PHD (ENGINEERING SCIENCE)

Programme Requirements

The PhD (Engineering Science) is a thematic structured PhD programme and students are required to successfully complete a minimum of 30 ECTS of taught modules over the duration of the programme.

The structured (i.e. taught modules) element of the programme is designed to provide candidates with:

- advanced technical modules in areas related to the candidate's research;
- transferable skills modules to provide candidates with the communication skills required to work in industry and academia;
- an awareness of how innovative research couples with innovation, commercialisation and entrepreneurship (ICE).

Programme Streams

All students on the PhD Engineering Science programme will register in the College of Science, Engineering and Food Science (SEFS) and follow the programme of study for 36 or 48 months. The primary component of the PhD programme is innovative and original research. At the end of the programme, candidates are required to submit and defend a thesis on the candidate's research topic.

In addition, candidates are required to have passed **30** credits from modules selected according to the procedure below before submission of the PhD thesis is allowed.

Module Selection and Personal Development Plan

The PhD in Engineering Science programme is multi-disciplinary in nature, student centric and gives candidates flexibility to follow bespoke structured training relevant to their own individual research. Each PhD candidate will, in consultation with their Thesis Committee, define a Project and Professional Development Plan (PDP) to be completed within 3 months of registration. This will include discussion of the taught modules to be completed, following the requirements below, while still giving students flexibility and choice. The PDP is reviewed on an annual basis. The PDP defines the selection of modules to be taken to fulfil their credit requirements for the structured component of their PhD.

The candidate's academic and research progress will be reviewed annually regularly in accordance with relevant UCC policy, including Progress Review Policy for Research Students.

Modules Requirement

As this is an inter-institutional programme, students have the opportunity to take modules delivered by other institutes. In accordance with UCC policy, students may receive up to 10 ETCS for external modules. The modules requirement for this programme is:

Technical Modules 10 ECTS

Responsible Research and Innovation 5 ECTS

Transferable Skills Training 5 ECTS

Innovation, Commercialisation and Entrepreneurship Training 5 ECTS

Module of Choice 5 ECTS

Technical Modules

The modules offered to PhD (Engineering Science) candidates will include those listed below. Other relevant, discipline specific modules may be selected in agreement with the module co-ordinator and subject to the approval of the programme co-ordinator.

Code	Title	Credits
SE6001	Compound Semiconductor Device Fabrication	5
SE6006	Scientific Programming Concepts (PH502 - NUI Galway)	5
SE6009	High Performance Computing and Parallel Programming (PH504 - NUI Galway)	5
SE6014	Semiconductor Growth and Fabrication Technology	5
SE6015	Advanced Semiconductor Fabrication and Packaging	5
SE6020	Photonics Integrated Circuits Assembly and Packaging	5
SE6021	Introduction to Citizen Science	5

Responsible Research and Innovation

Students are recommended to complete 5 credits of Research Ethics training by completing e.g. PG6015 An Introduction to Research Integrity, Ethics and Open Science or equivalent training.

Transferable Skills Modules

Students are required to complete at least 5 credits of relevant PG coded modules listed on the 'Modules for Postgraduate Training' section of the Calendar here (https://ucc-ie-public.courseleaf.com/postgraduate/modules-postgraduate-training/)

ICE Modules

Students will take one module relevant to an area of innovation, commercialisation and entrepreneurship, e.g. PG7052 "Developing Your Entrepreneurial Mindset"

See also under the General Regulations for the PhD Degree. (https://ucc-ie-public.courseleaf.com/postgraduate/doctor/general-regulations/)

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*.