third Year Abroad (option)

An application to study abroad must be made with the International Office in accordance with their deadlines and if successful the proposal is put to the Head of the School of Engineering by 31st January. Subject to approvals, a student (who has achieved a 2H1 in first year) may be permitted to undertake the Third Year of his/her BE studies at an approved institution abroad following a study programme equivalent to 60 credits. Where a language other than English is the language of instruction at the approved host institution, up to 20 credits of the programme may be dedicated to formal study of the language of instruction.

When it came to selecting my university course I was torn between Finance or Civil Engineering. An engineering graduate in the modern commercial banking world actually is an attractive prospective employee as such a degree illustrates a strong analytical mind and ability to solve complex problems. This helped me in choosing engineering over finance as a career path.

Anne Moloney
BE(Civil) 2004, MSc DIC 2010 (Imperial College)
Senior Project Manager, International Bridges, Rambøll, Denmark

BE or ME Civil, Structural and Environmental Engineering

At the end of your third year of study, you can choose between the ME with two further years of study or the BE (Hons) with one further year of study. If you wish to become a professional chartered engineer, the academic requirement is to have a Masters level qualification.

Entry to the ME in Civil, Structural and Environmental Engineering is determined based on student performance during Third Year. Students who pass the third year in Civil, Structural and Environmental Engineering, achieving at least a 2H2 will be eligible to register for the ME Civil, Structural and Environmental. Students who are eligible to register for the ME, but choose not to, will continue to Fourth Year of the BE (Hons) Civil, Structural and Environmental Engineering. Students passing the third year in Civil, Structural and Environmental Engineering who are ineligible to register for the ME will continue to Fourth Year of the BE (Hons) Civil, Structural and Environmental Engineering.

The solid engineering principles of the BE Civil degree do not equip one solely for a career in design or construction; the maths, physics and computing studied develop key problem solving and numerical skills that are highly valued in the professional world.

Dr Mitch Cuddihy

BE(Civil) 2010, MEngSc 2012, PhD 2016 (Imperial)

Management Consultant, McKinsey & Company, Dublin

Fourth Year ME Civil, Structural and Environmental Engineering

Year Co-ordinator: Dr Zili Li

The first part of Year 4 consists of six core technical modules to develop your technical skills and allow access to the more advanced Masters modules in Year 5. From January to August you will have a work placement in Industry or a Research Institute to further develop your skills in a practical environment.

Professional lectures are held in the first semester to help support the skills needed to work effectively at an advanced level within a corporate environment.

Students take modules to the value of 60 credits, consisting of 30 credits of lecture modules specified in Part A and a Placement Module in Part B to the value of 30 credits as follows:

Part A (Semester 1)

CE4004 Design Studio IV (Reinforced Concrete) (5 credits)

CE4006 Structural Analysis (5 credits)

CE4007 Geotechnical Engineering (5 credits)

CE4010 Water and Wastewater Treatment (5 Credits)

CE4012 Traffic and Highways (5 Credits)

CE4020 Environmental Hydrodynamics (5 credits)

Part B (Semester 2)

CE6008 ME Work Placement (30 credits)

The eight month placement takes place from January to August. It gives you an opportunity to apply your learning and knowledge to the solution of civil, structural and environmental engineering problems in the workplace and to further learn about professional engineering ethics, business, societal impact, health and safety, teamwork and organisation.

Fifth Year ME Civil, Structural and Environmental Engineering

Year Co-ordinator: Dr Denis Kelliher

Students may take modules to the value of 60 credits as follows:

Core Modules (45 credits):

CE6009 ME Dissertation (20 credits)

CE6010 ME Interdisciplinary Design Project (10 credits)

CE6040 Civil Engineering Systems (5 credits)

MG4052 Management in Practice (5 credits)

NE6004 Sustainability, Bioenergy and Circular Economy Systems (5 credits)

plus

Students must choose a maximum of 15 credits from:

CE4015 Environmental Hydraulics (5 credits)

CE4024 Progressing Toward Sustainable Industry (5 credits)

CE6024 Finite Element Analysis (5 credits)

CE6041 Applied Elasticity (5 credits)

CE6042 Transportation and Energy (5 credits)

CE6043 Harbour and Coastal Engineering (5 credits)

CE6044 Prestressed Concrete (5 credits)

NE6015 Data Analytics for Engineering (5 credits)

NE6016 Energy Systems in Buildings (5 credits)

Note: Offered elective modules are subject to timetabling and other constraints and are be chosen in consultation with the programme director.

