As an engineer, you will make a real difference in the world and be responsible for leading the way in finding solutions to real problems. Will you develop alternative or new sources of energy, invent life-saving medical devices or create new modes of communication? UCD Engineering offers a particularly wide range of engineering specialisations, from the traditional disciplines to new ones such as Biomedical and Energy Systems Engineering.

Why UCD Engineering?
At UCD, we provide a first-class education across our engineering disciplines which are variously accredited by Engineers Ireland, the Institute of Chemical Engineers (IChemE) and the Institute of Materials, Minerals and Mining (IoM3). Whatever the specialisation, we place considerable emphasis on the mastery of analytical skills and the use of quantitative methods. Study is based on solid mathematical, scientific and engineering principles. Essentially these are the fundamentals of engineering and they will enable you to navigate successfully through the challenges you will face in your future career. We work with industry to ensure that our programmes produce graduates who are highly skilled and trained to address the problems that organisations and society face. This, coupled with the fact that our lecturers are recognised experts in specific fields – such as solar, wave and renewable energy, and biomedical and structural engineering – makes UCD the first choice for anyone interested in engineering.

Your First Year Experience
Your first year in Engineering at UCD will see you immersed in a completely new life from both an educational and a social perspective. Educationally, the first year is a common year which allows you gain an understanding of the many engineering disciplines available, before you specialise. This year will be spent intensively learning and discovering how to solve problems through physics, chemistry and mathematics, as well as gaining exposure to engineering subjects such as mechanics, energy engineering, creativity in design and electronic or electrical engineering.

At the end of first year you will be presented with information about the various specialisations, and given advice to guide you in making the right decision when choosing your area of engineering expertise.
“If you have an enquiring mind, a desire to innovate and develop solutions to problems that have real social, societal and economic impact, you will find an engineering education both stimulating and rewarding. At UCD, we offer the widest possible choice of engineering disciplines and are committed to the on-going development of both discipline specific and interdisciplinary teaching and research. Whether your interests lie in agri-food, business, communications, energy, healthcare, materials, pharmaceuticals, physical infrastructure, transport or water there is an option within UCD Engineering that will suit you. With International leaders in the fields of engineering, the programmes will provide you with core knowledge in the subject, an expectation of attaining excellence and the development of your capacity for independent and creative thinking, problem solving and leadership in your chosen speciality.”

Professor David FitzPatrick
Dean of Engineering

Engineering

BSc (Engineering Science) (NFQ Level 8)
leading to ME (NFQ Level 9)
or BE (Hons) (NFQ Level 8)

CAO Code DN150

CAO Points Range 2014 490 — 625
Length of Course 3 Years (BSc)
+ 2 Years (ME) or 4 Years (BE)
DN150 Places 246

Entry Requirements
English - Irish - Mathematics (Min HC3 in LC or equivalent) - One laboratory science subject (Min HD3 in LC or equivalent) (Chemistry, Physics or Biology is recommended) - Two other recognised subjects

Leaving Certificate
Passes in six subjects including those shown above, of which two must be minimum HC3

A-Level/GCSE
See www.ucd.ie/myucd/alevel

Other EU Applicants
See www.ucd.ie/myucd/eu

Non-EU Applicants
See www.ucd.ie/myucd/non eu

Level 5/6 FETAC Entry Routes
None

Level 6/7 Progression Routes
Yes, see www.ucd.ie/myucd/hetac

Mature Entry Route
Yes, see page 182

Other courses of interest
Structural Engineering with Architecture →157

Career & Graduate Study Opportunities
A world of opportunity awaits you as a UCD Engineering graduate and, as our programmes are professionally accredited, they are fully recognised internationally. You’ll be able to establish a career in many sectors, including:

- Energy/clean technology
- Infrastructure
- Healthcare
- Food
- Information and communications technology
- Business
- Research
- Education

You’ll be equipped with a mindset and skills that will make you an asset to any employer. The Engineering education offered by UCD is recognised by the world’s top companies. In addition to our wide range of BE degrees, UCD has numerous graduate programmes including taught master’s degrees with specialisations in:

- Biomedical Engineering
- Biosystems Engineering
- Civil, Structural & Environmental Engineering
- Electrical Energy Engineering
- Electronic & Computer Engineering
- Energy Systems Engineering
- Engineering with Business
- Mechanical Engineering
- Materials Science & Engineering

There are also research programmes available to students at both master’s and PhD level.

