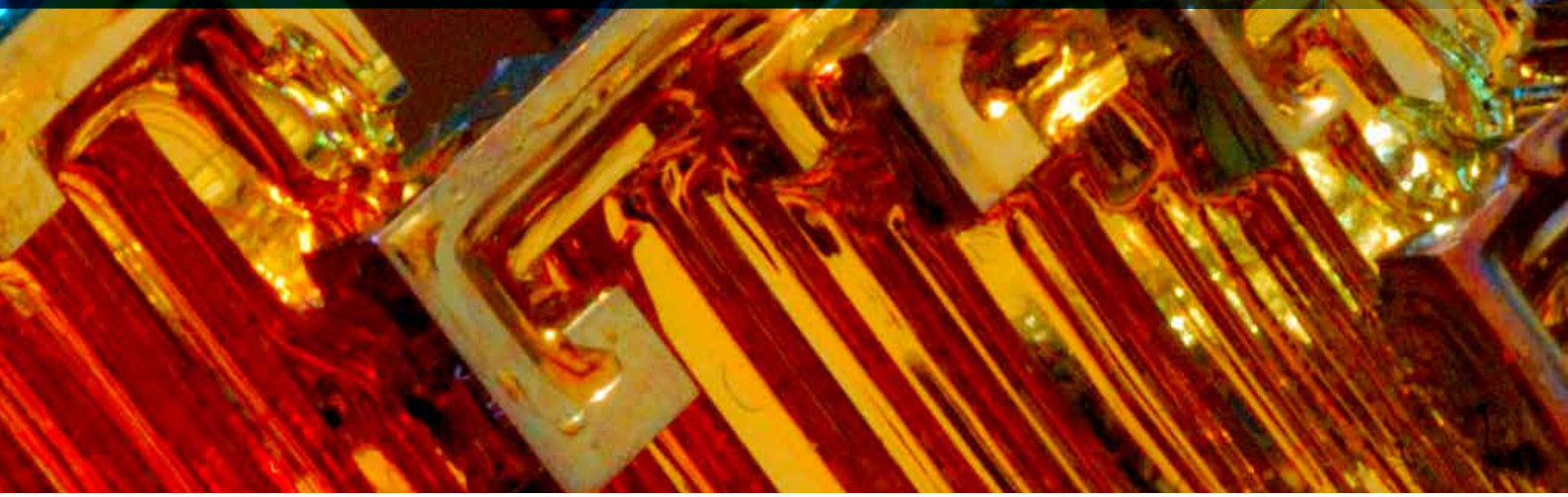
ME in Materials Science and Engineering

UCD School of Mechanical and Materials Engineering

PROFESSIONAL WORK EXPERIENCE AVAILABLE ON THIS PROGRAMME



Why is this course for me?

Materials Scientists and Engineers are at the centre of virtually every area of technology from optoelectronics to space materials and from automotive and aeromotive manufacturing to biomedical devices. Graduates from this programme will be fully qualified professional engineers, capable of working anywhere in the world at an advanced technical level or as a professional engineering manager.

Graduates will also have specialist training in underlying scientific fundamentals and practical materials handling and analysis techniques that will make them attractive to either potential employers or equip them for further study at advanced postgraduate level such as PhD studies in Ireland or across the world.

The ME in Materials Science and Engineering provides engineers with a specialist education in the area of metals, ceramics, polymers and composites for industrial engineering applications from biomedical device manufacture to future energy solutions. It is a two year, 120 credit professional engineering postgraduate degree programme.

The programme highlights include:

- Focus on the use of materials in engineering systems
- Professionally accredited engineering postgraduate degree programme
- Advanced integrated theoretical, conceptual and practical knowledge
- Technical research project in collaboration with world leading research groups and researchers
- Interdisciplinary curriculum

Professional Work Experience

The Professional Work Experience (PWE) module is incorporated into the two-year Masters of Engineering Programme and is designed to integrate a student's academic and career interests with paid practical work experience for a 6-8 month period. The module provides students with the perfect opportunity to gain increased experience and understanding of their chosen field, assess where their strengths and weaknesses lie and maximise their knowledge of the available career possibilities. The practical skills acquired during this placement will give graduates a competitive advantage when applying for positions upon graduation.

Why study at University College Dublin?

