



UCD College of Engineering  
and Architecture

# Engineering 2017/2018

## A Guide to First Year





# DEAN'S WELCOME

A warm welcome to UCD Engineering. We hope that your time here will be an enjoyable and rewarding one, both academically and personally. As international leaders in the field of engineering, we will enable you to develop your capacity for independent, creative thought so that you will be equipped to achieve in an ever changing future world. Although we endeavour to provide you with the necessary skills you will need to meet the challenges ahead, we rely on you putting in the effort and engaging wholeheartedly with your programme. Think also about your personal development during your time at University, you will surely find University clubs and societies that cater for your interests.

Wishing you every success in your time at UCD.


**Professor David FitzPatrick**  
Dean of Engineering



**REGISTRATION:** Check out the 'Welcome to UCD' guide which can be found at [www.ucd.ie/students/newstudents](http://www.ucd.ie/students/newstudents) for more information about Online Registration, IT Services, UCD Mobile App and much more!




# STUDYING UCD ENGINEERING




**Year/Stage 1**  
**Explore your options**

**Core Modules:** Chemistry, Mathematics, Physics, Creativity in Design, Electrical/Electronic, Energy Engineering and Mechanics  
**Option Modules:** Chemical Engineering Process Principles, Computer Science for Engineers I, Design and Materials, The Engineering and Architecture of Structures  
**In-Programme Electives:** Biosystems Engineering Design Challenge, Energy Challenges, Introduction to Civil and Environmental Engineering, and Robotics Design Project



**Years/Stages 2 & 3**  
**Choose your pathway**

**Choose one of the following Engineering pathways:** Biomedical; Chemical & Bioprocess; Chemical with Biochemical Minor; Civil; Electrical/Electronic; Mechanical or Structural Engineering with Architecture  
**Optional Study Abroad on Exchange**



**Years/Stages 4 & 5**  
**Focus on your area(s) of specialisation**

Entry to master's degree programmes is subject to entry requirements.

**BE (4 years) Bachelor of Engineering**  
 Specialise in one of the following areas: Biomedical, Chemical & Bioprocess, Chemical with Biochemical Minor, Civil, Electrical, Electronic, Energy Systems or Mechanical  
**ME (5 years) Master of Engineering**  
 Specialise in one of the following areas: Biomedical; Biosystems & Food; Chemical & Bioprocess; Civil, Structural & Environmental; Electrical Energy; Electronic & Computer; Energy Systems; Engineering with Business; Materials Science & Engineering; Mechanical or Structural Engineering with Architecture  
**Optional Industrial Placement**

# ERASMUS/NON-EU EXCHANGE

Erasmus/Non-EU Exchange opportunities are available during your studies in Engineering (Stages 2 and 3). In order to be eligible, students must obtain a Stage 2 GPA of 3.08 normally having no more than one core module at less than 'C' grade in Stage 1, and none less than 'C' grade in Stage 2. You'll find further information on the following website:

- UCD International – Exchanges: [www.ucd.ie/international/going-abroad-with-ucd/exchanges/](http://www.ucd.ie/international/going-abroad-with-ucd/exchanges/)

# UCD CAREER DEVELOPMENT CENTRE

Discover how the UCD Career Development Centre can help you to develop the skills, self-confidence and attitude needed to flourish in learning and work within a global economy, for more information see: [www.ucd.ie/careers](http://www.ucd.ie/careers)





## EXTENUATING CIRCUMSTANCES

Extenuating circumstances are serious unforeseen events beyond your control which prevent you from meeting the requirements of your programme e.g. illness, bereavement etc. Where your studies have been impacted by such circumstances, you can submit an application to have your situation taken into account. Applications are submitted online through your UCD Connect SISWeb Account and supporting evidence must be submitted directly to the Engineering & Architecture Programme Office. For further details please see: [www.ucd.ie/governance/resources/policypage-extenuatingcircumstances/](http://www.ucd.ie/governance/resources/policypage-extenuatingcircumstances/)