KEY FACT
All of the ME Programmes have an embedded internship element

* This choice does not apply to Structural Engineering with Architecture, DN140.

Study Engineering at UCD
At UCD Engineering we provide a rigorous education in the fundamental engineering subjects and help you to develop problem-solving and design skills based on maths and physics. As a UCD Engineering student you will enrol in a common first year, which allows you to gain an understanding of the many different engineering disciplines available, before being offered an unrestricted choice of specialisation*, subject to health and safety based capacity constraints. We have the widest range of degree choices in the country and, after completing this common first year, you can choose your second year pathway from one of the following:

- Biomedical Engineering
- Chemical & Bioprocess Engineering
- Civil Engineering
- Electrical or Electronic Engineering
- Mechanical Engineering

Your chosen area of specialisation in second year will also offer routes to further branches of engineering at a Masters level. The range of study and career opportunities that can be accessed through our bachelor’s and master’s degree options is illustrated on the diagram on page 150. You can choose a Bachelor of Engineering Science – BSc [three years] – leading to a Master of Engineering – ME [two years]. You can also pursue a Bachelor of Engineering – BE degree [four years].

Since 2013, the educational standard for the professional title of Chartered Engineer (Engineers Ireland) has been an accredited master’s degree programme in engineering or equivalent. The BE degree [four years] in Chemical & Bioprocess Engineering is accredited at the master’s level by the Institution of Chemical Engineers (IChemE) and satisfies the educational standard for the professional title of Chartered Engineer (IChemE).

UCD Engineering & Architecture Programme Office
Engineering and Materials Science Centre, Belfield, Dublin 4
eng.arch@ucd.ie
+353 1 716 1868
facebook.com/UCDEngArch

www.ucd.ie/myucd/eng
Studying UCD Engineering

Explore your options

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Physics</th>
<th>Chemistry</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Engineering</td>
<td>Energy Challenges</td>
<td>Robotics Design Project</td>
<td>Biosystems Design Challenge</td>
</tr>
<tr>
<td>Year 2 &amp; 3</td>
<td>Chemical &amp; Bioprocess</td>
<td>Civil</td>
<td>Electrical/Electronic</td>
</tr>
<tr>
<td>Optional Study Abroad</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Choose your pathway

Focus on your area(s) of specialisation

<table>
<thead>
<tr>
<th>BE (4 years) Bachelor of Engineering</th>
<th>ME (5 years) Master of Engineering</th>
<th>Conversion/Complementary Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical</td>
<td>Biosystems &amp; Food Engineering</td>
<td>Graduate Medicine</td>
</tr>
<tr>
<td>Chemical &amp; Bioprocess*</td>
<td>Biomedical</td>
<td>MSc Business</td>
</tr>
<tr>
<td>Civil</td>
<td>Civil Structural &amp; Environmental</td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
<td>Electrical</td>
<td></td>
</tr>
<tr>
<td>Electronic</td>
<td>Electronic</td>
<td></td>
</tr>
<tr>
<td>Energy Systems</td>
<td>Energy Systems</td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td>Engineering with Business</td>
<td></td>
</tr>
<tr>
<td>Biomedical</td>
<td>Materials Science &amp; Engineering</td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td>Mechanical</td>
<td></td>
</tr>
<tr>
<td>Biomedical</td>
<td>Professional Work Experience</td>
<td></td>
</tr>
</tbody>
</table>

Specialise through UCD graduate study

Taught & Research Master’s

- Biopharmaceutical Engineering
- Food Engineering
- Engineering Management
- Environmental Technology
- Structural Engineering
- Sustainable Energy & Green Technologies
- Water, Waste & Environmental Engineering

Doctor of Philosophy (PhD) Engineering

Research & Academia

Shape your career with UCD Engineering

Professional Engineer in your chosen discipline with careers in:

- Design
- Environment
- Manufacturing
- Construction
- Information & Communications Technology (ICT)
- Energy
- Healthcare
- Food
- Pharmaceuticals
- Business & Media
- Management
- Finance
- Education
- Research & Academia

Continue to develop your professional career with UCD...

