

## FACULTY OF ENGINEERING SCIENCES /

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The stairwell in the recently-refurbished Roberts Building. The design on the wall was created by a student from the UCL Slade School of Fine Art, following a competition run by UCL Engineering to design a mural inspired by engineering.

# Biochemical Engineering and Bioprocessing /

www.ucl.ac.uk/prospectus/biochemeng

The contributions made by biochemical engineering to human wellbeing are having a vital positive impact in developing novel medicines, pioneering stem cell therapies and green sustainable technologies. Studying this subject opens up a world of innovation in which exciting discoveries are translated into practical processes.

## Subject overview

Total intake **54**

(2014 entry)

Applications per place **4**

(2012 entry)

### Research Assessment Exercise (RAE)

75% rated 4\* ('world-leading') or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Supply Chain Graduate, Akzonobel (2011)
- Supply Chain Requirements Planner, Unilever (2011)
- Investment Analyst, Deutsche Bank (2011)
- Biopharmaceutical Engineering Associate, GlaxoSmithKline (2010)
- Purification Scientist, Lonza Biologics (2009)

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For more information, including programme structure, scan this code with your smartphone or visit:

[www.ucl.ac.uk/prospectus/biochemeng](http://www.ucl.ac.uk/prospectus/biochemeng)

## Bioprocessing of New Medicines (Business and Management) BSc

**UCAS:** CN72 • 3 years

**A levels:** A\*AA-AAB. Preferred subjects: at least one from Biology, Chemistry, Mathematics and Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-39 points. A total of 17-19 points in three higher level subjects preferably including at least one from Biology, Chemistry, Mathematics or Physics, with no score below 5.

**Other qualifications:** see online Prospectus entry.

This programme is designed to give you a good grounding in both the science of bioprocessing and the management of new emerging technologies in healthcare. You will develop an understanding of the latest biomedical and diagnostic advances, together with the business skills necessary for health and clinical research management.

In the first year you will study how a drug is created and made at scale, and what the challenges of creating new medicines are. You will also study the fundamentals of management and data management. In year two, you will study the internal and external factors that govern pharmaceuticals production, with an emphasis on clinical needs and their constraints. In year three you will undertake an independent research project, along with courses in business planning and the feasibility and economy of drug production.

## Bioprocessing of New Medicines (Science and Engineering) BSc

**UCAS:** B190 • 3 years

**A levels:** A\*AA-AAB. Preferred subjects: at least one from Biology, Chemistry, Mathematics and Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-39 points. A total of 17-19 points in three higher level subjects preferably including at least one from Biology, Chemistry, Mathematics or Physics, with no score below 5.

**Other qualifications:** see online Prospectus entry.

There is a growing need for graduates with a grounding in biological sciences who are able to understand the translational new technologies required for new medicine commercialisation. This BSc focuses on the early stage development of new medicines, such as stem cell, new vaccines and potential new therapies related to healthcare.

In year one, you will study the fundamentals of biochemistry and cell biology, and look at the challenges involved in working in the biopharmaceutical industry. In year two you will learn about the intricate signalling structures within the human body, and issues relating to the commercialisation of new medicines. In year three you will undertake a research project, along with courses in business planning and the bioprocessing of new medicines. Optional courses each year enable you to tailor your degree to your interests.

The department maintains great links to the industries who use our research and employ our graduates – you can meet them at our regular seminars and events.

### Biochemical Engineering

#### Engineering (Biochemical) MEng

**UCAS:** H813 • 4 years

**A levels:** A\*AA-AAB. Preferred subjects: any two from Biology, Chemistry, Mathematics and Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-39 points. A total of 17-19 points in three higher level subjects preferably including any two subjects from Biology, Chemistry, Mathematics or Physics, with no score below 5.

**Other qualifications:** see online Prospectus entry.

This four-year programme offers an extra year on top of the Biochemical Engineering BEng in which to acquire hands-on practical research experience and advanced design skills. Several optional routes provide flexibility to meet students' individual requirements.

The MEng and BEng programmes share a common curriculum of introductory courses over the first two years. In year three you will supplement compulsory courses by selecting options to match your own interests. In year four you will have the option of following one of several routes, either in advanced biochemical engineering, chemical engineering or bioprocess management, as well as a study abroad option. Whichever route you choose, you will undertake a research project alongside more advanced courses.

There are several routes available in the Engineering (Biochemical) MEng. Each route focuses on a different area and offers different research and study opportunities.

You can transfer to any of the following degree programmes at the end of year two:

- Engineering (Biochemical – International Programme) MEng
- Engineering (Biochemical with Bioprocess Management) MEng
- Engineering (Biochemical with Chemical) MEng



#### Engineering (Biochemical) BEng

**UCAS:** H811 • 3 years

**A levels:** A\*AA-AAB. Preferred subjects: any two from Biology, Chemistry, Mathematics and Physics. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-39 points. A total of 17-19 points in three higher level subjects preferably including any two subjects from Biology, Chemistry, Mathematics or Physics, with no score below 5.

