

MENGSC (SUSTAINABLE ENERGY)

Overview

NFQ Level 9, Major Award

The MEngSc (Sustainable Energy) is a full-time programme running for 12 months from the date of first registration for the programme.

In Part I students take modules to the value of **50** credits and a Preliminary Research Report in Sustainable Energy (NE6008 Preliminary Research Project in Sustainable Energy) to the value of **10** credits.

Part II consists of a Dissertation in Sustainable Energy (NE6009 Dissertation in Sustainable Energy) to the value of **30** credits which is completed over the summer months.

Note: Alternative modules may be offered. The choice of modules taken must be such that each student is required to take at least **35** credits of postgraduate (6XXX coded) modules, with at most **15** credits of undergraduate (3XXX or 4XXX coded) modules. The choice of modules is subject to the approval of the Programme Director.

Postgraduate Diploma in Sustainable Energy

Students who pass but fail to achieve the requisite grade of 50% across the taught modules and the Preliminary Research Report will be eligible for the award of a Postgraduate Diploma in Sustainable Energy (<https://ucc-ie-public.courseleaf.com/programmes/pdsnrg/>). Candidates passing Part I of the programme who do not wish to proceed to Part II may opt to be conferred with a Postgraduate Diploma in Sustainable Energy.

Programme Requirements

For information about modules, module choice, options and credit weightings, please go to Programme Requirements (p. 1).

Programme Requirements

Code	Title	Credits
Part I		
Students take 60 credits as follows:		
<i>Core Modules</i>		
CE6042	Transportation and Energy	5
NE4008	Photovoltaic Systems	5
NE6003	Wind Energy	5
NE6004	Sustainability, Bioenergy and Circular Economy Systems	5
NE6005	Ocean Energy	5
NE6007	Energy Systems Modelling	5
NE6012	Energy in Buildings	5
NE6013	Sustainable Energy	5
NE6014	Energy Innovation	5
NE6016	Energy Systems in Buildings	5
NE6008	Preliminary Research Project in Sustainable Energy	10

Depending on the background of the student, the Programme Coordinator may decide to replace some of the above taught modules with modules from the following list up to a maximum of 20 credits:

CE4020	Environmental Hydrodynamics (5)
CE6024	Finite Element Analysis (5)
EE3011	Power Electronics & AC Machines and Systems (5)
EE3012	Electric Vehicle Energy Systems (5)
EE4001	Energy Systems, Power Electronics and Drives (5)
EE4002	Control Engineering II (5)
EE6035	Electrical Power Systems (5)
EE6048	Smart Grids (5)
ME6007	Mechanical Systems (5)
NE6010	Offshore Wind Energy (5)
NE6011	Advanced Energy Systems Modelling (5)
NE6015	Data Analytics for Engineering (5)
PE6031	Carbon Geocycles and Capture Utilisation and Storage (5)

Part II

Students take **30** credits as follows:

Core Modules

NE6009	Dissertation in Sustainable Energy	30
Total Credits		90

Examinations

Full details and regulations governing Examinations for each programme will be contained in the *Marks and Standards Book* and for each module in the *Book of Modules*.

Programme Learning Outcomes

Programme Learning Outcomes for MEngSc in Sustainable Energy (NFQ Level 9, Major Award)

On successful completion of this programme, students should be able to:

- Apply concepts and the theoretical basis from engineering sciences to problems in sustainable energy and related disciplines;
- Identify, formulate, model and design sustainable energy systems, components and processes;
- Design, analyse, and re-engineer sustainable energy engineering systems, components, and processes with an emphasis on renewable energy technologies and sustainable energy end use;
- Evaluate critically the engineering, economic, environmental, societal, and legal impacts of complex sustainable energy systems by applying design, analysis and modeling in a holistic way;
- Plan, conduct, manage and document sustainable energy R&D-projects including data management and analysis, energy systems design, and aspects of interdisciplinary information exchange;
- Communicate effectively with the engineering community and the engineering society through the appropriate application of IT-supported communication and presentation tools and the collective development of scientific publications;
- Plan conduct and manage a significant research project in sustainable energy and produce a dissertation to communicate the results.