*The BE degree (4 years) in Chemical & Bioprocess Engineering is accredited at the master's level by the Institute of Chemical Engineers.
"UCD’s degree in Biomedical Engineering offers the best possible stepping stone towards a vibrant career in the bioengineering sector. As a student you will experience first-hand medical device engineering with companies in Ireland and abroad and the subjects you will study range from mechanical engineering to anatomy to electronic engineering. My degree in Biomedical Engineering has offered me the springboard to a career with a medical device multinational in Silicon Valley, California - the heart of innovation and technology."

Marc Feeley Graduate

**Biomedical Engineering**

BSc (Engineering Science) [NFQ Level 8] leading to ME (NFQ Level 9) or BE (Hons) (NFQ Level 8)

Why is this course for me?

Biomedical Engineering involves the application of traditional engineering principles to healthcare and medicine. We can think of the brain and nervous system as a large communication system which co-ordinates and transmits signals around the body, and the organs and limbs as sophisticated engineering systems that control functions such as movement, respiration and blood flow.

UCD biomedical engineers are educated with a strong foundation in electrical/ electronic and mechanical engineering, which is complemented by an understanding of physiology and anatomy. This foundation is applied to problems in medicine and healthcare in specialised modules such as Biomechanics, Medical Device Design, Neural Engineering, Rehabilitation Engineering and Cell Culture & Tissue Engineering. If you are interested in developing new medical techniques, systems and devices, and you want to be involved in the breakthroughs that are improving the healthcare system for doctors and patients every day, then this is the course for you.

What will I study?

**First Year**

All DN150 students follow a common first year which includes modules in:
- Biomechanics
- Medical Device Design
- Neural Engineering
- Rehabilitation Engineering
- Cell Culture & Tissue Engineering
- Bioinstrumentation
- Biomechanics
- Biomedical - Neural Engineering
- Nanomaterials - Cell Culture & Tissue Engineering
- Biomedical - Medical Device Design - Rehabilitation Engineering
- Medical Sciences for Engineers
- Introduction to Physiology
- Electrical & Electronic Circuits
- Computer Engineering
- Electromagnetics
- Control Theory
- Mechanics of Fluids
- Mechanics of Solids
- Applied Physics
- Applied Dynamics
- Functional Anatomy & Kinesiology

A student’s week includes attending lectures and tutorials as well as participating in laboratory-based workshops and undertaking independent study. A combination of end-of-semester written examinations and continuous assessment is used. In your final year, you’ll also submit a report of your research project.

**Career & Graduate Study Opportunities**

Graduates can find employment in:
- The Medical Technologies Industries
- Pharmaceutical Industries
- Medical Device Design - Rehabilitation Engineering - Device Manufacturing - Regulation - Engineering Consultancy

Graduates can also pursue a taught or research master’s degree in Biomedical Engineering. You can study for a PhD and work with some of the world’s leading experts on ground-breaking research.

**International Study Opportunities**

Opportunities have included:
- Beijing University of Technology, China
- University of New South Wales, Australia

**Professional Work Experience**

Professional Work Experience (PWE) is incorporated in the ME Biomedical Engineering course. Six to eight month internships (the majority of which are paid), have included the following companies: Boston Scientific, Stryker, Bio-Medical Research, BD Medical, DePuy, ResMed, Abbott and Crospon.