The course itself is by no means easy but with a good attitude, good friends and a good balance of a social life and a study life it's manageable. I've learned so much about not only the practical elements to do with Civil Engineering but also the theory while at UCC and I really feel a lot of what I know is down to the style/calibre of lecturers we have at UCC.

Rebecca Galvin

BE(Civil) 2014

Structural Engineer, Malachy Walsh & Partners Cork

Fourth Year 4 BE (Hons) Civil, Structural and Environmental Engineering

Year Co-ordinator: Dr Zili Li

CE4001 Architecture and Planning (5 credits)
CE4002 BE Research Project (10 credits)
CE4004 Design Studio IV (Reinforced Concrete) (5 credits)
CE4006 Structural Analysis (5 credits)
CE4007 Geotechnical Engineering (5 credits)
CE4010 Water and Wastewater Treatment (5 credits)
CE4020 Environmental Hydrodynamics (5 credits)

and 10 credits from the following:

either
CE4014 Design Studio VI (Environmental) (5 credits)
CE4015 Environmental Hydraulics (5 credits)
or
CE4016 Energy Systems in Buildings (5 credits)
CE4019 Design Studio VII (Heating, Ventilation and Air Conditioning) (5 credits)

and 10 credits from the following:

CE4012 Traffic and Highways (5 credits)
CE4015 Environmental Hydraulics (5 credits) (if not previously selected)
CE4016 Energy Systems in Buildings (5 credits) (if not previously selected)
CE4021 Work Placement (5 credits)
CE4024 Progressing Toward Sustainable Industry (5 credits)
MG4052 Management in Practice (5 credits)

Note: Elective modules are offered subject to timetabling and other constraints and should be chosen in consultation with the programme director.

Work Placement Module in Fourth Year (BE Hons)

A student who wishes to take the elective module, CE4021 Work Placement, in Fourth Year is required to have made final arrangements, as prescribed by the Module Co-ordinator, for the work placement by 31 May of their Third year. The work placement is undertaken during the period, June to September, after the Third Year University Examination. A student who makes arrangements for taking the work placement module and fails to pass the Third University Summer Examination in Civil, Structural and Environmental Engineering will not be permitted to take the module for examination in Fourth Year. The module is described in the Book of Modules, 2022/2023. Further information is available from the Module Co-ordinator.

The core teamwork and problem solving skills I learnt in Civil & Environmental Engineering have prepared me for the fast paced Management Consultancy industry. The Computer Programming and Project Management skills I learnt have been invaluable.

Margaret Keohane

BE(Civil) 2011

Business and Systems Integration Analyst, Accenture, Dublin

Research in Civil, Structural and Environmental Engineering

The Science Foundation Ireland (SFI) MaREI Research Centre for Energy, Climate and Marine is headquartered in UCC under the directorship of the Professor of Civil Engineering Jerry Murphy and the Professor of Energy Engineering Professor Brian O'Gallachoir. MaREI undertakes excellent and impactful research, development and innovation working across 13 Irish academic institutions in collaboration with over 50 industry partners. MaREI combines the expertise of a wide range of research groups and industry partners, with the shared mission of solving the main scientific, technical and socio-economic challenges associated with the energy transition, climate action and the blue economy. MaREI is currently undertaking a 6 year €60 million programme of research under MaREI Phase 2 beginning June 1 2019. MaREI is funded by SFI and industry partners and by EU, SEAI, EI, EPA, ERDF, EU, HEA and IRCSET. Research areas include for the breadth of civil, structural and environmental engineering including for: Marine Renewable Energy Technologies; Materials and Structures and Circular Economy, Energy, and Environmental Systems.

MaREI is co-ordinated by UCC's Environmental Research Institute. The ERI is a flagship research Institute at University College Cork, Ireland (UCC) that carries out inter-, multi- and trans-disciplinary research focusing on climate action, circular economy and healthy environment. The mission of the ERI is to generate new research knowledge for the understanding and protection of our natural environment and develop technologies, tools and services to facilitate a transformation to a low carbon and resource efficient society. The Institute brings together over 300 environmental researchers from across science, engineering, business and humanities to address complex environmental challenges in a multi-disciplinary approach. The ERI also incorporates a number of environmental research centres including MaREI, Aquaculture and Fisheries Development Centre (AFDC) and the Centre for Research on Atmospheric Chemistry (CRAC).