**Other qualifications:** see online Prospectus entry.

Developing innovation to create new medicines, biofuels and environmental management tools is essential to meet the global challenges of tomorrow. If you are interested in meeting these challenges, then Biochemical Engineering at UCL is for you. This broad-based, flexible programme provides opportunities to follow a wide range of careers in this rapidly developing sector.

The MEng and BEng programmes share a common curriculum of introductory courses over the first two years. In year three you will supplement compulsory courses by selecting options to match your own interests, and you may choose to complete your degree at this stage with a BEng qualification, although we advise all applicants to apply for the MEng programme initially as this gives you more flexibility.

## Subject overview

Total intake **100**

(2014 entry)

Applications per place **7**

(2012 entry)

### Research Assessment Exercise (RAE)

75% rated 4\* ('world-leading')  
or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Technical Safety Engineer, AMEC (2011)
- Field Engineer, Baker Hughes (2011)
- Trainee Flow Assurance Engineer, SPT Group (2011)
- Reservoir Engineer, Mobil North Sea (2010)
- Engineer, Shell Project and Technology (2009)

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For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/chemeng](http://www.ucl.ac.uk/prospectus/chemeng)

Chemical engineers apply scientific and technological expertise to develop processes which alter the chemical, physical, or biochemical state of materials. With an emphasis on safety, sustainability and cost-effectiveness, as a chemical engineer your skills will be in demand worldwide for the manufacture of essential products.

## Engineering (Chemical) MEng

UCAS: H801 • 4 years

**A levels:** A\*AA-AAB. Mathematics required, plus either Chemistry or Physics preferred. A pass in a further subject at **AS level** or equivalent is required. If Chemistry or Physics is not offered at A level then it must be offered at AS level. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-39 points. A total of 17-19 points in three higher level subjects to include Mathematics, plus Chemistry/Physics preferred, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme builds upon the knowledge and experience offered by the Chemical Engineering BEng programme with the addition of a final-year research project and advanced courses, and is a direct route to IChemE membership and Chartered (CEng) Status.

In years one and two you will take a range of compulsory foundation courses, supplemented with optional courses of your choice. In year three you undertake a major design project, carried out in small teams. Through this realistic design task, where each team designs a complete process plant, including detailed unit design, environmental impact and risk assessment and costing, you learn how to address the challenges of chemical engineering. Your final year will include compulsory advanced courses, including a research project, and advanced course options based on your interests.

There are several routes available in the Engineering (Chemical) MEng. Each route focuses on a different area and offers different research and study opportunities.

You can transfer to either of the following degree programmes at the end of year two:

- Engineering (Chemical – International Programme) MEng
- Engineering (Chemical with Biochemical) MEng



When you study engineering, you join more than just your department – meet and learn from other disciplines through diverse events, competitions and joint projects.

Chemical Engineering

### Engineering (Chemical) BEng

UCAS: H800 • 3 years

**A levels:** A\*AA-AAB. Mathematics required, plus either Chemistry or Physics preferred. A pass in a further subject at **AS level** or equivalent is required. If Chemistry or Physics is not offered at A level then it must be offered at AS level. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36-39 points. A total of 17-19 points in three higher level subjects to include Mathematics, plus Chemistry/Physics preferred, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.



#### Sa'ood Bashir

Chemical Engineering  
MEng [now Engineering  
(Chemical) MEng]

#### Fourth Year

This broad-based, multi-disciplinary programme provides flexible training and a unique opportunity to follow the widest possible range of careers, from design, construction and installation of processes, plants and equipment to manufacturing and marketing of products, and from research and development to administration and management of people and resources.

In all years you will take a range of compulsory courses, supplemented with optional courses. In year three you will also undertake a realistic design project, carried out in small teams, where you use the skills you have gained to design a complete process plant, including detailed unit design, environmental impact and risk assessment and costing. Students on the BEng programme complete their studies at the end of year three. Graduates will need to undertake further training before being granted Chartered Engineer (CEng) status.

“I chose chemical engineering because it seemed to lead to excellent job prospects, as well as being interesting and combining various topics from many fields of study. I decided to come to UCL because the department has an excellent reputation and fantastic research ratings.

The third-year design project is tough, but a great experience as it gives you a unique insight into what it is like to be an engineer. All of the skills developed over the course of the project were very important as they will be used when working in industry.

Last summer I worked for ten weeks as a research assistant in the UCL Centre for CO<sub>2</sub> Technology. It was a great chance to see some of the research taking place and to see some of the applications of my degree. The placement was fully funded by the EPSRC.”

A UCL Chemical Engineering student using a high-speed camera to study the formation of hydrogen bubbles



# Civil and Environmental Engineering /

www.ucl.ac.uk/prospectus/civeng

From the design and execution of large infrastructure projects to the development of solutions which halt and repair damage to our environment, civil and environmental engineering are exciting and truly international disciplines which impact on millions of lives and could involve you in projects around the world.