**Entry Requirements**

- English
- Irish
- Mathematics (Min HC3 in LC or equivalent) - One laboratory science subject (Min HD3 in LC or equivalent) (Chemistry, Physics or Biology is recommended) - Two other recognised subjects

**Leaving Certificate**

Passes in six subjects including those shown above, of which two must be minimum HC3

**A-Level/GCSE**

See [www.ucd.ie/myucd/alevel](http://www.ucd.ie/myucd/alevel)

**Other EU Applicants**

See [www.ucd.ie/myucd/eu](http://www.ucd.ie/myucd/eu)

**Non-EU Applicants**

See [www.ucd.ie/myucd/noneu](http://www.ucd.ie/myucd/noneu)

**Level 5/6 FETAC Entry Routes**

None

**Level 6/7 Progression Routes**

Yes, see [www.ucd.ie/myucd/hetac](http://www.ucd.ie/myucd/hetac)

**Mature Entry Route**

Yes, see page 182

**CAO Code DN150**

**CAO Points Range 2014**

490 — 625

**Length of Course**

3 Years (BSc) + 2 Years (ME) or 4 Years (BE)

**DN150 Places**

246

**Non-EU Applicants**

See [www.ucd.ie/myucd/noneu](http://www.ucd.ie/myucd/noneu)

**Other courses of interest**

- Engineering → 149
- Electrical/Electronic Engineering → 154
- Mechanical Engineering → 156
- Medicine → 89

UCD Engineering & Architecture Programme Office

Engineering and Materials Science Centre, Belfield, Dublin 4

eng.arch@ucd.ie
+353 1 716 1888
facebook.com/UCDEngArch

[www.ucd.ie/myucd/eng](http://www.ucd.ie/myucd/eng)
Chemical & Bioprocess Engineering

BE (Hons) (NFQ Level 8)

Why is this course for me?
Chemical & Bioprocess Engineering (CBE) is fundamentally about the ingenious transformation of matter and energy into products and services. More specifically, it addresses the design and operation of facilities needed to achieve this transformation in a technically, economically and environmentally acceptable manner. Examples of products include petrochemicals, [bio]pharmaceuticals and nano-materials. Examples of services include energy supply (from carbon-based to renewable resources), clean air and CO2-sequestration.

As a Chemical & Bioprocess Engineer you will use the sciences as the basis for applying mathematical and engineering principles to realise them on the appropriate scale. If you seek invention, and want to work at the interface between the sciences, mathematics and engineering, with a broad and well-paid portfolio of career opportunities, strongly consider CBE.

What will I study?

First Year

Second to Fourth Year

Career & Graduate Study Opportunities
UCD has the oldest, largest and most research-active School of Chemical & Bioprocess Engineering in Ireland, and is benchmarked competitively against the top schools in Europe and abroad. In addition, our programme is professionally accredited to master’s level by the Institution of Chemical Engineers (IChemE). All of this translates to our graduates being among the best-paid engineering professionals and sought after for employment in sectors from chemical to [bio]pharmaceutical and from energy to consultancy and design. We offer taught and research master’s and PhD opportunities, and our graduates also enter master’s and PhD programmes in leading international universities.

International Study Opportunities
Recent opportunities have included a year in:
- University of California, Berkeley, USA
- École Nationale Supérieure des Mines de Saint-Étienne, France
- TU Berlin, Germany
- University of Melbourne, Australia

KEY FACT
This 4 year programme is professionally accredited to master’s level by IChemE awarding Chartered Chemical Engineer Status.
“Having originally been attracted to UCD due to the high international standing of its engineering school, I graduated with an ME degree in Civil Engineering in 2014. Throughout the 5 year programme I gained knowledge in all aspects of civil engineering before finally focusing on bridge design. I am currently working as a bridge engineer with AECOM in the UK. My work as an engineer is a good mix of inspection and design work on both existing and new bridges. I find my work both interesting and challenging and it affords me the opportunity to make a difference in our modern world. The UCD Civil Engineering course prepared me well to meet these challenges through a mix of top class lectures, tutorials, laboratories and project-based workshops.”

Mark Gilsenan Graduate

Civil Engineering

BSc [Engineering Science] (NFQ Level 8) leading to ME (NFQ Level 9) or BE (Hons) (NFQ Level 8)

Why is this course for me?

Civil Engineering deals with the design, construction and maintenance of the physical and naturally built environment. It includes the design of bridges, buildings, roads and dams, and works relating to management of our water resources. The work of civil engineers is evident all around us and their contribution to society is huge. This work incorporates environmental protection; large-scale construction projects; ensuring the provision of safe drinking water; designing and implementing strategies for treating wastewater and pollutants; development of transport infrastructure; flood prevention; and the design of foundations for different ground conditions. Skills for meeting these requirements are developed in UCD Civil Engineering, in core areas of structural design, water and environmental engineering, transport engineering and geotechnical (soil and foundation) engineering.