## PROGRESSION & CONTINUATION

Progression is when a student completes an attempt at a stage and moves to the next stage of their programme, this requires a minimum of 50 credits to be passed from that stage. Progression usually occurs at the end of an academic year but it may also occur after Semester One in certain situations, such as where a student has carried repeat modules. Where a student's academic performance and rate of progression through their studies is poor, this will be flagged and a process to support the student will be implemented. In the event of failure to engage with this process, a determination will be made as to a student's eligibility to continue with their studies. For more information see: <http://www.ucd.ie/eacollege/study/currentundergraduatestudents/studentcontinuationprocedure/>

## ACADEMIC CALENDAR 2017/2018

### Semester 1

Orientation Week	The Mandatory Orientation Days for all First Year Engineering students take place on 5 and 6 September 2017. See the Engineering Orientation Events Calendar online at: <a href="http://www.ucd.ie/students/newstudents/">http://www.ucd.ie/students/newstudents/</a>	2 days
	However, a full week of orientation events takes place across campus 2-9 September 2017. Participate & Enjoy! See the Orientation Social Events online at: <a href="http://www.ucd.ie/students/newstudents/documents/orientation_social_events_2017.pdf">www.ucd.ie/students/newstudents/documents/orientation_social_events_2017.pdf</a>	5 days
Teaching Term 1	Monday 11 September 2017 - Friday 1 December 2017	12 weeks
Revision	Saturday 2 December 2017 - Sunday 10 December 2017	1 week
Exams	Monday 11 December 2017 - Friday 22 December 2017	11 working days

### Semester 2

Teaching Term 2a	Monday 22 January 2018 - Friday 9 March 2018	7 weeks
Fieldwork / Study Period	Monday 12 March 2018 - Sunday 25 March 2018	2 weeks
Teaching Term 2b	Monday 26 March 2018 - Friday 27 April 2018	5 weeks
Revision	Saturday 28 April 2018 - Sunday 6 May 2018	1 week
Exams	Tuesday 8 May 2018 - Saturday 19 May 2018	11 working days

# DN150 STAGE 1 ENGINEERING PROGRAMME INFORMATION

This programme provides access to all the traditional Bachelor of Engineering (BE) degrees offered by UCD, after four years of study. It also allows access to a range of Master of Engineering (ME) programmes (refer to diagram entitled "Studying UCD Engineering" in this guide).

In the latter case, graduates will be awarded both BSc (Engineering Science) or BSc (Structural Engineering with Architecture) and ME degrees, after a total of five years of study. It is also possible to leave after three years with a Bachelor of Science (BSc) degree in Engineering Science or Structural Engineering with Architecture.

## Stage One

The first Stage of your degree programme is mostly common – laying the mathematical, scientific and engineering foundations on which you will build your specialised knowledge later. However, you do have some flexibility in the second Semester, where you can choose three modules to suit your interests and your career plans.

Your first big decision comes at the end of your first Stage (year), when you will have to decide on one area of specialisation for Stages 2 and 3 of your degree programme. We will provide lots of useful information and advice during this year, to help you to make an informed decision.

## Module Choices

In Semester 1 of 2017/2018, you will study a fixed set of six Core modules. The only decisions you have to make are to choose suitable times for your laboratory and tutorial sessions. In the second Semester, you have to choose at least one of three Option modules, and you also have to choose two Elective modules.

The Option modules are listed in the table overleaf.

## Elective Modules

For Semester 2, you may choose two Elective modules from anywhere in UCD, provided you meet any entry requirements, there is space in the modules, and the modules fit your timetable. If you want to choose modules related to your degree programme, see the list of "In-Programme Electives" in the "Stage 1 2017/2018 – Table of Modules" overleaf. The Option modules that you have not already chosen are available, along with some other relevant modules in Engineering.

## What if I don't know where I am heading?

That is not a problem. All of these modules are in Semester 2, so you do not have to make a decision now. We will arrange Engineering Discipline Information Sessions (see overleaf) during Semester 1 to help you choose. Just register for whichever module seems most interesting, and you can change your registration later. You are entitled to a place on any of these Option modules, so do not worry that the module that you want might be full.