Below: The two buildings of The Environmental Research Institute, home to the MaREI centre.

The Dept. of Civil & Environmental was ahead of its time in Ireland and has continued to lead the way in this sector through the development of the energy engineering degree and masters courses. I now find myself targeting graduates from these courses to join our company as I know they will have a very strong grounding in the renewable energy field.

Kevin O'Donovan

BE(Civil) 1999, MEngSc 2001

Managing Director, Statkraft Ireland, Cork

Civil, Structural and Environmental Engineering Academic Staff

Professor Jerry D. Murphy

Professor of Civil Engineering

Professor Jerry Murphy is the chair of civil engineering, the 12th person to hold this post since 1849. He serves as Director of the SFI MaREI Centre for energy, climate and marine (which has over 250 researchers). He led the Biogas Task of the International Energy Agency (IEA) Bioenergy from 2016 to 2021 and has edited and authored numerous IEA Bioenergy reports. He was awarded the Engineers Ireland Excellence Award (2015), The Marine Industry Award for Excellence in Marine Research (2017), an adjunct professorship in University of Southern Queensland (2018), a fellowship of the Irish Academy of Engineers in 2019 and was elected to the international advisory board of DBFZ (German Bioenergy Research Centre) in 2020. He is a leading authority on circular economy, energy, and environmental systems with more than 190 peer review journal papers, over 13,700 citations and a h-Index of 61.

TEACHING

CE4002 Research Project
CE6009 ME Dissertation
NE6004 & NE4005 Sustainability, Bioenergy and Circular Economy systems

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Dr Denis Kelliher

Senior Lecturer in Structural Engineering

Dr Denis Kelliher is a Chartered Engineer and Senior Lecturer in Civil, Structural and Environmental Engineering. He graduated with a 1st class honours BE (Civil) in 1989 and worked as a graduate structural engineer with Ove Arup and Partners Ireland in their Cork office. In 1994 he spent 6 months at the University of California, Berkeley as a graduate scholarship holder in the Education Abroad Program. He spent the 2009/2010 academic year on sabbatical leave at the Department of Civil and Environmental Engineering in the Massachusetts Institute of Technology.

TEACHING

CE1005 Engineering Computation and Problem Solving
CE4006 Structural Analysis
CE4009 Applied Elasticity
CE6024 Finite Element Analysis

And co-ordinates:

CE4021 Work Placement
CE6008 ME Work Placement

Professor Gregorio Iglesias

Professor of Marine Renewable Energy

Professor Gregorio Iglesias is Professor of Marine Renewable Energy at University College Cork and Honorary Professor of Coastal Engineering at the University of Plymouth. He held a Marie Curie individual fellowship focused on the effects of wave farms on coastal processes (WaveImpact). He is a member of the panel in charge of the IEC Standards for Wave Energy Device Development (scale-model testing). He is subject Editor of Energy (Elsevier) for wave, tidal and hydropower. He has secured over €12M research income as Principal Investigator and has published over 160 peer-reviewed journal papers.

TEACHING

NE4003 Ocean Energy
NE6005 Ocean Energy
CE3007 Hydraulics I

Dr Dominic O'Sullivan

Senior Lecturer in Civil & Environmental Engineering

Dominic O'Sullivan is a Senior Lecturer and Director of the Intelligent Efficiency Research Group (IERG) an award-winning team of researchers specialising in the advancement of the next generation of energy efficiency technologies. Dominic formerly led an energy consultancy business and has supported a number of multinationals across Ireland, Europe and the US in reducing energy consumption. He has maintained industry links since returning to academia working with a number of such as Intel, De Puy, Xerox, Analog and Hewlett Packard.

TEACHING

CE3010/NE3002/NE6012 Energy in Buildings
CE4016/NE4006/NE6016 Energy Systems in Buildings
CE4019/NE4007 Computer Aided Design VII (Heating, Ventilation and Air Conditioning)
NE6015 Data Analytics for Engineers

Dr Jimmy Murphy

Senior Lecturer in Coastal Engineering & Offshore Renewable Energy

Dr Jimmy Murphy has over 25 years' experience in the area of engineering in the marine environment and particularly tank testing, hydrodynamic modelling and field studies in both offshore and coastal environments. Dr Murphy has responsibility for the Lir National Ocean Test Facility which houses Irelands only infrastructure for small to medium scale laboratory testing of ocean and maritime systems. Dr Murphy has been a leading figure in research in the field of offshore renewable energy in Europe. Lir NOTF, under his management, won the award for Excellence in Marine Infrastructures at the Marine Industry Awards in 2017.