What will I study?

First Year
All DN150 students follow a common first year which includes modules in: Physics - Chemistry - Mathematics - Energy Engineering - Mechanics - Electrical/ Electronic Engineering - Creativity in Design

Second to Fifth Year
Areas of study for Civil Engineering include: Theory, Design & Analysis of Structures • Hydraulic Engineering • Treatment Processes for Water & Wastewater • Soil Mechanics & Geotechnical Engineering • Construction Materials & Practice • Transportation Engineering

A student’s week involves attending lectures, tutorials, participating in laboratory classes and undertaking project and design exercises both individually and in teams.

Coursework is continually assessed but modules also include end of semester written examinations.

Career & Graduate Study Opportunities

Graduates can find employment in:
- Environmental industries
- Transportation engineering
- Water resource and hydraulic engineering
- Management and project management
- Financial services
- Research

Graduates can apply for taught and research master’s degrees in UCD, including Civil, Structural and Environmental Engineering and Engineering with Business. Graduates can also apply for positions in PhD research programmes.

International Study Opportunities

Opportunities to date have included:
- University of Melbourne, Australia
- University of California, Berkeley, USA
- University of Auckland, New Zealand
- University of Connecticut, Storrs, USA

Professional Work Experience

Opportunities for completing fully recognised Professional Work Experience are provided at the end of third year and fourth year of the BE and ME Civil Engineering programmes.

Other courses of interest

Engineering →149
Mechanical Engineering →156
Structural Engineering with Architecture →157

CAO Points Range 2014 490 — 625
Length of Course 3 Years (BSc) + 2 Years (ME) or 4 Years (BE)
DN150 Places 246

Entry Requirements

English • Irish • Mathematics (Min HC3 in LC or equivalent) • One laboratory science subject (Min HD3 in LC or equivalent) (Chemistry, Physics or Biology is recommended) • Two other recognised subjects

Leaving Certificate

Passes in six subjects including those shown above, of which two must be minimum HC3

A-Level/GCSE

See www.ucd.ie/myucd/alevel

Other EU Applicants

See www.ucd.ie/myucd/eu

Non-EU Applicants

See www.ucd.ie/myucd/noneu

Level 5/6 FETAC Entry Routes

None

Level 6/7 Progression Routes

Yes, see www.ucd.ie/myucd/hetac

Mature Entry Route

Yes, see page 182

UCD Engineering & Architecture Programme Office
Engineering and Materials Science Centre, Belfield, Dublin 4
eng.arch@ucd.ie +353 1 716 1868
facebook.com/UCDEngArch

UCD Engineering
CAO Code DN150
www.ucd.ie/myucd/eng
Electronical Engineering or Electrical Engineering

BSc [Engineering Science] (NFQ Level 8) leading to ME (NFQ Level 9) or BE (Hons) (NFQ Level 8)

CAO Code DN150

CAO Points Range 2014: 490 — 625
Length of Course: 3 Years (BSc) + 2 Years (ME) or 4 Years (BE)
DN150 Places: 246

Entry Requirements
English • Irish • Mathematics (Min HC3 in LC or equivalent) • One laboratory science subject (Min H5 in LC or equivalent) • Chemistry, Physics or Biology is recommended • Two other recognised subjects

Leaving Certificate
Passes in six subjects including those shown above, of which two must be minimum HC3

A-Level/GCSE
See www.ucd.ie/myucd/alevel

Other EU Applicants
see www.ucd.ie/myucd/eu

Non-EU Applicants
see www.ucd.ie/myucd/noneu

Level 5/6 FETAC Entry Routes
None

Level 6/7 Progression Routes
Yes, see www.ucd.ie/myucd/hetac

Mature Entry Route
Yes, see page 182

Why is this course for me?
Electrical and electronic engineers have revolutionised the way we live today. As an electronic or electrical engineer you can lead the way in designing technologies that will shape our world. Such engineers use creative ways to generate and handle electricity and information. They have developed the technologies we use to listen to music and communicate with one another, including smartphones and the Internet. Electrical and electronic engineers are also developing new ways to solve the world’s energy problems by harnessing renewable energy sources like wind and ocean energy.

