University College Dublin
Ireland's Global University



ME MATERIALS SCIENCE & ENGINEERING (TWO YEARS FULL TIME)

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.

IOM3 The Institute of Materials, Minerals and Mining
ACCREDITED PROGRAMME

ENGINEERS IRELAND
ACCREDITED PROGRAMME

PROFESSIONAL WORK PLACEMENTS PROVIDED

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 (Ireland hosts 18 of the world's top 25 med-tech companies), aerospace (Ireland's aerospace industry worth over €4.1 billion to the Irish economy with more than 250 companies), energy and electronic sectors.

WHY STUDY AT UCD?

Professional Work Experience
6-8 month Professional Work Experience internship opportunity

Tradition
Established 1854, with 160 years of teaching and research excellence

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

Global community
Over 8,400 international students from over 140 countries study at UCD

Global careers
Degrees with high employability; dedicated careers support; two-year stay-back visa (for non-EU students)

Safety
Modern parkland campus with 24-hour security, minutes from Dublin city centre

COURSE CONTENT AND STRUCTURE

120 credits	60 credits	30 credits	30 credits
taught master's	taught engineering modules	professional work experience	research project

Core modules include:

- Advanced Metals/Materials Processing
- Advanced Composites and Polymer Engineering
- Fracture Mechanics
- Kinetics & Thermodynamics of Materials
- Materials Science & Engineering II
- Materials Science & Engineering III
- Professional Engineering (Finance)
- Solid-State Electronics I
- Technical Ceramics

Optional modules include:

- Energy Systems and Climate Change
- Biomaterials
- Chemistry of Materials
- Computational Continuum Mechanics I
- Manufacturing Engineering II
- Medical Device Design
- Nanomaterials
- Physics of Nanomaterials
- Professional Engineering (Management)



Course code: T275





CAREER OPPORTUNITIES

If you are a graduate of the ME Materials Science and Engineering programme you 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).

APPLY NOW

This programme receives significant interest so please apply early online at www.ucd.ie/apply

ENTRY REQUIREMENTS

- A 4-year 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/

SCHOLARSHIPS

- Dedicated scholarships for non-EU students
  - Apply for University Scholarship www.ucd.ie/global/study-at-ucdscholarshipsfinances/scholarships/
  - Apply for College scholarship www.ucd.ie/eacollege/study/noneuscholarships
- Approved by US Dept of Education for federally supported loans

WORK IN IRELAND

Option to stay in Ireland to seek employment and/or work for 2 years after graduating.

FEES

Fee information is available at www.ucd.ie/fees

RELATED MASTER'S PROGRAMMES OF INTEREST

- ME Mechanical Engineering
- MEngSc Materials Science & Engineering



GRADUATE PROFILE

Matteo Nicolasi
Stryker

The ME in Materials Science and Engineering provided me with the knowledge and experience necessary for the next step in my professional career. 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

EU Students – Katie O'Neill E: katie.oneill@ucd.ie **T:** +353 1 716 1781 **W:** www.ucd.ie/eacollege
International Students – E: eamarketing@ucd.ie/international@ucd.ie **T:** +353 1 716 8500 W: www.ucd.ie/global