## Subject overview

Total intake **97**

(2014 entry)

Applications per place **7**

(2012 entry)

### Research Assessment Exercise (RAE)

55% rated 4\* ('world-leading') or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Structural Engineer, Atkins (2011)
- Graduate Engineer, Allan Baxter Associates (2011)
- Graduate Manager, Balfour Beatty Capital (2010)
- Structural Engineer, ODE (2010)
- Full-time student, MSc in Earthquake Engineering with Disaster Management at UCL (2009)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit: [www.ucl.ac.uk/prospectus/civeng](http://www.ucl.ac.uk/prospectus/civeng)

## Engineering (Civil) MEng

**UCAS:** H202 • 4 years

**A levels:** A\*AA-AAA. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Physics at grade C if not offered at A level.

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This four-year programme builds on the knowledge and experience offered in the Civil Engineering BEng programme with final-year design project and advanced courses, and is a direct route to Chartered (CEng) Status. You are advised to apply for the MEng programme initially, as this offers more flexibility.

All degrees follow a common introduction to civil and environmental engineering. Years one and two focus on the theoretical basis of civil and environmental engineering and geoinformatics structured around a series of multi-disciplinary projects (scenarios) based on realistic engineering problems. In later years a broad selection of advanced options enables you to pursue your specialist interests. You will undertake a substantial research project in year three and a major integrated design project in year four. There is also an opportunity to spend your third year studying abroad.

## Engineering (Civil) BEng

**UCAS:** H200 • 3 years

**A levels:** A\*AA-AAA. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Physics at grade C if not offered at A level.

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This BEng covers all the major fields of civil engineering (structures, soils, fluids, design, transport studies, surveying and materials) and includes a broad range of final-year options such as GIS, finance, law, entrepreneurship and management. The programme is flexible and after year one you may choose courses to build a degree that suits your skills and interests. All degrees follow a common introduction to civil and environmental engineering. Years one and two focus on the theoretical basis of civil and environmental engineering and geoinformatics structured around a series of multi-disciplinary projects (scenarios) based on realistic engineering problems. In your final year, you choose from a wide selection of advanced courses, and carry out a substantial research project.

Apply your skills in different cultures and environments through involvement with overseas aid projects, or international study.

Civil and Environmental Engineering

### Engineering (Environmental) MEng

UCAS: H224 • 4 years

**A levels:** A\*AA-AAA. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Physics at grade C if not offered at A level.

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme builds on the knowledge and experience offered by the Environmental Engineering BEng programme with final-year design project and advanced courses, and is a direct route to Chartered (CEng) Status. You are advised to apply for the MEng programme initially, as this offers more flexibility.

All degrees follow a common introduction to civil and environmental engineering. Years one and two focus on the theoretical basis of civil and environmental engineering and geoinformatics structured around a series of multi-disciplinary projects (scenarios) based on realistic engineering problems. In later years a broad selection of advanced options enables you to pursue your specialist interests. You will undertake a substantial research project in year three and a major integrated design project in year four. There is also an opportunity to spend your third year studying abroad.

### Engineering (Environmental) BEng

UCAS: H220 • 3 years

**A levels:** A\*AA-AAA. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Physics at grade C if not offered at A level.

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This BEng programme covers a wide range of subjects relevant to solving environmental problems, including study of environmental media (fluid and soil mechanics), basics of chemistry, biology, thermodynamics and reactor principles. You will gain transferable skills such as information technology and communication skills. The programme is flexible and after year one you may choose courses to build a degree that suits your skills and interests. All degrees follow a common introduction to civil and environmental engineering. Years one and two focus on the theoretical basis of civil and environmental engineering and geoinformatics structured around a series of multi-disciplinary projects (scenarios) based on realistic engineering problems. In your final year, you choose from a wide selection of advanced courses, and carry out a substantial research project.



Ariardi Choo

Civil Engineering MEng [now  
Engineering (Civil) MEng]

Fourth Year

“The civil engineering degree offered at UCL gave me the opportunity to learn in a dynamic environment with an innovative teaching style, combining both the key theories in the subject as well as encouraging a strong understanding of how these are applied in the practical sense.

UCL is many things; it's a great university, it's in central London, but better than that, it's just a great place to learn more about the stuff you're interested in with a great bunch of people. One thing I love about UCL is that it's not trying to be anything else; it has its own identity that sets it apart from the rest and that's why I'm here.

Being in a city where there's so much happening really benefits me as an engineer because you're close to so many new projects. Wherever you look, there's always something going on, and UCL's vast network of affiliations usually provides an insight of some sort to help benefit you as a student. The only thing that you have to be worried about is not getting distracted too much by everything else that goes on in such a vibrant city!”

Computer systems underlie most activities we consider vital to everyday modern life. With relevance to commerce, science and government, as well as to communications and entertainment, studying computer science develops analytic thinking and creative problem-solving skills important for a challenging and fulfilling career.