Some of the reasons to study at UCD:

- Top 1% world university
- Ireland's leading provider of graduate education
- Ireland's largest and most international university
- Emphasis on research and innovation
- Safe, modern campus in Dublin, capital city of Ireland
- Extensive range of on-campus accommodation
- 1 hour flight from London

UCD College of Engineering and Architecture

The UCD College of Engineering and Architecture's research and taught programmes are centred around a wide variety of activities spanning basic, strategic and applied research from the diverse range of disciplines covered by the Schools of Architecture, Biosystems Engineering; Chemical and Bioprocess Engineering; Civil, Structural and Environmental Engineering; Electrical, Electronic and Communications Engineering and Mechanical and Materials Engineering.

We have a proud history in research going back 100 years. Today, there are exciting opportunities for those wishing to pursue a higher research degree to doctoral or masters level. Within the broad disciplines listed above there are many research centres, clusters and institutes led by highly experienced and world-renowned researchers.

The College has an excellent track record in attracting significant Science Foundation Ireland (SFI), European and industrial funding to support its many research activities. Through research, the UCD College of Engineering and Architecture continues to promote excellence in Graduate training. The range of interdisciplinary taught Master's programmes now available within the college, and initiatives including the Structured and Thematic PhD programmes, mean that the Graduate School is ideally placed to offer innovative graduate level training programmes.

UCD School of Mechanical & Materials Engineering

The School of Mechanical and Materials Engineering offers the widest range of both research-based and taught postgraduate programmes. Building on a long history, it has always moved with the changing needs of industry and the global marketplace and today offers specialist programmes in Energy Systems, Materials, Bioengineering and Engineering Management.

As well as taught programmes, there is a wide variety of research opportunities. Research has always had a strong industry-focus and the school boasts the first ever UCD spin-out company, The Timoney Group, over 30 years ago. Several of the programmes combine both taught and research modules, with a range of subject options, to provide participants with an internationally recognised, custom-fit degree.

What will I study?

This is a single stage, 120 credit programme delivered over two academic years. Each year consists of two 30 credit semesters. In year 1 the student will undertake 6 taught modules in semester 1 followed by a period of professional work experience in semester 2. In year 2 the student will undertake a year long research project and a further 6 taught modules.

The curriculum is as follows:

Professional Work Experience (30 credits) Research Project (30 credits)

Taught modules core (5 credits):

- Energy Systems and Climate Change
- Material Science and Engineering II
- Technical Ceramics
- Professional Engineering (Finance)
- Solid-State Electronics I
- Fracture Mechanics
- Kinetics & Thermodynamics of Materials
- Material Science & Engineering III
- Advanced Composites and Polymer Engineering

Taught modules optional (5 credits):

- Computational Continuum Mechanics I
- Manufacturing Engineering II
- Medical Device Design
- Chemistry of Materials
- Physics of nanomaterials
- Advanced Metals/Materials Processing
- Nanomaterials
- Professional Engineering (Management)

Candidates who can demonstrate prior knowledge of a core subject may be permitted to make substitutions, drawn from list of option modules. Final selection of modules is subject to consultation with and prior approval by the Programme Director.

What are the career opportunities?

Graduates from this programme will be fully qualified as professional engineers, capable of working world-wide at an advanced technical level or as a professional engineering manager. Most companies world wide employ materials professionals and examples would include General Electric or Rolls Royce (Aerospace), Astrium (Space), Stryker or Boston Scientific (Biomedical) or Siemens (Energy).

Academic Profile

Dr Ken Stanton, Programme Director

Dr Ken Stanton is Programme Director of the MEngSc in Materials Science & Engineering and lectures in Advanced Materials at the UCD School of Mechanical and Materials Engineering. Following his BSc in Materials Science (UL, 1995) and an MSc in Physics (London, 1996) he obtained a PhD for his work on biomedical glass-ceramics (UL, 2000). His research is primarily concerned with bioceramics, crystallization of inorganic solids and biological interactions with nano-particles and nano-structured surfaces.

Entry Qualifications

Applicants must have:

- A first cycle honours (2:1) Bachelor Degree in Mechanical Engineering or equivalent and the appropriate prior learning
- A complete application which includes a detailed explanation of your interest in the programme
- Names and contact details of two referees who can assess your intellectual ability, maturity and motivation
- Applicants may be required to attend an interview as part of the application process.

If English is not your native language, the minimum acceptable score on the TOEFL Internet Based Test is 90 and on IELTS it is 6.5.

Duration

This ME is two years in duration.

Contact us

General admission queries:

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www.ucd.ie/eacollege

Applying Online

To apply online, please go to www.ucd.ie/apply, create a user account, and then select 'ME Materials Science and Engineering (T275)'.

Useful Links

www.ucd.ie/programmes/t275
www.ucd.ie/graduatestudies/coursefinder/