## Can I choose more than one Option Module?

Yes, you can use your Elective choices to choose extra Option modules if you wish. This would give you more flexibility next year.

## Can I change my mind?

**Yes!** The Online Registration system will re-open in January 2018 to allow you to change your module registration.

## Registration Assistance

If you're having issues and you need some help, here you'll find our Registration Assistance form along with some other helpful forms. <https://goo.gl/forms/SmaBugHCbdAowQZB3>



[Registration Issues Form](#)

# Stage 1 2017/2018 – Table of Modules

## Semester 1

Module Code	Module Title	Credit
CHEM 10030	Chemistry for Engineers	5
CVEN 10040	Creativity in Design	5
EEEN 10010	Electronic and Electrical Engineering I	5
MATH 10250	Intro Calculus for Engineers	5
MEEN 10030	Mechanics for Engineers	5
PHYC 10150	Physics for Engineers I	5

## Engineering Discipline Information Sessions

Information sessions about the different Engineering disciplines available to you on completion of Stage 1 will be arranged in Semester 1 and 2. These also include information about graduate opportunities and career prospects.

## Semester 2

Module Code	Module Title	Credit
MATH 10260	Linear Algebra for Engineers	5
MEEN 10050	Energy Engineering	5
PHYC 10160	Physics for Engineers II	5
Stage 1 Option Modules: Choose One		
ARCT 10150	The Engineering and Architecture of Structures	5
CHEN 10010	Chemical Engineering Process Principles	5
COMP 10060	Computer Science for Engineers I	5
MEEN 10060	Design and Materials	5
Stage 1 Elective Modules: free choice subject to timetable constraints and availability. The following "In-Programme Electives" are available: Choose two.		
BSEN 10010	Biosystems Eng Design Challenge	5
EEEN 10020	Robotics Design Project	5
MEEN 10070	Energy Challenges	5
CVEN 10050	Introduction to Civil and Environmental Engineering	5

Option Module	What will be covered?	Who should take this?
ARCT 10150 The Engineering and Architecture of Structures	This module develops a core understanding of the stability and design of buildings and other structures.	Strongly recommended for students heading towards Structural Engineering with Architecture and Civil Engineering - also of interest to those considering Mechanical Engineering.
CHEN 10010 Chemical Engineering Process Principles	This module introduces the principles and techniques that are used in the analysis of chemical and biochemical engineering processes.	Strongly recommended for students heading towards Chemical & Bioprocess Engineering.
COMP 10060 Computer Science for Engineers I	In this module you can learn to programme a computer to solve problems, using the "C" programming language.	Strongly recommended for students heading towards Electrical, Electronic, Computer or Energy Systems Engineering – useful for all Engineering students.
MEEN 10060 Design and Materials	This module introduces the fundamentals of engineering materials and their selection and use within a specific design project.	Strongly recommended for students heading towards Civil, Mechanical or Biomedical Engineering – useful for all Engineering students.





# HOW YOUR ENGINEERING DEGREE AWARD AND GPA IS CALCULATED

The performance across the range of modules you take will be calculated using a Grade-Point Average (GPA) system, which is an average of grade-points awarded for each module weighted according to the credit value of the modules for which the grades were approved – most modules will count for 5 credits. Each Stage has 60 credits. You will receive a GPA at the end of each Stage. You will also receive a Degree Award when you have completed your programme. The classification of your Degree Award will be based on a method of calculation which combines your GPA in Stages 2 and 3 or Stages 3 and 4 (depending on whether you graduate with a BE (Bachelor of Engineering) – 4 Year or BSc (Engineering Science) – 3 Year, per the diagram below.



**BE (Bachelor of Engineering) – 4 Years**  
Final Stage – Stage 4  
Penultimate Stage – Stage 3



**BSc (Engineering Science) – 3 Years**  
Final Stage – Stage 3  
Penultimate Stage – Stage 2



**BSc (Structural Engineering with Architecture)**  
Final Stage – Stage 3  
Penultimate Stage – Stage 2

## Method of Calculation

Final and penultimate Stages (weighted) – the degree GPA is calculated based on all modules, including elective modules, which the student completed and passed in UCD to satisfy the credit requirements of the final and penultimate Stages of the programme where the credit values and grade points of final-stage modules are weighted by a factor of 7 and those of penultimate-stage modules are weighted by a factor of 3.