## Subject overview

Total intake **90**

(2014 entry)

Applications per place **9**

(2012 entry)

### Research Assessment Exercise (RAE)

80% rated 4\* ('world-leading') or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- IT Analyst, Microsoft (2011)
- Consultant, BAE Systems (2011)
- Computer Programmer, BT (2011)
- Technology Analyst, Goldman Sachs (2010)
- Analyst, Deutsche Bank (2009)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit: [www.ucl.ac.uk/prospectus/compsci](http://www.ucl.ac.uk/prospectus/compsci)

## Computer Science MEng

**UCAS:** G402 • 4 years

**A levels:** A\*AA. Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39 points. A total of 19 points in three higher level subjects including Mathematics, with no score below 5.

**Other qualifications:** see online Prospectus entry.

Through world-class teaching, this MEng develops the engineering expertise for creating cutting-edge software systems, along with the skills and intellectual rigour required for innovation and research. A strong focus on solving real-world problems is combined with building a deep understanding of computer science theory.

The Computer Science MEng shares a common first two years with the equivalent BSc. In the third year you take advanced core courses, specialist options and a substantial group project in collaboration with an external client. In the final year you undertake a major research project and take courses from our specialist Master's programmes linked to research areas in the department. There is also an option to spend the third year abroad at a partner institution in Australia, Europe, Hong Kong, Japan, Singapore or the USA.

## Computer Science BSc

**UCAS:** G400 • 3 years

**A levels:** A\*AA. Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39 points. A total of 19 points in three higher level subjects including Mathematics, with no score below 5.

**Other qualifications:** see online Prospectus entry.

With a strong focus on solving real-world problems, this BSc delivers world-class teaching based on expert real-world knowledge. The programme provides the essential material required by a top quality computer science graduate, to enable you to gain employment in a wide variety of industries.

In the first two years you will follow the core course together with a set of electives. The core course covers all the main topics required by computer scientists: architecture, programming, theory, design and mathematics. Your electives can be chosen from within computer science, (e.g. multimedia, cognitive systems and intelligent technologies) or from elsewhere in UCL. In your final year you will undertake both individual and group project work, and follow core and optional courses selected from within the department.

Our department was instrumental in bringing the Internet to Europe, and continues to pioneer ground-breaking technologies that change how we live.

Computer Science

### Mathematical Computation MEng

UCAS: G430 • 4 years

**A levels:** A\*AA. Mathematics with A\* required and Further Mathematics preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 39 points. A total of 19 points in three higher level subjects including Mathematics at grade 7, with no score below 5.

**Other qualifications:** see online Prospectus entry.



Alexander Emms

Computer Science BSc

First Year

This MEng is aimed at a small cohort of students with strong mathematical ability. The programme focuses on theoretical computer science and will equip you with the ability to model complex systems, and represent, manipulate, and analyse the vast amounts of data and knowledge required to solve massively complex problems.

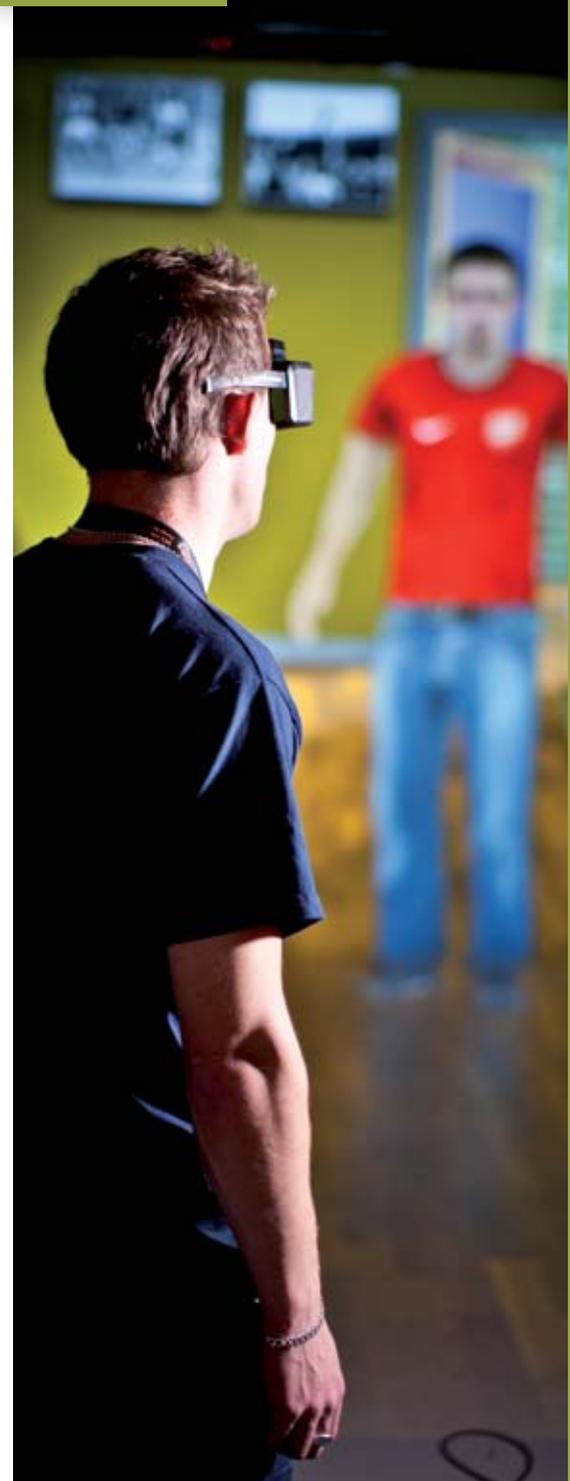
This programme covers a wide range of mathematical topics that underpin the analysis of computational systems, including logic, discrete mathematics, information theory, probability and statistics. The mathematical content is deeper and more substantial than our other programmes, and practical problem-solving will mesh with this theoretical work. Year two offers one optional course, which may be taken from outside the department. In the third and the final years you may choose from a wide range of specialist options, and you will complete a final year dissertation.

