

# ME Materials Science & Engineering

Two Years Full Time (September start)



## Introduction

Materials Science and Engineering is an interdisciplinary field investigating the relationship between the structure of materials at atomic or molecular scales and their macroscopic properties. ME Materials Science and Engineering Programme assists manufacturing-based engineering by training students for work in industry sectors as diverse as biomedical, energy, electronic, automotive

and aerospace. This programme's aim is to provide advanced engineering education in subject areas related to design and application of materials such as metals, ceramics, polymers, composites and semi-conductors. The core knowledge in this field is essential in currently evolving advanced technologies such as additive manufacturing (also known as 3D-Printing) and nanotechnology.

## Course Highlight

The programme is professionally dual accredited by both the Institute of Materials, Minerals and Mining (IOM3) and Engineers Ireland. The programme provides professional work placements for a duration of 6-8 months in Irish industry which includes companies in biomedical, aerospace, energy and electronic sectors.

## Course Content and Structure

- 120 credits Taught masters
- 60 credits Taught modules
- 30 credits Research Project
- 30 credits Work Experience

### Modules may include:

- Advanced Composites and Polymer Engineering
- Fracture Mechanics
- Materials Thermodynamics and Kinetics
- Materials Science & Engineering
- Professional Engineering (Finance) Solid-State Devices
- Technical Ceramics
- Bio-material Interactions
- Nanomaterials
- Advanced Metals Processing
- Energy Systems and Climate Change
- Biomaterials
- Computational Continuum Mechanics I
- Manufacturing Engineering II
- Medical Device Design
- Applied Chemistry: Selected Frontiers Areas
- Professional Engineering (Management)
- Professional Engineering (Finance)

## Why study at UCD?



### Graduate education

12,800 graduate students; 17% graduate research students; structured PhDs



### Global community

9,500 international students and a 300,000 alumni network across 165 countries



### Global Profile

UCD is ranked in the top 1% of higher education institutions worldwide



### Global careers

Dedicated careers support; 2-year stayback visa to work in Ireland

# I.M3 Accredited Programme





## Career Opportunities

Graduate of the ME Materials Science and Engineering programme can look forward to limitless employment opportunities in leading companies of the manufacturing, biomedical, aerospace, energy and electronic sectors. Manufacturing accounts for 24% of Irish economic output and employs 20% of the Irish workforce directly or indirectly. Ireland's aerospace and aviation industry is worth over €4.1 billion to the Irish economy, and there are more than 250 companies involved in the aerospace, aviation and space sectors in Ireland, providing employment for around 42,000 full-time workers. Moreover, Ireland hosts 18 of the world's top 25 medtech companies and a multi-national semi-conductor manufacturing company (Intel Leixlip), overall employing over 40,000 people. UCD materials graduates have taken up roles such as data scientist, manufacturing engineer, development engineer, and research engineer, in different industrial sectors including aerospace (General Electric, Rolls Royce, Lockheed Martin Aeronautics), electronics (Intel), biomedical (Boston Scientific, Stryker, DePuy Synthes) and energy (Siemens).

## Applicant Profile

- ◆ Applicants must hold a bachelor's degree with a minimum upper second class honours (NFQ level 8) or international equivalent in a relevant Engineering, Science or Technology programme.
- ◆ Applicants whose first language is not English must also demonstrate English language proficiency of IELTS 6.5 (no band less than 6.0 in each element), or equivalent.
- ◆ Students who do not meet the IELTS requirement may wish to consider taking the Pre-Sessional or Pre-Masters Pathway. Full details <https://www.ucd.ie/alc/programmes/pathways/>

### International Fees and Scholarships

Tuition fee information is available on [www.ucd.ie/fees](http://www.ucd.ie/fees). Please note that UCD offers a number of graduate scholarships for full-time, self-funding international students, holding an offer of a place on a UCD masters programme. Please see [www.ucd.ie/global/scholarships/](http://www.ucd.ie/global/scholarships/) for further information.

### Related Masters Programmes of Interest

- ME Mechanical Engineering
- MEngSc Materials Science & Engineering

## Graduate Profile

Matteo Nicolasi  
Stryker



What convinced me to choose this programme was its interdisciplinary nature and the exposure to a wide range of engineering subjects that comes with it. The programme manages to combine theoretical learning and practical experiences masterfully and allowed me to do an internship at the Nano Imaging and Materials Analysis Centre at UCD. Here I gained hands-on experience in advanced electron microscopy and I was put, since day one, at the centre of the laboratory daily operations. Thanks to this experience and the excellent education that this programme provided me with, I was able to obtain a job at one of the world's leading biomedical engineering companies where I currently work as R&D engineer.

### CONTACT US

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### APPLY NOW

This programme receives significant interest so please apply early online at [www.ucd.ie/apply](http://www.ucd.ie/apply)