TEACHING

CE4020 Environmental Hydrodynamics
CE4015 Environmental Hydraulics
CE6043 Harbour and Coastal Engineering
GG6516 Coastal and Marine Processes

Dr Paraic Ryan

Senior Lecturer in Civil Engineering

Dr Paraic Ryan is a Senior Lecturer in Civil Engineering at University College Cork and a Conjunct Research Fellow at the University of Newcastle, Australia. Prior to joining UCC Paraic was a Lecturer in Civil Engineering at NUI Galway for two years, where he was nominated by his students for the President's Award for Teaching Excellence. Before this he held the position of Research Academic at the word-renowned Centre for Infrastructure Performance and Reliability (CIPR), at the University of Newcastle Australia, where he worked in climate adaptation engineering for three years. Paraic holds an undergraduate Degree in Civil Engineering from NUIG, and a PhD, an MSc and a PGD form Trinity College Dublin. His main research interests are in risk and uncertainty modelling, material deterioration, applications of IT in civil engineering, and climate change vulnerability and adaptation. He is currently UCC lead on the €16 million SFI sponsored NexSys project, which is focused on the defining pathways to a net zero energy transition. He also leads the UCC component EPA sponsored PESTMAN project, where he is responsible for co-ordinating a quantitative environmental health risk assessment, and the Translate project, which is focused on the provision of climate services for Ireland. Paraic is one of the 17 international members of IABSE Task Group 6.1: Effects of Climate Change on Infrastructure.

Research Interests

- Risk and uncertainty modelling across a range of applications
- Climate change impacts and adaptation
- Long term material and structural performance
- Environmental health risk modelling
- Applications of It in Civil Engineering
- Water-energy nexus

TEACHING

Dr Ryan delivers the following modules:
CE2005 Surveying – Theory and Practice
CE2007 Design Studio I
CE2009 BIM: Modelling and Visualisation
CE3002 Solid and Structural Mechanics III

Paraic also co-ordinates the Engineering Transition Year Programme at UCC.

Dr Paul Leahy

Lecturer in Wind Energy

Paul Leahy is lecturer in Wind Energy at University College Cork and a Funded Investigator in the Science Foundation Ireland MAREI Centre. He has published over 50 articles in international peer-reviewed journals and is a Principal Investigator on several research projects including Re-Wind. Re-Wind is a transdisciplinary circular economy project aiming to generate sustainable repurposed products from decommissioned composite material wind turbine blades. Dr Leahy researches on topics in renewable energy, circular economy and climate change. He is Senior Editor of the international peer-reviewed journal Renewable & Sustainable Energy Reviews, a member of the Royal Irish Academy multidisciplinary committee on Climate Change & Environmental Sciences (2022-2016) and is on the Steering Group of IEA Wind Task 45 on Recycling Wind Turbine Blades.

TEACHING

CE6040 Civil Engineering Systems
NE4020 Energy Engineering Project
NE6003 Wind Energy Engineering
NE6010 Offshore Wind Energy
NE2006 Primary Energy Engineering
NE6017 ME Energy Dissertation

Dr Marguerite Nyhan

Senior Lecturer in Environmental Engineering & Future Sustainability

Dr Marguerite Nyhan is a Senior Lecturer in Environmental Engineering & Future Sustainability at UCC. Marguerite is Director of the Future Sustainability Research Group which develops intelligent urban environmental engineering solutions for sustainable, net zero, healthy, liveable and equitable cities of the future. Dr Nyhan leads Sustainable Futures which focusses on nationally coordinated postgraduate sustainability education. Along with this, Marguerite founded the Sustainable Futures Lab at UCC. Prior to joining UCC, Marguerite worked as a Post-Doctoral researcher at Massachusetts Institute of Technology (MIT) and led the Urban Environmental Research Team within MIT's Senseable City Laboratory. She was then appointed as a researcher at Harvard University's School of Public Health working at the intersection of urban analytics and environmental epidemiology. Later, Marguerite was recruited by the United Nations in New York. There, she led groundbreaking research which harnessed emerging technologies for humanitarian and sustainable development efforts. Marguerite has a BEng in Civil, Structural & Environmental Engineering from UCC, a PhD in Environmental Engineering from Trinity College Dublin and was a Fulbright PhD Scholar at MIT.