“With a degree from UCL you can do anything. I believe that I could end up in banking, working for a software development company or working with a large company such as Google or Facebook to help develop the future.

I created a student discount card company called the Thirstpass. One of my business partners suggested speaking to UCL Advances, a department that offers advice and guidance for student-created companies. They suggested we enter the UCL Bright Ideas Awards, and together our team won the company a £12,000 interest-free loan!

Overall choosing UCL has been the best decision I've made. The combination of living in London, meeting students from across the world, and having first-class facilities means that my future is looking bright!”

The Virtual Reality Laboratory, involved in the modelling and animation of three-dimensional virtual worlds



# Electronic and Electrical Engineering /

[www.ucl.ac.uk/prospectus/eleceng](http://www.ucl.ac.uk/prospectus/eleceng)

The impact of developments in electronic engineering has been huge – from life-saving medical equipment to mobile phones. The pace of change is rapid and exciting with new technologies emerging continually, providing huge scope to apply your technical skills and ingenuity to benefit society.

## Subject overview

Total intake **100**

(2014 entry)

Applications per place **9**

(2012 entry)

### Research Assessment Exercise (RAE)

60% rated 4\* ('world-leading') or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Quality Assurance Engineer, Ebryx (2011)
- Sales System Engineer, CIENA (2011)
- Analyst, RBS (2011)
- Full-time student, PhD in Photonics at the University of Southampton (2010)
- Electrical Engineer, London Underground (2009)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit: [www.ucl.ac.uk/prospectus/eleceng](http://www.ucl.ac.uk/prospectus/eleceng)

## Engineering (Electronic and Electrical) MEng

UCAS: H601 • 4 years

**A levels:** AAA. Mathematics required, plus either Physics or Further Mathematics preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38 points. A score of 18 points in three higher level subjects including Mathematics and preferably Physics, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This four-year programme provides a thorough coverage of the theory, devices and systems underpinning much modern technology, including: semiconductor devices and nano-electronics, control theory and communications, alongside business-related subjects. Applying for the MEng provides the most flexibility; the decision about which specialist programme to take can be made at the end of year two.

Years one and two comprise a range of compulsory introductory courses designed to develop your knowledge and practice of engineering through a series of lectures, laboratory sessions and week-long engineering design projects. In years three and four you will choose optional courses from a wide range in Electronic Engineering and other subjects. The programme incorporates major project work in both the third and final years, with a wide choice of projects, ranging from original theoretical research to intricate design and development of software and devices.

There are several routes available in the Engineering (Electronic and Electrical) MEng. Each route focuses on a different area and offers different research and study opportunities.

You can transfer to any of the following degree programmes at the end of year two:

○ Engineering (Electronic – International Programme) MEng

○ Engineering (Electronic with Communications) MEng

○ Engineering (Electronic with Computer Science) MEng

○ Engineering (Electronic with Nanotechnology) MEng



See the world and broaden your horizons through our studying and internship programmes – including our exclusive placements with Cisco in California.

Electronic and Electrical Engineering

### Engineering (Electronic and Electrical) BEng

UCAS: H600 • 3 years

**A levels:** AAA. Mathematics required, plus either Physics or Further Mathematics preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38 points. A score of 18 points in three higher level subjects including Mathematics and preferably Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.



#### Diederik Moeys

Electronic and Electrical Engineering (International Programme) MEng [now Engineering (Electronic – International Programme) MEng]

