



University College Dublin  
Ireland's Global University



## MEngSc BIOPHARMACEUTICAL ENGINEERING (ONE YEAR FULL TIME)

Pharmaceutical and Biopharmaceutical manufacturing are key sectors in the Irish economy generating over 50 per cent of GDP. This sector has seen continued and sustained success with a number of high-profile investments in recent years providing excellent job opportunities for graduates. The programme and its academic faculty are closely linked with the National Institute for Bioprocessing Research and Training (NIBRT), which is a global centre of excellence for training and research in bioprocessing.

The MEngSc in Biopharmaceutical Engineering programme provides substantial coverage of scientific, technical, management and regulatory issues associated with this industry. The aim of this programme is to offer an internationally recognised, high-quality, flexible curriculum, which follows the latest developments in science and technology. This programme is suitable for Science and Engineering graduates wishing to obtain a qualification which is highly relevant to the biopharmaceutical industry.

### EXCELLENT EMPLOYMENT RECORD

This programme has an excellent employment record. It equips graduates with an internationally recognised qualification and the knowledge and skills to obtain a high-level professional career in the Biopharmaceutical, Pharmaceutical and related sectors.

### 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 8,400 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

**90 credits**  
taught master's

**60 credits**  
taught modules

**30 credits**  
project

The programme provides students with an understanding of the principal scientific and engineering challenges involved in the design, operation and management of biopharmaceutical production facilities. Modules include:

- Analytical Science for Biopharma
- Animal Cell Culture Technology
- Bioprocess Design
- Bioprocessing Laboratory Practice
- Bioprocess Scale-up and Technology Transfer
- Bioreactor, Modelling and Control
- Commissioning & Qualification
- Data Science for Biopharma
- Downstream Processing
- Facility Design and Operation
- Lean Six Sigma
- Molecular Genetics & Biotechnology
- Principles of Biopharmaceutical Engineering
- Regulatory Affairs in Science
- Research / Design project





## CAREER OPPORTUNITIES

Your career opportunities upon graduation from this programme are exemplary. Ireland is a world player in pharmaceutical and biopharmaceutical production. The pharmaceutical industry in Ireland comprises a mix of international and local companies. Approximately 120 overseas companies have plants in Ireland, including many of the largest pharmaceutical and biopharmaceutical companies in the world, such as AbbVie, Amgen, Biogen, BMS, Genzyme, GSK, Janssen Biologics (Ireland), Merck, Novartis, Pfizer, Regeneron, Roche, Sanofi Shire, and many more. Upon graduation from this programme, you will enjoy an extremely high job placement rate with superlative career opportunities.



## FACILITIES AND RESOURCES

This programme is closely linked with the National Institute for Bioprocessing Research and Training (NIBIRT) facility. NIBIRT offers a quality training and research experience not previously possible anywhere in the world. At the heart of the NIBIRT building is the bioprocessing pilot plant, consisting of extensive upstream, downstream, fill-finish and the associated analytical facilities. These facilities are all operated in a realistic GMP simulated, operational manufacturing environment.

### APPLY NOW

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

## ENTRY REQUIREMENTS

- 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-Master's 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/](http://www.ucd.ie/global/study-at-ucdscholarshipsfinances/scholarships/)
  - Apply for College scholarship [www.ucd.ie/eacollege/study/nonescholarships](http://www.ucd.ie/eacollege/study/nonescholarships)
- 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.

## RELATED MASTER'S PROGRAMMES OF INTEREST

- MEngSc Chemical Engineering
- MSc Biotechnology

## FEES

Fee information is available at [www.ucd.ie/fees](http://www.ucd.ie/fees)



## GRADUATE PROFILE

**Thomas Raju**  
Regeneron Pharmaceuticals

I chose UCD for its fantastic reputation for its postgraduate courses. The campus is also the biggest in Ireland and its facilities are excellent. I chose this programme as a continuation of my bachelor's degree in Pharmaceutical Chemistry and I wanted to further develop my learning in this area. The best part is that the course offers training in the bioprocess training facility in the National Institute for Bioprocessing Research and Training (NIBIRT) which helped to greatly enhance my practical knowledge. The course is designed to give you a well-rounded education in a variety of aspects in the pharmaceutical industry such as cell culture, facility design, engineering modules, regulatory affairs, lean sigma methodologies, etc. The course has helped improve my career opportunities and I have already been offered a job with a pharmaceutical company for when I finish my course. I believe I have gained more practical knowledge from the one year of study that will help me in my workplace.

## CONTACT US

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