TEACHING

Director - MSc and PG Cert in Sustainability in Enterprise
Director - HDip in Sustainability in Enterprise
CE3009 Environmental Engineering
NE6015 Data Analytics For Engineering
CE6047 Systems Thinking in Environmental Engineering
CE6050 Applied Research Methods in Sustainability in Enterprise
CE6051 Dissertation in Sustainability in Enterprise

Marguerite also co-ordinates:

CE4025 Leadership for Sustainability in Enterprise
CE4010 Water & Wastewater Engineering
CE4014 Design Studio VI (Environmental)

Dr Zili Li

Lecturer in Geotechnical Engineering

Dr Zili Li is a Lecturer in Geotechnical Engineering. He holds a PhD degree in Geotechnical Engineering from the University of Cambridge, UK. He served as a Research Associate at the Centre for Smart Infrastructure and Construction (CSIC) in the University of Cambridge, UK, and also worked at the Centre for Underground Construction and Tunnelling, Colorado School of Mines, US. Currently, Dr Li is the Theme Leader in Geotechnics in the Civil Engineering Research Association of Ireland (CERAI). He is an active member of Geotechnical Society of Ireland and an Irish delegate in the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE).

TEACHING

GL6021 Engineering Geology
CE3004 Mechanics of Soil I
CE3005 Mechanics of Soil II
CE4007 Geotechnical Engineering
CE4002 Dissertation in Civil and Environmental Engineering

Dr Ken Bruton

Lecturer in Hydraulic Engineering

Dr Bruton is a Lecturer and Director of the Intelligent Efficiency Research Group (IERG) an award winning team of PhD and Masters Researchers specialising in the advancement of the next generation of energy efficiency technologies. Prior to joining UCC as a lecturer, Ken worked as an energy engineering consultant in the commercial & industrial energy efficiency sector. Ken holds a six sigma green belt in LEAN manufacturing which he applies to his intelligent efficiency work. Ken has also worked as an Energy Agreements Support Manager with SEAI, where he mentored many of the largest energy users in Ireland in the implementation of the IS393, EN16001 and most recently ISO50001 energy management system standards.

TEACHING

CE2003 Fluids Mechanics I
CE2004 Fluids Mechanics II
CE3007 Hydraulics

Dr David Wall

Lecturer in Transportation Engineering

Dr David Wall is a Lecturer in Transportation Engineering for the School of Engineering in UCC. David was a previous Teagasc Walsh Fellow and has a PhD in Energy Engineering. Prior to this, he obtained his MSc in Biosystems Engineering from Michigan State University, USA. He has published 30 peer reviewed journal papers in the area of bioenergy and renewable gas. David is also a member of the International Energy Agency Bioenergy: Task 37 Biogas and has previously authored an IEA Bioenergy report “Facilitating a future green gas grid through the production of renewable gas”.

TEACHING

NE3004/CE6042 Transportation and Energy
CE4012 Traffic and Highways
NE6004 & NE4005 Sustainability, Bioenergy and Circular Economy Systems

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Dr Yong Song Fan

Lecturer in Materials

Dr Fan has been a lecturer in Civil, Structural and Environmental Engineering in UCC since 2003. Prior to this position he worked as senior technologist (1999-2003) for Lafarge Technical Centers (R&D arm of Lafarge Group- a multinational giant in industrial & engineering material). Dr Fan has over 20 years career experience. Dr Fan is Director of the Materials Laboratory in Civil, Structural & Environmental Engineering. He is a Member of the Institute of Materials, UK; of the Chinese Civil Engineers Society (Concrete and Pre-stressed Concrete Branch) and a senior member of the Irish Concrete Society.

TEACHING

CE3008 Design Studio III
(Reinforced Concrete and Masonry)
CE3012 Materials and Sustainability
CE6040 Civil Engineering Systems

Mr Frank Maguire

Visiting Lecturer in Structural Design

Frank Maguire is Director of RPS Group in Cork - a multi-disciplinary consultancy practice offering full Planning, Engineering, Environmental and Architectural Discipline services for a broad range of projects / clients in both private and public sectors including Infrastructure, Buildings, Facilities, Transport, Water, Marine, Energy/Renewables. He has served as a Visiting Industry Lecturer in UCC Civil Engineering Dept since 1997. He is a member of Engineers Ireland and of the Institute of Structural Engineers.