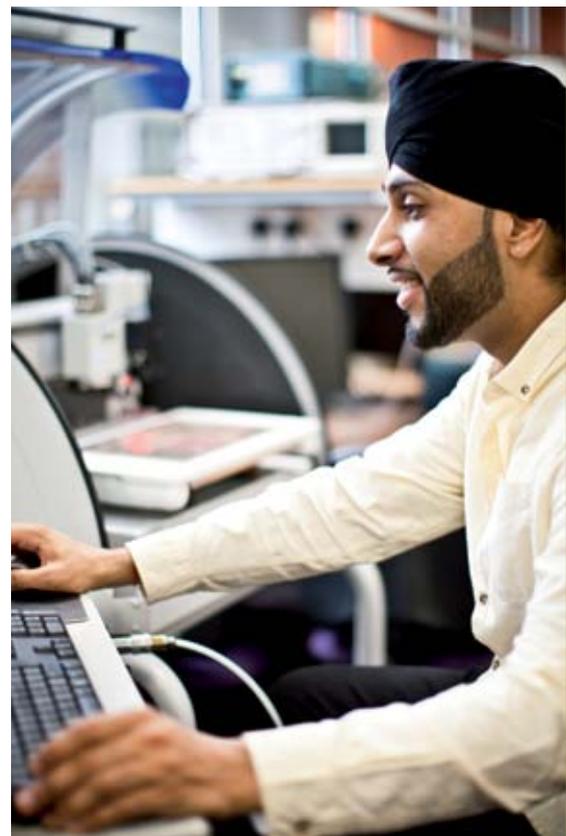
#### Fourth Year

“I chose UCL by looking at the top universities worldwide. Top universities mean a good investment in research and facilities, and contact with leaders in the field.

Whilst studying I have undertaken an internship at Whirlpool Corporation as a PCB designer. This position would have not been possible without the knowledge I obtained at UCL. Most of all, I have truly enjoyed my year abroad at ETH Zurich, in Switzerland.

After completing my degree I plan to undertake a PhD in Neuromorphic Engineering in Zurich. This subject, with which I became familiar during my year abroad, deals with reconstructing hardware- and software-wise the human brain and other organs, with interesting results for bioengineering and robotics.”

MEng students at work on (top) a robot chassis and (bottom) printed circuit boards for custom circuits



# Management Science and Innovation /

www.ucl.ac.uk/prospectus/msi

Management science brings innovative, world-changing ideas to market and to their users. It uses scientific principles to help complex organisations make the right decisions – supporting multinational businesses, as well as innovative start-ups, as they grow and adapt.

## Subject overview

Total intake **159**  
(2014 entry)

Applications per place **6**  
(2012 entry)

Research Assessment Exercise (RAE)  
Not applicable

### First career destinations (2009–2011)

- Analyst, Goldman Sachs (2011)
- Trainee Manager, Bruder Mannesmann (2011)
- Consultant, Deloitte (2011)
- Full-time student, MSc in Management at the London Business School (2010)
- Associate, Ernst & Young (2010)

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For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/msi](http://www.ucl.ac.uk/prospectus/msi)

## Information Management for Business MSci

UCAS: PN11 • 4 years

**A levels:** AAB. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36 points. A score of 17 points in three higher level subjects, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

In close collaboration with some of the biggest employers in the IT industry, we have created this four-year degree, with a unique balance of IT, management, and business, which specifically aims to ensure our graduates have the tools they need to excel in, and lead, the industries of the future.

The majority of this MSci follows the same structure as the equivalent BSc, with the addition of a fourth year, allowing for advanced-level courses, and a group/individual project. We encourage students to apply for the MSci initially, which allows for more flexibility. Year one provides a base of professional skills, knowledge, and expertise upon which to build in subsequent years; year two expands upon this knowledge; and in year three you will undertake a project dissertation, in conjunction with one or more employers.

## Information Management for Business BSc

UCAS: P1N1 • 3 years

**A levels:** AAB. No specific subjects. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36 points. A score of 17 points in three higher level subjects, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

In close collaboration with some of the biggest employers in the IT industry, this exciting and pioneering programme offers a unique balance of IT, management and business that is designed to ensure that our graduates have the tools they need to excel in, and lead, the industries of the future.

Year one is designed to provide you with the best possible grounding in information technology, and leadership and management, creating a foundation for the development of professional skills, knowledge, and expertise in subsequent years. Year two builds on your knowledge, ensuring you are in a strong position to have acquired the skills and expertise valued by the kinds of employers with whom we collaborate. Year three is spent undertaking your project dissertation, normally conducted in close conjunction with one or more employers.

Experience the world of business while you study through a vibrant entrepreneurial culture, serious start-up support, and innovative placement schemes.

Management Science and Innovation

### Management Science MSci

**UCAS:** N990 • 4 years

**A levels:** AAA. Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38 points. A score of 18 points in three higher level subjects including Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

The world's leading companies need people who can operate in complex, innovation-intensive, data-driven environments – people who can analyse problems using quantitative tools and qualitative methods, take decisions in the face of uncertainty and risk, and deliver results through people. The Management Science MSci provides a rigorous, practical foundation in these critical skills.

The global economy is changing: 30 billion pieces of content are shared on Facebook every month; and companies capture trillions of bytes of information about customers, suppliers, and operations. This explosion of data is disrupting industries and creating new opportunities. This four-year programme offers students an extra year over the Management Science BSc to extend their knowledge and skills in specialist areas such as business analytics, financial engineering, marketing science, operations and project management, innovation and technology management and entrepreneurship.

