

BE (HONS) (CIVIL, STRUCTURAL AND ENVIRONMENTAL) ENGINEERING

Overview

NFQ Level 8, Major Award

Students enter First Year Engineering (<https://ucc-ie-public.courseleaf.com/programmes/beg/>) and complete a common programme of study. In Second Year students enter separate programmes leading to degrees in:

- Civil, Structural and Environmental Engineering,
- Electrical and Electronic Engineering,
- Energy Engineering and
- Process and Chemical Engineering.

Note: Students entering Third Year may at the end of Third Year register for the BE (Hons) / ME Pathway (Civil, Structural and Environmental) (<https://ucc-ie-public.courseleaf.com/programmes/cembp/>). Students who choose not/are not eligible to register for the BE (Hons) / ME Pathway (Civil, Structural and Environmental) will continue to Fourth Year of the BE (Hons) (Civil, Structural and Environmental).

Second Year - Civil, Structural and Environmental Engineering

No student may register for Second Year until he/she has passed the First University Examination in Engineering. In order to be admitted to the Second University Examination in Civil, Structural and Environmental Engineering, a student must have satisfactorily attended, subsequent to passing the First University Examination in Engineering, prescribed modules to the value of **60** credits.

Third Year - Civil, Structural and Environmental Engineering

No student may register for the Third Year programme in Civil, Structural and Environmental Engineering until he/she has passed the Second University Examination in Civil, Structural and Environmental Engineering. In order to be admitted to the Third University Examination in Civil, Structural and Environmental Engineering, a student must have satisfactorily attended, subsequent to passing the Second University Examination in Civil, Structural and Environmental Engineering, prescribed modules to the value of **60** credits.

Students Repeating Third Year BE (Hons) in 2020/21

A student who repeats the third year of the programme must pass and progress in the current prescribed programme which may differ from the programme in an earlier attempt year. Where a student has been granted exemptions due to having passed module(s) in an earlier attempt year, an exemption in any particular module is relevant to the repeat year only where that module is included in the current prescribed programme.

Year Abroad (Third Year)

On the recommendation of the Head of the School of Engineering and Architecture and subject to the approval of the College of Science, Engineering and Food Science, a student 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, subject to the approval of the School of Engineering and Architecture. The detailed programme of study shall be proposed by the student in consultation with the approved host institution and the Director of the BE (Civil, Structural and Environmental Engineering) programme and shall require the approval of the Head of School of Engineering and Architecture.

The student will be examined by the approved host institution. A student who achieves a pass standard, as defined by the approved host institution, will be deemed to have passed the Third University Examination in Civil, Structural and Environmental Engineering. A student who fails to achieve a pass standard, as defined by the approved host institution, will be deemed to have failed the Third University Examination in Civil, Structural and Environmental Engineering and will be eligible to undertake the Third Year programme at UCC in a Repeat Year. The detailed transcript of results will be communicated by the host institution to the Autumn Examination Board, UCC, and will form part of the student's formal academic record.

Registered Second Year Civil, Structural and Environmental Engineering students who have achieved a 2H1 in first year may apply to undertake the Third Year of their BE studies abroad. An application to study abroad must be made to the Head of the School of Engineering and Architecture by **31st January**. Permission to undertake the Third Year of study abroad will be conditional on the student achieving at least a 2H1 in the Second University Examination in Civil, Structural and Environmental Engineering at the Summer Examination.

The number of students who may be permitted to undertake the Third Year of study abroad will be limited by the number of places available in any given year at approved host institutions.

Work Placement Module in Fourth Year (BE Hons)

A student who wishes to take the elective module, CE4021, 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 Summer University Examination. The module is described in the *Book of Modules*. Further information is available from the Module Co-ordinator.

Entry to the ME in Civil, Structural and Environmental Engineering

Entry to the ME in Civil, Structural and Environmental Engineering (<https://ucc-ie-public.courseleaf.com/programmes/mecse/>) is determined based on student performance during Third Year. Students who pass the Third University Examination in Civil, Structural and Environmental Engineering, achieving at least a 2H2 will be eligible to register for Fourth Year of the BE (Hons) / ME Pathway (Civil, Structural and Environmental) (<https://ucc-ie-public.courseleaf.com/programmes/cembp/>). In the case of students that have completed one full semester or a full year of studies abroad during Third Year, performance during the Second Year is taken into consideration, with a minimum of 2H1 in the Second Year Examination required for eligibility, in addition to passing the Third Year examination. Students who are eligible to register for the BE (Hons) / ME Pathway (Civil, Structural and Environmental), but choose not to, will continue to Fourth Year of the BE (Hons) (Civil, Structural and Environmental Engineering). Students passing the Third University

Examination in Civil, Structural and Environmental Engineering who are ineligible to register for the BE (Hons) / ME Pathway (Civil, Structural and Environmental) will continue to Fourth Year of the BE (Hons) (Civil, Structural and Environmental Engineering).

Fourth Year - BE (Hons) / ME Pathway Civil, Structural and Environmental Engineering

In Fourth Year students complete either the **BE (Hons (p. 1))** or the **ME Pathway (Civil, Structural and Environmental)**.

No student may register for Fourth Year until he/she has passed the Third University Examination in Civil, Structural and Environmental Engineering. In order to be admitted to the BE (Hons) / ME Pathway (Civil, Structural and Environmental) Examination a student must have satisfactorily attended, subsequent to passing the Third University Examination in Civil, Structural and Environmental Engineering, modules to the value of **60** credits.

