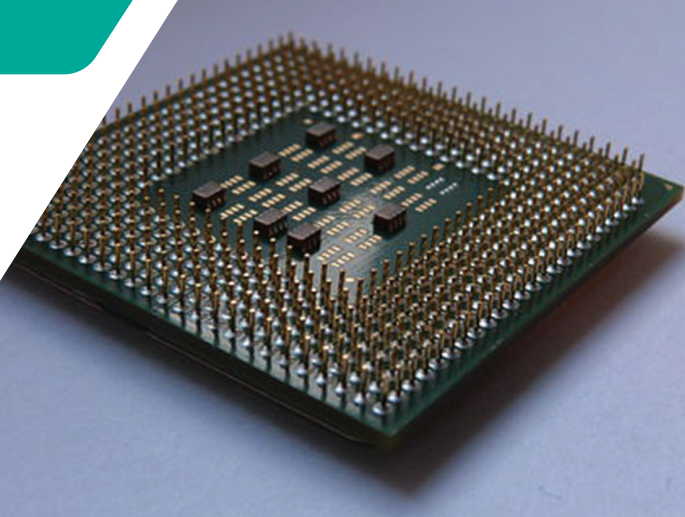




University College Dublin
Ireland's Global University



"Pentium 4 Underside Demonstrating PGA Socket" by Liam McSherry - Own work.
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MSc Nanotechnology (1 Year Full Time)

Nanotechnology is an emerging sector, which covers many areas of both academic science and device design and innovation. Manipulating matter at the nanoscale has already led to new technology in many areas such as electronics, displays, sensors, and green technology. The design, fabrication and control of devices with nanoscale (billionth of a metre) dimensions, is an engine of innovation in almost every sector. This course is suitable for graduates who wish to apply their degree expertise in the nanoscale science and related sectors. This specialisation is for students excited by the prospect of studying

and researching in an interdisciplinary area, where physics, chemistry and engineering all come together. Lectures are delivered by staff of international renown in these fields of research. About 50% of the time is devoted to classroom or lab-based activities. The student spends the remaining time carrying out a substantial research project, chosen in consultation with academic staff.

This course is delivered following consultation with members of the semiconductor industry and graduates from the programme can expect to be highly employable in that industry.

Key Fact

Students and staff have access to major technology platforms essential to the conduct of world-class cutting-edge research through the strength of the collaboration of the UCD School of Physics researchers with associated UCD Institutes including the UCD Institute for Discovery, Materials Engineering, and the Innovation Alliance between Trinity College Dublin and University College Dublin.

Why study at UCD?



Tradition

Established 1854, with 160 years of teaching & research excellence



Global profile

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



Global community

Over 6,000 international students from over 120 countries study at UCD



Global careers

Degrees with high employability; dedicated careers support; 1 year stay-back visa



Safety

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

Course Content and Structure

90 credits
taught masters

45 credits
taught modules

45 credits
research project

OR

30 credits
taught modules

60 credits
research project

Modules will be decided upon agreement with the Programme Director.

You will gain experimental, theoretical and computational training in the following topics:

- Nano-Optics
- Physics of Nano-Materials
- Spectroscopy and Lasers
- Nano-Mechanics
- Atomic Force Microscopy
- Theoretical and Computational Simulation
- Extreme Ultraviolet Lithography
- Innovation
- Journal Club and Presentation Skills



Modules and topics shown are subject to change and are not guaranteed by UCD.

Career Opportunities

The programme prepares you for industry or further PhD research. Career opportunities include the semiconductor industry, telecommunications, diagnostic imaging, green technologies and sensor applications, both in Ireland and internationally. It is also a stepping-stone to PhD research in the areas of photonics, nanotechnology and computational physics and nanoscience. Prospective employers include Intel, Abbott, Allergan, Andor, Asylum Research, Becton Dickinson, Boston Scientific, Carl-Zeiss Meditec, Covidien Imaging, Eblana Photonics, Intune Networks, Park Systems, Pharma-Bio Serv, Philips, Schering-Plough, and SensL.



Left - "Field Emitter Array" by Johann Vetter, GSI Darmstadt. Licensed under Creative Commons Attribution-Share Alike 3.0 via Wikimedia Commons.

Right - Alexofdodd at the English language Wikipedia, via Wikimedia Commons.

Facilities and Resources

- Understanding the structure, function and regulation of materials at the nanoscale and in real time requires modern nanometer and femtosecond (quadrillionth of a second) technologies. Physical studies at these scales will ultimately lead to devices and techniques that possess novel properties applicable to the construction of, for example, single photon sources, solar cells and nanoelectronics, including nanomaterials such as nanotubes, nanoparticles and nanowires. This programme incorporates modern experimental and computational physics techniques and provides exposure to a variety of applications, and facilitates professional development.

Apply Now

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

Entry Requirements

- Entrance to this programme requires a degree in physics, chemistry, engineering, material sciences or a related discipline with a significant physics content. An upper second class honours or international equivalent is required. In special circumstances, students with a strong physics background and lower second class honours degree may be accepted.
- 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. Applicants with an IELTS score of at least 5.5 may apply for admission to the UCD Pre-Masters Pathway programme.

Graduate Profile

Oisín Maguire, PhD Student in Plasma Spectroscopy, UCD School of Physics

I chose to study the MSc in Physics (Negotiated Learning) due to its flexibility and engaging topics: from nano-mechanics and nano-optics to plasma physics. A wide variety of prospective research projects will fit practically every student, regardless of their specific background

and research interests. Overall, this MSc gave me the insight I needed to progress my career and the knowledge that is required to have a successful career, both in academia and industry. I fully recommend it for anybody who wants to progress in a physics-based career. On completing this programme, you are ready to start a PhD in related areas, or ready for employment in industry.

Fees and Scholarships

Tuition fee information is available on www.ucd.ie/fees. Please note that UCD offers a number of postgraduate scholarships for full-time, self-funding international students, holding an offer of a place on masters programmes. Please visit www.ucd.ie/international/scholarships for further information.

Accommodation

UCD has accommodation for over 2,500 students across five locations. Places are limited and more information is available at

www.ucd.ie/residences/

For information and advice on living off campus, please contact the UCD Residences Off-Campus Office or the UCD Student Union Accommodation Services. Please visit www.ucd.ie/residences/accommodation-booking-support/ for further details.

Additional Course Delivery Options

- MSc Physics (Negotiated Learning)
Specialisation: Nanotechnology 2-Year, part-time
- Graduate Certificate Physics (Negotiated Learning)
Specialisation: Nanotechnology part-time, without research project component

Related Masters Programmes of Interest

- MSc Physics (Negotiated Learning)
- MSc Space Science & Technology
- MSc NanoBio Science
- MSc Computational Physics
- MSc Applied Mathematics & Theoretical Physics

EU Enquiries

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UCD School of Physics, University College Dublin, Belfield, Dublin 4.

Non-EU Enquiries ✉ : internationaladmissions@ucd.ie
www.ucd.ie/international