What will I study?
First Year
All DN150 students follow a common first year which includes modules in:
- Physics
- Chemistry
- Mathematics
- Energy Engineering
- Mechanics
- Electrical/Electronic Engineering
- Creativity in Design

Second to Fifth Year
Students on this degree follow the same pathway until their third year, when they specialise in either Electrical or Electronic Engineering. Modules include:
- Electrical & Electronic Circuits
- Electromagnetics
- Digital Electronics
- Electrical Energy Systems
- Communication Systems
- Electromagnetic Waves
- Signal Processing
- Analogue Electronics
- Power System Engineering
- Analogue & RF Electronics
- Neural Engineering
- Renewable Energy Systems
- Power System Operation

A student’s week includes attending lectures and tutorials as well as participating in laboratory-based assignments and undertaking independent study.

A combination of end-of-semester written examinations and continuous assessment is used. In your final year you will undertake a substantial project, involving some combination of research and design in some area of interest. This will be assessed using reports, presentations and an interview.

Career & Graduate Study Opportunities
You could be involved in projects that make a difference to the world, e.g. harnessing new sources of energy or developing advanced digital technologies. Exciting opportunities exist in areas such as designing new means of communication or the next generation of multimedia devices, studying the human brain, working with electrical energy systems or developing new imaging techniques.

You can also pursue graduate study internationally or as part of a UCD master’s degree, e.g. ME in Biomedical Engineering, ME in Electronic & Computer Engineering, ME in Electrical Energy Engineering or ME in Engineering with Business.

International Study Opportunities
Opportunities to date have included:
- McGill University, Montreal, Canada
- National University, Singapore
- EPFL, Lausanne, Switzerland
- University of California, Davis, USA

Professional Work Experience
Professional Work Experience (PWE) is incorporated in the ME Electrical Energy Engineering and the ME Electronic & Computer Engineering courses. Six to eight month internships (the majority of which are paid), have included the following companies: EirGrid, Arup, IWCM, Duolog, ResMed, S3 and SAP.

“I chose to study engineering as I loved physics and maths in school and thought I might like to pursue a career in this area. Studying electrical engineering taught me to approach problems in an logical, analytical manner, allowing me to develop skills which are valued in a variety of industries. An electrical engineering degree from UCD opens the door to the exciting, dynamic and challenging energy industry. I graduated in 2014 and am currently working in the power system studies group in ESB International, where I apply the skills and knowledge which I acquired in college on a daily basis.”

Éadaoin McLoughlin Graduate

www.ucd.ie/myucd/eng
Why is this course for me?
If you want to work on solutions to the world’s energy problems, Energy Systems Engineering at UCD is for you. This degree prepares you to meet the engineering, economic and environmental challenges of the future. It focuses on the interdependence between electricity systems, building energy systems, the industrial production system, the food supply chain and the transport system.

Maintenance of current living standards in the developed world, as well as aggressive renewable energy targets as defined by the EU, will demand new ways to use energy more efficiently, as well as requiring much bigger contributions from solar, wind, biomass, nuclear and advanced fossil fuel technologies. This degree provides students with a strong understanding of the complex multi-disciplinary and often conflicting issues that arise in the search for effective solutions to the energy challenges of the future.

What will I study?
First Year
All DN150 students follow a common first year which includes modules in:
- Physics
- Chemistry
- Mathematics
- Energy Engineering
- Mechanics
- Electrical/Electronic Engineering
- Creativity in Design

Second to Fifth Year
Sample modules for Energy Systems Engineering students include:
- Mechanics of Fluids
- Electrical & Electronic Circuits
- Engineering Thermodynamics
- Electrical Energy Systems
- Power System Engineering
- Air Pollution
- Measurement & Instrumentation
- Energy Systems & Climate Change
- Wind Energy
- Energy Economics
- Power System Operation
- Energy Systems in Buildings

A student’s week includes attending lectures and tutorials as well as participating in laboratory-based workshops and undertaking independent study. A combination of end-of-semester written examinations and continuous assessment is used. In your final year, you’ll also submit a report of your research project.

