



ME Energy Systems Engineering

UCD School of Mechanical and Materials Engineering

**PROFESSIONAL WORK
EXPERIENCE AVAILABLE
ON THIS PROGRAMME**



Why is this course for me?

The Master of Engineering (ME) in Energy Systems Engineering programme aims to prepare graduates to meet the engineering, economic and environmental challenges facing the energy systems of developed countries in the future. It is aimed at those who require a recognised professional qualification in Energy Systems Engineering. Graduates with an honours degree in a mathematically-based science subject area may be eligible to take a tailored two-year version of the programme, thereby enabling them to become professionally qualified engineers.

Professional Work Experience:

The Professional Work Experience (PWE) module is incorporated into the two-year Masters of Engineering Programme and is designed to integrate a student's academic and career interests with paid practical work experience for a 6-8 month period. The module provides students with the perfect opportunity to gain increased experience and understanding of their chosen field, assess where their strengths and weaknesses lie and maximise their knowledge of the available career possibilities. The practical skills acquired during this placement will give graduates a competitive advantage when applying for positions upon graduation.

Why study at University College Dublin?

Some of the reasons to study at UCD:

- Top 1% world university
- Ireland's leading provider of graduate education
- Ireland's largest and most international university
- Emphasis on research and innovation
- Safe, modern campus in Dublin, capital city of Ireland
- Extensive range of on-campus accommodation

UCD College of Engineering and Architecture

The UCD College of Engineering and Architecture's research and taught programmes are centred around a wide variety of activities spanning basic, strategic and applied research from the diverse range of disciplines covered by the Schools of Architecture, Biosystems Engineering; Chemical and Bioprocess Engineering; Civil, Structural and Environmental Engineering; Electrical, Electronic and Communications Engineering and Mechanical and Materials Engineering.

We have a proud history in research going back 100 years. Today, there are exciting opportunities for those wishing to pursue a higher research degree to doctoral or masters level. Within the broad disciplines listed above there are many research centres, clusters and institutes led by highly experienced and world-renowned researchers.

The College has an excellent track record in attracting significant Science Foundation Ireland (SFI), European and industrial funding to support its many research activities. Through research, the UCD College of Engineering and Architecture continues to promote excellence in Graduate training. The range of interdisciplinary taught Master's programmes now available within the college, and initiatives including the Structured and Thematic PhD programmes, mean that the Graduate School is ideally placed to offer innovative graduate level training programmes.

UCD School of Mechanical and Materials Engineering

The UCD School of Mechanical and Materials Engineering offers the widest range of both research-based and taught postgraduate programmes. Building on a long history, it has always moved with the changing needs of industry and the global marketplace and today offers specialist programmes in Energy Systems, Mechanical, Materials, Bioengineering and Engineering Management.

As well as taught programmes, there is a wide variety of research opportunities available. Research has always had a strong industry focus and the school boasts the first ever UCD spin-out company, The Timoney Technology Group, over 40 years ago.

What will I study?

This Master's degree programme builds upon skills developed at undergraduate level through study of mathematics, physics, chemistry and a range of engineering foundation subjects. It includes analysis of global energy systems, use of finite natural resources and the impact on climate. It also focuses on renewable and other energy sources such as wind, wave, nuclear and solar power and on the conversion, storage and energy transmission by electrical and other means. The programme also addresses the efficient use of energy in buildings, transport and industrial processes, together with the study of other topics such as fossil fuels, carbon capture and sequestration.

In addition to study of the core subjects, students may specialise through choice from the very wide range of modules available.

Core Modules

- Energy Systems & Climate Change
- Fossil Fuels, Carbon Capture & Storage
- Chemical Processes of Sustainable and Renewable Energy
- Power System Operation
- Wind Energy
- Engineering Thermodynamics II*
- Electrical & Electronic Circuits*
- Electrical Energy Systems II*
- Professional Engineering (Management)*
- Research Skills and Techniques
- Research Project / Thesis

*Candidates with suitable prior learning may be permitted to take additional options in place of these core modules.

Option Modules

- Energy Systems in Buildings
- Energy in Transport
- Heat Transfer
- Engineering Thermodynamics III
- Air Pollution
- Environmental Engineering Fundamentals
- Nuclear Physics
- Energy Economics and Policy
- Entrepreneurial Management
- Kinetics & Thermodynamics of Materials,
- Advanced Composites and Polymer Engineering
- Nanomaterials
- Measurement & Instrumentation
- Control Theory / Process Instrumentation & Control
- Electrical Machines
- Power Electronics and Drives
- Applications of Power Electronics
- Power System Design
- Power System Engineering
- Power System Control
- Power Electronics Technology
- Power System Stability Analysis
- Mechanics of Fluids II & III
- Computational Continuum Mechanics I & II
- Technical Communication
- Professional Work Placement (2-year programme only)

What are the career opportunities?

Participants of this (ME) Energy Systems programme will be equipped with the skill set and knowledge, vital for crucial roles in research, design and development in companies in the Energy Sector. Graduates from this programme have obtained jobs in a wide variety of organisations in Ireland and further afield, the majority in the energy sector.