### Management Science BSc

**UCAS:** N991 • 3 years

**A levels:** AAA. Mathematics required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 38 points. A score of 18 points in three higher level subjects, including Mathematics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

High-growth companies, consulting firms and the finance sector need graduates who combine strong quantitative and analytical skills with an in-depth understanding of how companies work. The Management Science BSc provides students with a rigorous foundation in the key skills needed to build successful careers in global businesses.

The programme prepares students for careers in industries and organisations characterised by rapid changes in tools, problems and opportunities. Core courses in mathematics, critical analytical thinking, decision and risk analysis, data analytics and behavioural science provide a solid grounding in the concepts and tools that underpin the practice of management in complex, innovation-intensive, data-driven environments. Additional core courses including strategy, accounting and finance, marketing, operations, and business economics provide an in-depth understanding of how companies work and build the insight and skills needed to deliver results through people.

An Information Management for Business lecture (top); students working in the Engineering Front Café (bottom)



# Mechanical Engineering /

[www.ucl.ac.uk/prospectus/mecheng](http://www.ucl.ac.uk/prospectus/mecheng)

Mechanical engineering offers the exciting challenge of using mathematical and scientific knowledge to design and develop practical devices and machines. As the world's population grows and issues of energy consumption and transport demand become more pressing, innovation in this area is critical to our future.

## Subject overview

Total intake **110**  
(2014 entry)

Applications per place **13**  
(2012 entry)

### Research Assessment Exercise (RAE)

55% rated 4\* ('world-leading')  
or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Investment Banker, Citigroup (2011)
- Graduate Engineer, Nissan (2011)
- System Engineer, Mitsubishi Heavy Industries (2010)
- Graduate Project Manager, BAE Systems (2010)
- Airport Engineer, Cyprus Airport Authority (2009)

### Contact details

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t +44 (0)20 7679 7178



For more information, including programme structure, scan this code with your smartphone or visit:  
[www.ucl.ac.uk/prospectus/mecheng](http://www.ucl.ac.uk/prospectus/mecheng)

## Engineering (Mechanical) MEng

UCAS: H301 • 4 years

**A levels:** AAA-AAB. Mathematics and Physics grade A required. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36–38 points. A total of 17–18 points in three higher level subjects including Mathematics and Physics at grade 6, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

This MEng equips you with the fundamental skills necessary for employment as a professional engineer in many sectors of industry and commerce. Applying for the MEng rather than the BEng allows students to fulfil the educational requirements for Chartered Engineer status, using a single qualification.

Core courses are compulsory in the first two years, and there is a wide choice of optional courses (including languages) in later years. Courses are grouped under three areas: applied mechanics and materials; fluid mechanics and thermodynamics; and management and production engineering. You will choose one area at the end of year two and focus on courses within it. Substantial group design and individual projects give in-depth experience of the application of the subject to practical problems.

## Engineering (Mechanical) BEng

UCAS: H300 • 3 years

**A levels:** AAB. To include either Mathematics and Physics at grade A, or Mathematics and Further Mathematics at grade A and Physics at grade B. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 36 points. A score of 17 points in three higher level subjects including grade 6 in Mathematics and Physics, with no score below 5.

**Other qualifications:**  
see online Prospectus entry.

The BEng programme aims to equip you with the analytical and design skills relevant to a wide range of engineering employers. The teaching of computing and management skills is an important part of the programme.

Core courses are compulsory in the first two years, and these are shared with the MEng programme. There is a wide choice of optional courses (including languages) in your final year. Courses are grouped under three areas: applied mechanics and materials; fluid mechanics and thermodynamics; and management and production engineering. You will undertake a major project as part of the third year which will give you the opportunity to apply the skills you have learnt in a real-world setting.



### Engineering (Mechanical with Business Finance) MEng

UCAS: H1NH • 4 years

**A levels:** A\*AA-AAA. Mathematics at grade A required, plus Physics preferred. Further Mathematics acceptable in lieu of Physics (see GCSE requirement). A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Physics at grade C if not offered at A level.

**IB Diploma:** 38-39 points. A score of 18-19 points in three higher level subjects including grade 6 in Mathematics, plus Physics preferred, with no score below 5.

**Other qualifications:** see online Prospectus entry.

This four-year programme is similar to the equivalent BEng degree, but offers an additional year in which to undertake advanced courses and projects. Applying for the MEng rather than the BEng allows students to fulfil the educational requirement for Chartered Engineer status using a single qualification.

Years one and two include core mathematical, computing and mechanical engineering courses, as well as economics and accountancy subjects. In years two, three and four you may also take optional courses from relevant disciplines. In the final two years you will conduct major engineering design and research projects with a strong business element.

### Engineering (Mechanical with Business Finance) BEng

UCAS: H1N3 • 3 years

**A levels:** AAA-AAB. Mathematics at grade A required, plus Physics preferred. Further Mathematics acceptable in lieu of Physics (see GCSE requirement). A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30), except Physics at grade C if not offered at A level.

**IB Diploma:** 36-38 points. A total of 17-18 points in three higher level subjects including Mathematics, plus Physics preferred, with no score below 5.