Career & Graduate Study Opportunities
Graduates will be equipped with the skills and knowledge that are vital for crucial roles in research, design and development in the energy sector. You can also pursue graduate study internationally or through the UCD Master of Engineering in Energy Systems taught programme.

International Study Opportunities
Opportunities to date have included:
- University of British Columbia, Canada
- University of California, Berkeley, USA
- EPFL, Lausanne, Switzerland

Professional Work Experience
Professional Work Experience (PWE) is incorporated in the ME Energy Systems Engineering course. Six to eight month internships (the majority of which are paid), have included the following companies: Glen Dimplex, Arup and RPS Group.

Other courses of interest
- Mechanical Engineering
- Electrical/Electronic Engineering
- Automation
- Materials Science

Energy Systems Engineers work towards alternative solutions to the dwindling supply of fossil fuels, such as solar, wind, biomass & nuclear to meet the energy demands of our developed world.
Mechanical Engineering

BSc [Engineering Science] (NFQ Level 8) leading to ME (NFQ Level 9) or BE (Hons) (NFQ Level 8)

CAO Code DN150

Why is this course for me?
Mechanical engineers help to improve our world. We face unprecedented challenges, from understanding climate change, to managing global mobility, to finding sustainable growth pathways for the burgeoning population in the developing world. Mechanical Engineering in UCD provides you with the education, skills and knowledge you’ll need to understand the challenges, and help to develop the new solutions we need. Working in areas ranging from energy to aerospace, biomeedicine or manufacturing, mechanical engineers are changing our world for the better. They create new solutions, integrate disparate technologies, increase energy efficiency, reduce our consumption of natural resources and minimise our impact on the local and global environment. If you want to help forge a path to a brighter future, Mechanical Engineering at UCD is the place for you.

What will I study?
First Year
All DN150 students follow a common first year which includes modules in: Physics • Chemistry • Mathematics • Energy Engineering • Mechanics • Electrical/Electronic Engineering • Creativity in Design

Second to Fifth Year
Sample modules for Mechanical Engineering students include: Mechanical Engineering Design • Mechanics of Fluids • Materials Science & Engineering • Heat Transfer • Electrical & Electronic Circuits • Manufacturing Engineering • Mechanics of Solids • Professional Engineering • Engineering Thermodynamics • Applied Dynamics • Biomechanics • Measurement & Instrumentation • Control Theory

A student’s week includes attending lectures and tutorials as well as participating in laboratory-based workshops and undertaking independent study.

For as long as I can remember I always wanted to do engineering, and that influenced my choice of subjects for the Leaving Certificate. I did Maths, Applied Maths and Physics. I also did Art, which some people may find unusual but I found it really useful, particularly in the design modules of my degree. I chose Mechanical Engineering because I had a hands-on approach to all things mechanical (especially engines) while growing up, and wanted to learn how and why things work the way they do. I now work in Italy with Ferrari on engine design and testing.”

Ian Whelan Graduate

A combination of end-of-semester written examinations and continuous assessment is used. In your final year, you’ll also submit a report of your research project.

Career & Graduate Study Opportunities
Opportunities are extraordinarily diverse, making graduates highly resilient to changing economic circumstances. Recent graduates are currently employed in: • Energy, Biomedical, Aeronautical, Automotive and Manufacturing Sectors • IT companies • Management and Project Management. Graduates can pursue taught or research master’s degrees in Mechanical Engineering, Energy Systems Engineering, Engineering with Business or Biomedical Engineering in UCD or elsewhere. Those with a strong interest in research also have the opportunity to pursue a PhD.