TEACHING

CE3008 Design Studio III
(Reinforced Concrete and Masonry – Continuous Assessment part)
CE4004 Design Studio IV (Reinforced Concrete)
CE6010 ME Interdisciplinary Design Project

Dr Ciarán Hanley

Ciarán is a Lecturer in Structural Engineering at University College Cork. He is a Chartered Engineer with 10 years' experience in the design and assessment of bridges, marine and civil structures; and is the author more than a dozen technical publications on performance-based design and life-cycle assessment of bridges, structural safety and reliability assessment of bridges, and multivariate analysis of bridge management systems. He is a technical reviewer of the international journals Structure and Infrastructure Engineering, Proceedings of the ICE – Bridge Engineering, and Proceedings of the ICE – Infrastructure Asset Management, as well as a board member of the Civil Engineering Research Association of Ireland. He was a participant of the EU research project TU1406: Quality specifications for roadway bridges, standardization at a European Level, and is Rapporteur for the succeeding organisation EuroStruct. He was a finalist for Engineers Ireland Chartered Engineer of the Year in 2019.In addition to being a Chartered Engineer with Engineers Ireland, Ciarán is a member of a number of professional associations, including the Institution of Structural Engineers (IStructE), International Association of Bridge and Structural Engineering (IABSE), Fédération Internationale du Béton (FIB), and International Association of Shell and Spatial Structures (IASS). Ciarán has many years' experience in the design and assessment of bridges and marine structures, and continues to operate as a specialist consultant in these areas.

TEACHING

CE1003 Introduction to Civil/Structural Engineering
CE2002 Solid & Structural Mechanics II
CE3003 Design Studio II (Steel & Timber)
CE6044 Prestressed Concrete

Dr Richard O'Shea

Lecturer in Sustainability in Enterprise

Dr Richard O'Shea is a Lecturer in Sustainability in Enterprise with the School of Engineering in University College Cork (UCC). He is also a researcher in the SFI-funded MaREI Centre for Energy, Climate and Marine. He has published over 30 peer-reviewed journal papers, has over 600 citations, and a h-index of 15. Richard worked as a Senior Postdoctoral Research in MaREI . His prime area of work was assessing methods to decarbonise a large facility in the food and beverage sector in Ireland. He obtained his PhD degree in Engineering from UCC in 2018 which was co-funded by Ervia and SFI. His research has focused on biomethane production via anaerobic digestion, resource assessments, technoeconomic analysis, optimisation, GIS, and multi criteria decision analysis.

TEACHING

CE5009 Circular Economy, Energy, and Environmental Systems
CE4024 & CE5010 Progressing Toward Sustainable Industry

And co-ordinates:

CE4001 Architecture and Planning

Dr Michael O'Shea

Michael O'Shea is lecturer in Structural Engineering at University College Cork and a Researcher in the Science Foundation Ireland MAREI Centre. He has published over 15 articles in international peer-reviewed journals and was recently awarded the EU Atlantic Strategy Award for his research on Offshore Renewable Energy. Michael is a Principal Investigator on several research projects including the €15million Horizon Europe funded WEDUSEA project focussed on full-scale wave energy device deployment and GSI funded GEOBim project focussed on BIM integrated structural health monitoring of historic infrastructure. He has recently registered two inventions relating to subsea superconductor test rig design emanating from the joint MaREI/industry Supernode project. Dr O'Shea is currently supervising PhD students in Seabed Dynamics, Coastal Engineering, Structural health monitoring and Subsea superconductors.

TEACHING

CE1003 Introduction to Civil and Structural Engineering
CE2001 Solid and Structural Mechanics I
CE2005 Surveying - Theory and Practice
CE2009 BIM 1 - Modelling and Visualisation
CE3002 Solid and Structural Mechanics III

Dr Joanne Mac Mahon

Dr Joanne Mac Mahon is a Lecturer in Environmental Engineering at University College Cork. She holds a PhD in Environmental Engineering from Trinity College Dublin and an MSc in Development Studies from UCD. She has worked as a Research Fellow at TCD on EPA and SFI funded projects and as a Senior Postdoctoral Researcher at MaREI on the Creative Climate Action Fund. In addition to her research career, Joanne previously worked as a chemical engineer in the pharmaceutical sector and as a development and humanitarian professional for international NGOs and the United Nations.