## Module Levels and your Engineering Degree

The level of a module is an indication of the level of difficulty of the learning outcomes and the material that will be encountered. Levels generally give a broad indication of the Stage when a student is likely to take the module, although this is not always the case. For example, a Level 1 module within the Bachelor of Engineering (BE) indicates that the module is 'introductory' and a Level 2 module indicates that the module is 'Intermediate'. Most Stage 1 modules are Level 1 and most Stage 2 modules are Level 2 and so on. However, a student could also be registered to take a Level 0 module which indicates that the module is 'Foundation'. The number of credits you take at a particular Level is also important. Within the Bachelor of Engineering (BE) and Bachelor of Science (BSc), the following requirements need to be achieved in order to be eligible to collect your Degree Award. Further information regarding guidelines for students regarding Module Levels can be found at [www.ucd.ie/eacollege/study/currentundergraduatestudents/architecturestudents/modulelevelandyourundergraduatedegree/](http://www.ucd.ie/eacollege/study/currentundergraduatestudents/architecturestudents/modulelevelandyourundergraduatedegree/)

Degree Award	Programme Credit Accumulation Structure	Levels	Credits
Honours Bachelor Degree (NQAI Level 8)	Module level restrictions for <b>180-credit</b> Honours Bachelors Degree and <b>240-credit</b> Honours Bachelors Degree	Level 0	10 credits maximum
		Level 2	100 credits must be at Level 2 or above*
		Level 3	40 credits must be at Level 3 or above

\*These modules may include the 40 credits of Level 3 modules that are also required.

# ENGINEERING AND ARCHITECTURE PROGRAMME OFFICE

## WHAT DO WE DO? SUPPORTS FOR YOU!

The Engineering and Architecture Programme Office comprises a team of friendly, approachable administrative staff dedicated to supporting the degree programmes offered in Engineering, Architecture, Landscape Architecture and Planning, Geography & Environment

Our aim is to provide you with first-rate assistance to enable you to get the very best out of your studies and enjoy life as a student in UCD. The office is open all year round and operates public hours: Monday to Thursday 9.30am – 5.00pm and Friday 9.30am – 4.30pm. We work closely with the Student Advisers, Academic Programme Co-ordinators, Mentors, Schools and your fellow students to offer you a one-stop shop for all your needs.

So, if you need assistance with online registration, examination queries, understanding academic regulations/policies, extenuating circumstances, your programme pathway or any other support you might require during your time here, we'll try our best to help!

## Important Websites

Further information about the following topics can be found on our website <http://www.ucd.ie/eacollege/study/currentundergraduatestudents/engineeringstudents/> by searching under "Current Students":

- Programme Information
- Award of honours classification
- General updates from Programme Office
- Entry Requirements for Master of Engineering (ME)

The College website is at [www.ucd.ie/collegesandschools/engineeringarchitecture/](http://www.ucd.ie/collegesandschools/engineeringarchitecture/)

## Other Essential UCD Websites

New Student Website  
[www.ucd.ie/students/newstudents](http://www.ucd.ie/students/newstudents)

UCD Student Services Directory  
[www.ucd.ie/students/services.html](http://www.ucd.ie/students/services.html)

UCD Student Desk  
[www.ucd.ie/studentdesk](http://www.ucd.ie/studentdesk)

UCD Academic Regulations  
[www.ucd.ie/students/guide/academicregs.html](http://www.ucd.ie/students/guide/academicregs.html)

UCD Assessment  
[www.ucd.ie/registry/assessment/](http://www.ucd.ie/registry/assessment/)

UCD Registration  
[www.ucd.ie/students/registration.html](http://www.ucd.ie/students/registration.html)

UCD Jargon Buster  
[www.ucd.ie/students/jargon.html](http://www.ucd.ie/students/jargon.html)



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