International Study Opportunities
Students are encouraged to spend one or more semesters abroad, attending a Mechanical Engineering degree of equivalent standard. To date, students have studied in: • University of California, Berkeley, USA • Georgia Institute of Technology, USA • EPFL, Lausanne, Switzerland • Australia, France and New Zealand

Professional Work Experience
Professional Work Experience (PWE) is incorporated in the fourth year of the ME [Master of Engineering] programme in Mechanical Engineering and typically lasts from six to eight months. Most of the PWE placements are based in Ireland, but students have also travelled to the UK, continental Europe, China and Australia. Our PWE affiliates include: Accenture, Bio-Medical Research Galway Ltd., BMW, Boston Scientific, Daimler-Benz, Element 6, Henkel, Jaguar Land Rover, PCH International, Procut and many others.
“I chose Structural Engineering with Architecture as it is a structural engineering course that incorporates elements of design and architecture from the outset. I found the coursework to be varied and there was the potential to pursue areas of personal interest within Engineering through case studies and project work. In addition, the practical work placement component is a valuable commodity when approaching potential employers. Since graduating I have worked in Western Australia on a wind farm project and am now based in Christchurch, New Zealand, working within the earthquake rebuild industry.”

Cian O’Loinsigh Graduate

Why is this course for me?
If you’re interested in the beauty of architectural design, and you want to be the one who realises these designs by creating viable solutions that ensure structures stand the test of time, then this is the course for you. The Structural Engineering with Architecture degree at UCD is a two-part degree, with an initial three-year bachelor’s degree followed by a two-year master’s degree, focusing primarily on the design of structures. The programme’s aim is to develop an appreciation for architecture coupled with the solid fundamentals of an engineering degree. This will enable graduates to challenge the traditional boundaries of structural design.

What will I study?
Sample modules for Structural Engineering with Architecture students include:

First Year
- Creativity in Design - History & Theory of the Designed Environment 1 - Mathematics

Second Year

Third Year

Fourth Year
- Taught modules in semester one are typically followed by an eight-month work placement.
- Those not on work placements will do a design project in addition to taught modules.
- Modules include: Professional Engineering for Civil & Structural Engineers - Structural Analysis, Design & Specification - Structural Dynamics - Soil - Materials & Design - Reasising Built Projects

Fifth Year
- Innovation Leadership - Advanced Structural Analysis & Design - Professional Engineering (Management) - Soil Mechanics & Geotechnical Engineering - Bridge Engineering - Research Project

A student’s week includes attending lectures and tutorials as well as participating in laboratory-based workshops and undertaking independent study.
A combination of end-of-semester written examinations and continuous assessment is used. In your final year, you’ll also submit a report of your research project.

Career & Graduate Study Opportunities
The ME programme in Structural Engineering with Architecture is fully accredited by Engineers Ireland, and thus recognised internationally. Graduates can find employment in Ireland and abroad in areas such as:
- Engineering consultancy
- Construction management
- Project management
- Planning
- Management consultancy and finance
You can also pursue an academic career, and a PhD in Structural Engineering, in Ireland or abroad.

International Study Opportunities
There is the opportunity to spend a semester abroad. Students to date have spent semesters at:
- University of Cantabria, Spain
- University of California, USA
- University of Connecticut, USA
- University of Washington, USA

Professional Work Experience
Opportunities for completing fully recognised Professional Work Experience are provided in fourth year.

Structural Engineering with Architecture
BSc (Engineering Science) (NFQ Level 8) leading to ME (NFQ Level 9)

CAO Code DN140

CAO Points Range 2014: 455 — 550
Length of Course: 3 Years (BSc)
+ 2 Years (ME)
Places: 25

Entry Requirements
- English: Irish
- Mathematics: Min HC3 in LC or equivalent
- One laboratory science subject: (Chemistry, Physics or Biology is recommended)
- Two other recognised subjects

Leaving Certificate Passes in six subjects including those shown above, of which two must be minimum HC3

A-Level/GCSE
- English: Irish
- Mathematics: Min HC3 in LC or equivalent

Other EU Applicants
- English: Irish
- Mathematics: Min HC3 in LC or equivalent

Non-EU Applicants
See www.ucd.ie/myucd/noneu

Level 5/6 FETAC Entry Routes
None

Level 6/7 Progression Routes
None

Mature Entry Route
Yes, see page 182

Other courses of interest
- Architecture: 146
- Civil Engineering: 153

www.ucd.ie/myucd/eng