TEACHING

CE4010 Water and Wastewater Treatment
CE5011 Environmental Engineering (Wet)
CE6050 Applied Research Methods in Sustainability in Enterprise

Dr Frances Judge

Dr Frances Judge is a Lecturer in Environmental Engineering and a member of the Offshore Renewable Energy Research Group in the SFI-funded MaREI Centre for Energy, Climate and Marine. In addition to a BE in Civil and Environmental Engineering from UCC, Frances has an MSc in Meteorology from UCD and a PhD in Engineering from the University of Edinburgh. She also has several years of industry experience in civil engineering consultancy in both Ireland and New Zealand. Frances' research interests include cost modelling of offshore renewable technologies, laboratory testing of offshore energy devices and numerical wave basin development.

TEACHING

CE5011 Environmental Engineering
CE4010 Water and Wastewater Engineering
CE6050 Applied Research Methods for Sustainability in Enterprise

Civil, Structural and Environmental Engineering Support Staff

Ms Sheila Lonergan

Administrator, Civil, Structural and Environmental Engineering

Sheila Lonergan is the Administrator for Civil, Structural and Environmental Engineering in UCC and has been since 2013. Prior to this Sheila worked in the Buildings & Estates Department in UCC for just over 8 years working in areas of Capital Projects, Building Maintenance, Engineering Services, Energy Management, Telecommunications, Utilities and General Services. Sheila completed her Honours Bachelor of Business in Management from Cork Institute of Technology in 2012.

Mr Michael McLaughlin

Senior Technical Officer, Civil, Structural and Environmental Engineering

Michael McLaughlin holds the position of Senior Technical Officer. He qualified with a B.Sc in Industrial Chemistry from the University of Limerick in 1985. Prior to joining UCC, Michael had over 15 years' experience in Biotechnology and the Pharmaceutical Industry, working in the areas of chemical and biological analysis, material analysis, pollution monitoring and control, quality assurance, validations, regulatory compliance, pilot plant and clean room monitoring.

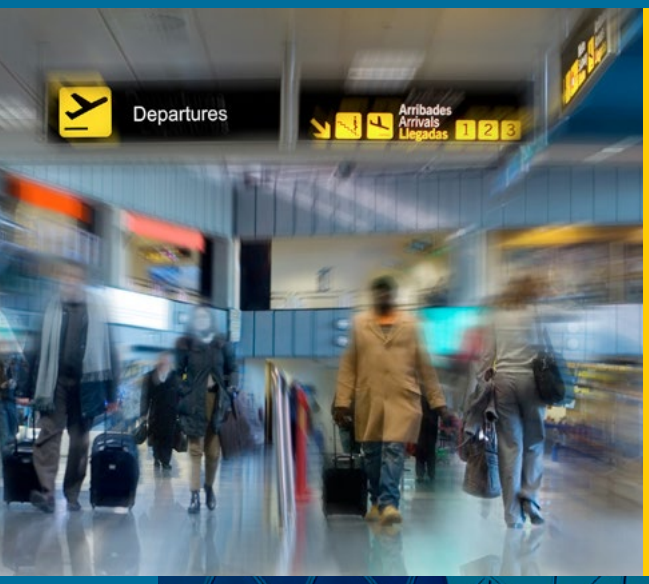
Michael has a supportive and supervisory role to our students in the various Laboratories within Civil, Structural and Environmental Engineering. Assisting in research studies and giving demonstrations to both our undergraduate and postgraduate students.

Mr Anthony Flaherty

Senior Technical Officer, Civil, Structural and Environmental Engineering

Mr Richard Fitzgerald

School Operative, Civil, Structural and Environmental Engineering



The experience of working in design teams and the problem solving mentality fostered during the Engineering Degree have been of significant benefit to my career. Teamwork and strict adherence to formulaic Standard Operating Procedures and Regulations are at the core of our day to day work.

Seamus Cooke

BE(Civil) 1998

Airline Captain, Aer Lingus

Civil, Structural and Environmental Engineering
School of Engineering
University College Cork

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Coláiste na hOllscoile Corcaigh