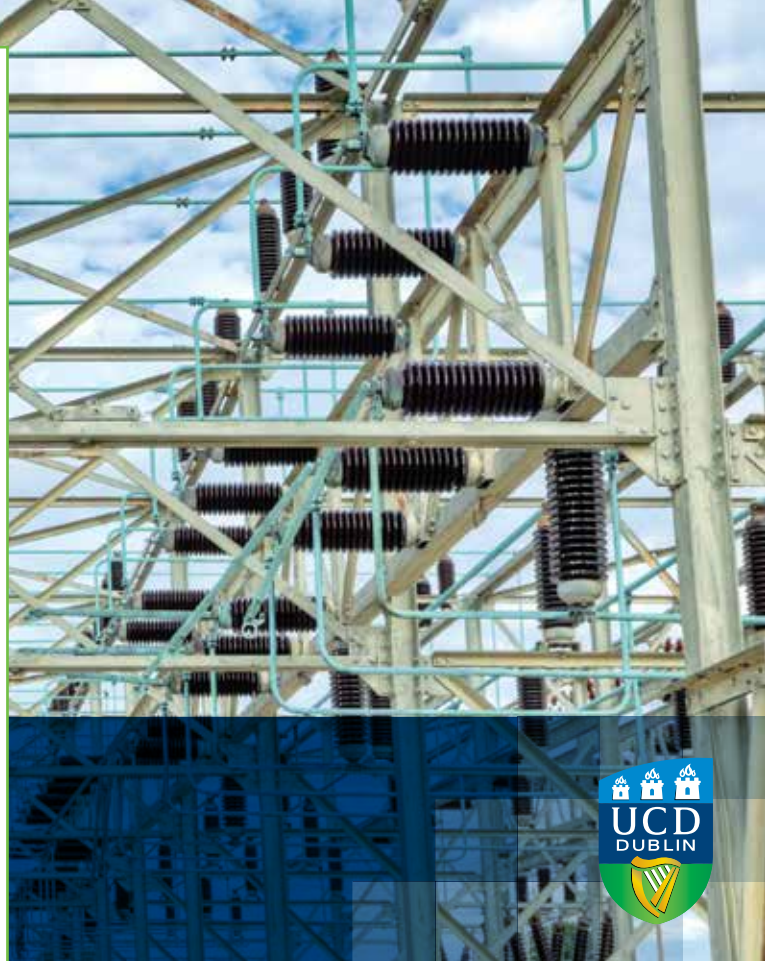
Examples of employers include Mainstream Renewable Power (Dublin), ESB International (Dublin), ESB Networks (Dublin), Commission for Energy Regulation (Dublin), RPS Group (Dublin), Dublin Airport Authority, PM Group (Dublin), Intel Ireland Limited, Arup (Dublin), CES Energy (Dublin), Dalkia Ltd (Dublin), Cleapower (Dublin), Fingleton White & Co (Irl.), RPS Group (Dublin), Accenture (Dublin), Dimplex Renewables (Irl), First Derivatives (NI), Enercon GmbH (Ireland and Germany), AptarGroup, Inc. (Galway), Tipperary Energy Agency, Zenith Technologies (Cork), ConocoPhillips (Cork), Imtech (UK), MCS Kenny (UK), Sellafield Ltd (UK), Schletter UK Ltd, Schwenk Zement (Germany), KBR (UK), Capula Ltd (UK), Eclareon (Spain), Dynapower LLC (USA), Sea Breeze Power Corp (Canada), KBR (Australia), and Independent Market Operator (Perth, Australia). Also, significant numbers have decided to pursue further study to PhD level, at UCD and elsewhere.



Academic Profile

David J. Timoney B.E.,
M.Eng.Sc., Ph.D., C.Dip.A.F., MSAE,
C.Eng., FIEI, FIAE

- 2008-present Director, ME (Energy Systems) Programme
- 2007-2010 Dean of Engineering, UCD
- 2005-2007 Head of Teaching and Learning, School of Electrical, Electronic and Mechanical Eng. UCD.
- 1993-present Senior Lecturer in Mechanical Engineering, UCD.
- 1987-2007 Director, UCD Energy Conversion Research Centre,
- 1981-1993 Lecturer, Mechanical Engineering, UCD.
- 1978-1981 Development Engineer, Diesel Combustion Research Ricardo Consulting Engineers plc., Sussex, U.K.



Entry Qualifications

Applicants must have:

- A first cycle honours Bachelor Degree in Engineering or Engineering Science
- A complete application which includes a detailed explanation of your interest in the programme
- Names and contact details of two referees who can assess your intellectual ability, maturity and motivation
- Applicants may be required to attend an interview as part of the application process.

Note: For graduates of a four-year Bachelor of Engineering degree who have studied some Thermodynamics and Electrical Circuits at university level, it may be possible to complete the programme over 12 months (90 ECTS Credits).

If English is not your native language, the minimum acceptable score on the TOEFL Internet Based Test is 90 and on IELTS it is 6.5.

Duration

This ME is two years in duration but can be completed in 12 months with the requisite prior learning.

Contact us

General admission queries: Rebecca Patterson / Karina O'Neill
eamarketing@ucd.ie
Tel: +353 1 716 1916/1781
www.ucd.ie/eacollege

Applying Online

To apply online, please go to www.ucd.ie/apply, create a user account, and then select 'ME Energy Systems Engineering (T164)'.

Useful Links

www.ucd.ie/programmes/t164
www.ucd.ie/graduatestudies/coursefinder/