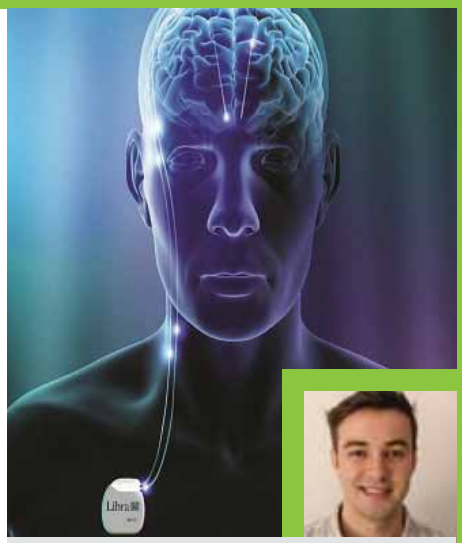
Biomedical Engineering

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



Deep Brain Stimulation - DBS.

"As an avid science fiction fan, I have always been interested in developing technology inspired by the genre. Engineering in UCD is extremely flexible and allowed me to follow the areas that interested me most. The degree programme is 5-years; structured as a 3-year BSc and a 2-year ME degree. I was passionate about developing electronics which interface with our body's neuromuscular system and so I completed the Electronic engineering stream for my BSc, before moving into the Biomedical engineering stream for my ME. I am now a PhD researcher at the UCD Neuromuscular Systems lab where I research deep brain stimulation algorithms for Parkinson's disease. My experience throughout the 5-year programme has been invaluable to my research today!"

John Fleming PhD student

Engineering NUS1

Length of Course 3 Years [BSc] [Hons]
+2 Years [ME] or 4 Years [BE]

Guideline Entry Requirements

IB- International Baccalaureate Diploma*
IB Total 34

Subject Requirements
Maths: 5 at Higher Level
Lab Science: 4 at Higher Level

Cambridge A Level [+ GCSE O Level]
ABBB / AAA / AAB+ C AS Level

Subject Requirements
Maths: A Level Grade C
Lab Science: A Level Grade D

Other Examinations
See www.ucd.ie/international

International Foundation Year
Yes. See www.ucdisc.com

Internship Opportunity
Yes

please note IB requirements are under review at the time of printing. See www.ucd.ie/international/ib

Other courses of interest

Engineering	→182
Electrical/Electronic Engineering	→187
Mechanical Engineering	→188
Medicine	→139

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

Engineering students follow a common first year. Modules include:
Chemistry • Creativity in Design • Electrical/Electronic Engineering • Energy Engineering • Engineering Computing • Mathematics • Mechanics • Physics.

Second to Fifth Year

Sample modules for Biomedical Engineering students include:
Bioinstrumentation • Biomechanics • Biomaterials • Neural Engineering • Nanomaterials • Cell Culture & Tissue Engineering • Biosignal Processing • 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
- University of Illinois, USA
- University of British Columbia, Canada.

Professional Work Experience

Professional Work Experience (PWE) is incorporated in the ME Biomedical Engineering programme. Six- to eight-month internships (the majority of which are paid) have included the following employers: Alexion, BD Medical, Boston Scientific, DePuy Synthes, Medtronic, Nypro, and ResMed.

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