Work Placement Module in Fourth Year (BE Hons)

A student who wishes to take the elective module, CE4021, 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*. Further information is available from the Module Co-ordinator.

Change of Registration to Fourth Year of the BE (Hons) (Civil, Structural and Environmental)

A student may elect to change registration to Fourth Year of the BE (Hons) provided formal notification is received by the Student Records and Examinations Office (sreo@ucc.ie) before the end of Week 8 of Semester 1 of Fourth Year.

Fifth Year - ME Civil, Structural and Environmental Engineering

No student may register for Fifth Year of the ME ((<https://ucc-ie-public.courseleaf.com/programmes/mecse/>) Civil, Structural and Environmental Engineering) (<https://ucc-ie-public.courseleaf.com/programmes/mecse/>) until he/she has passed the Fourth ME Pathway University Examination in Civil, Structural and Environmental Engineering. In order to be admitted to the Final ME (Civil, Structural and Environmental) Degree Examination, a student must have satisfactorily attended, subsequent to passing the Fourth ME Pathway University Examination in Civil, Structural and Environmental Engineering, prescribed modules to the value of **60** credits.

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

Programme Requirements

For information about modules, module choice, options and credit weightings, please go to Programme Requirements (p. 2).

Programme Requirements

Code	Title	Credits
Year 1		
Students take 60 credits as follows:		
<i>Core Modules</i>		
CE1003	Introduction to Structural and Civil Engineering	5
CE1005	Engineering Computation and Problem Solving	5
CM1001	Chemistry for Engineers	5
EE1007	Introduction to Electrical and Electronic Engineering	5
MA1011	Mathematical Methods I	5
MA1012	Mathematical Methods II	5
ME1002	Engineering Thermodynamics	5
NE1001	Introduction to Energy Engineering	5
PE1003	Introduction to Process and Chemical Engineering	5
PY1006	Physics for Engineers II	5
PY1012	Physics for Engineers I	10
Year 2		
Students take 60 credits as follows:		
<i>Core Modules</i>		
EG2001	Engineering Mechanics with Transform Methods	5
EG2002	Numerical Methods and Programming	5
CE2001	Solid and Structural Mechanics I	5
CE2002	Solid and Structural Mechanics II	5
CE2003	Fluids I	5
CE2004	Fluids II	5
CE2005	Surveying - Theory and Practice	5
CE2007	Design Studio I	5
CE2009	BIM 1: Modelling and Visualisation	5
MA2013	Mathematics for Engineering	5
PE2003	Heat Transfer	5
ST1051	Introduction to Probability and Statistics	5
Year 3		
Students take 60 credits as follows:		
<i>Core Modules</i>		
CE3002	Solid and Structural Mechanics III	5
CE3003	Design Studio II (Steel and Timber)	5
CE3004	Mechanics of Soils I	5
CE3005	Mechanics of Soils II	5
CE3006	Construction Project Management	5
CE3007	Hydraulics I	5
CE3008	Design Studio III (Reinforced Concrete and Masonry)	5
GL3006	Geology for Engineers	5
CE3009	Environmental Engineering- Wet	5
CE3010	Energy in Buildings	5
CE3012	Materials and Sustainability	5
NE3003	Sustainable Energy	5
Year 4		
<i>BE (Hons)</i>		
Students take 60 credits as follows - all listed core modules (50 credits) and 10 credits of elective modules:		

<i>Core Modules</i>		
CE4001	Architecture and Planning	5
CE4002	BE Research Project	10
CE4004	Design Studio IV (Reinforced Concrete)	5
CE4006	Structural Analysis	5
CE4007	Geotechnical Engineering	5
CE4010	Water and Wastewater Treatment	5
CE4020	Environmental Hydrodynamics	5
Plus 10 credits from the following:		10
CE4014	Design Studio VI (Environmental) (5)	
plus CE4015	plus Environmental Hydraulics ()	
CE4016	Energy Systems in Buildings (5)	
plus CE4019	plus Design Studio VII (Heating, Ventilation and Air Conditioning) ()	
<i>Elective Modules</i>		
Students take modules to the value of 10 credits from the following:		10
CE4012	Traffic and Highways (5)	
CE4015	Environmental Hydraulics (5) (if not previously selected)	
CE4016	Energy Systems in Buildings (5) (if not previously selected)	
CE4021	Work Placement (5)	
CE4024	Progressing Toward Sustainable Industry (5)	
MG4052	Management in Practice (5)	
Total Credits		240

Programme Learning Outcomes

Programme Learning Outcomes for BE (Hons) (Civil, Structural and Environmental) (NFQ Level 8, Major Award)

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

- Apply principles from mathematics, science and engineering science to problems in civil, structural and environmental engineering;
- Apply information technology to visualise and analyse problems in civil, structural and environmental engineering;
- Identify, formulate, analyse and solve civil, structural and environmental engineering problems;
- Design civil, structural and environmental engineering components and systems to industry standards;
- Evaluate critically the engineering, economic, environmental and societal impacts of proposed design solutions;
- Evaluate critically published work in the technical literature;
- Work effectively as an individual, in teams and in multi-disciplinary settings;
- Communicate effectively with the engineering community and with society at large;
- Demonstrate understanding of the need for high ethical standards in the practice of engineering.