University College Dublin
Ireland's Global University

MEngSc OPTICAL ENGINEERING (ONE YEAR FULL TIME)

Europe is a leading player in optics and photonics. The European photonics industry is growing four times faster than the European GDP, which underlines the continuing economic potential of light technologies for the future. Optical technologies play key roles in many areas including biomedical imaging, astronomy, quality control, security, sensing and telecommunications. The ready availability of multi-camera mobile phones paves the way for new applications as computational approaches integrate with traditional optical design. Very exciting innovative technologies are rapidly emerging, driven by the ability to display and capture large amounts of real-time optical data. Optical engineers are involved in identifying and designing these systems, with the aim of improving people's lives, generating employment and creating new business opportunities.

DELIVERED BY A HIGHLY RESEARCH-INTENSIVE SCHOOL

Delivered by a highly research-intensive School composed of many internationally high-profile academics, including five IEEE fellows (Institute of Electrical & Electronic Engineers), an OSA fellow (The Optical Society) and a SPIE fellow (International Society for Optics & Photonics). This gives students the opportunity to participate in masters research projects linked with ongoing graduate research.

WHY STUDY AT UCD?

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 8,500 international students from over 130 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

90 credits taught master's | **60 credits** taught modules | **30 credits** research project

Core modules include:

- Biomedical Signal Processing
- Optoelectronics
- Biomedical Imaging
- Professional Engineering (Mgt)
- Optical Engineering
- ME Project (Optical)

Optional modules include:

- Numerical Algorithms
- Optimisation Techniques for Engineers
- Nanooptics and Biophotonics
- Hyperspectral Imaging
- Entrepreneurship for Engineers
- Introduction to Imaging with MATLAB

Research Project

Project topics are spread across a wide range, but related to and drawing on the topics covered in the taught modules.

Course code: T348

CAREER OPPORTUNITIES

There are excellent job opportunities for optical engineers in the display, lighting, virtual reality, robotic and drone areas. It is a large and expanding area.

Established employers in Ireland include both multinationals and indigenous companies, e.g. Andor, Carl Zeiss, Huawei, Intel/Movidius, Qualcomm, and Sensl, to name but a few.

APPLY NOW

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

ENTRY REQUIREMENTS

- A 4-year bachelors degree with a minimum upper second class honours (NFQ level 8) or international equivalent in an Electrical, Electronic, Computer or Optical Engineering 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/scholarships/
  - Apply for College scholarship www.ucd.ie/eacollege/study/noneuscholarships
- Approved by US Dept of Education for federally supported loans

FEES

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

RELATED MASTER'S PROGRAMMES OF INTEREST

- ME Optical Engineering
- MEngSc Electronic & Computer Engineering
- MSc Advanced Software Engineering
- MSc Computer Science NL (Negotiated Learning)
- MSc Information Systems

WORK IN IRELAND

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

PROGRAMME DIRECTOR

Dr John Healy

While this degree is new within UCD, Optical Engineering is recognised as one of the most critically important technical disciplines supporting the rise of a host of new technologies. It brings together classical optics and imaging with modern mobile computational power and the associated accumulation and processing of large information-dense data sets. So, while the scientific roots of Optical Engineering are deep, the availability of new materials and hardware/software combinations is leading to a surge of interest associated with augmented/ virtual/ mixed reality, drone/robot and autonomous automobile technologies, deep learning, artificial intelligence, ubiquitous mobile phone platforms and high-speed telecommunication applications. Whether it is security, health, food or transport, optical engineers are needed and are making critical commercial contributions.

CONTACT US

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