**Other qualifications:** see online Prospectus entry.

This programme is designed to produce engineering graduates with a well-rounded understanding of economics, accounting and business practice. These skills are precisely those required by industry for graduates likely to be given significant managerial responsibility at an early stage in their career.

Years one and two include core mathematical, computing and mechanical engineering courses, as well as economics and accountancy subjects. In years two and three you may also take optional courses from relevant disciplines, and in year three you will undertake a major engineering project which will also include a significant business element.



Joe Fang

Engineering with Business Finance MEng [now Engineering (Mechanical with Business Finance) MEng]

#### Third Year

“The degree offered by UCL was diverse and interesting, and covers two possible career paths and combines them. This allows a student to stand out from other applicants when applying for a job. It was an ideal combination which was not offered elsewhere.

A key course which I enjoyed the most was design. Working with CAD programs such as CATIA was really enjoyable; creating things from scratch and then seeing the final product rendered was always a great feeling. This programme allows students a wide variety of choices; when you reach later years the students can select courses which are related to them specifically, ranging from applied mechanics to languages.

After the completion of my degree I hope to obtain a management position within the aeronautical industry (a company such as GE or Rolls-Royce).”

# Medical Physics and Bioengineering /

[www.ucl.ac.uk/prospectus/medphys](http://www.ucl.ac.uk/prospectus/medphys)

Physics and engineering bring new knowledge and technologies to diagnosing and treating disease. With a research focus on medical imaging, physiological monitoring and the development of implanted devices, our field offers the excitement of discovery and the reward of contributing to human wellbeing.

## Subject overview

Total intake **23**

(2014 entry)

Applications per place **4**

(2012 entry)

### Research Assessment Exercise (RAE)

60% rated 4\* ('world-leading') or 3\* ('internationally excellent')

### First career destinations (2009–2011)

- Full-time student, MRes/PhD in Medical and Biomedical Imaging at UCL (2011)
- Science Technician, Burlington Danes Academy (2011)
- Full-time student, MSc in Medical Image Computing at UCL (2009)
- Consultant, Moto (2009)
- Trainee Clinical Scientist, Royal Berkshire Hospital (2009)

### Contact details

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For more information, including programme structure, scan this code with your smartphone or visit: [www.ucl.ac.uk/prospectus/medphys](http://www.ucl.ac.uk/prospectus/medphys)

## Engineering (Biomedical) MEng

UCAS: HC60 • 4 years

**A levels:** AAA-ABB. Mathematics and Physics preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects, preferably including Mathematics and Physics, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

Building on the BEng, the additional year in this four-year MEng programme allows you to explore a broader spectrum of Bioengineering and Medical Physics topics, and to further develop your transferable skills through project work. It prepares graduates to work in a wide range of technology areas from imaging and diagnosis to monitoring and treatment.

Highly interdisciplinary, the programme draws on a wide range of subjects covering topics in mathematics, engineering and science to equip you to tackle complex healthcare challenges through the design and development of diagnostic and treatment technologies. In the final two years you will choose from a range of courses in the Medical Physics and Bioengineering Department, UCL Engineering and beyond. Major project work is a key feature of the final years, reflecting the depth and breadth of UCL's research strengths in the field.

## Engineering (Biomedical) BEng

UCAS: H160 • 3 years

**A levels:** AAA-ABB. Mathematics and Physics preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects, preferably including Mathematics and Physics, with no score lower than 5.

**Other qualifications:** see online Prospectus entry.

This exciting new programme provides a grounding in the application of engineering principles and design concepts to healthcare technologies. It draws on the research strengths of UCL and its excellent links to local hospitals, and prepares graduates to work in a wide range of technology areas from imaging and diagnosis to monitoring and treatment.

The programme's core courses introduce you to the foundational mathematics, science and engineering needed to design and develop complex medical technologies. It is highly interdisciplinary, drawing on a range of engineering and science subjects with strong supporting elements in transferable skills. The final year of the programme includes a major project linked to research strengths across UCL Engineering and UCL's substantial healthcare partners.



### Medical Physics MSci

**UCAS:** F350 • 4 years

**A levels:** AAA-ABB. Mathematics and Physics preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects preferably including Mathematics and Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This four-year programme offers an extra year over the Physics with Medical Physics BSc, in which you will extend your knowledge by taking additional advanced courses. You are advised to apply for the MSci programme initially, but transfer between the BSc and MSci is possible during the first two years. Core courses introducing you to medical imaging, biophysics and the physics of the human body are compulsory in years one and two. During years three and four you will choose medical physics courses each year from a range of options and, in your final year, will work on a major project with one of the department's research groups. As well as attending lectures, you will also undertake tutorials and practical work. Projects are conducted in active, well-equipped research groups, often involving collaborations with local hospitals.

### Physics with Medical Physics BSc

**UCAS:** F351 • 3 years

**A levels:** AAA-ABB. Mathematics and Physics preferred. A pass in a further subject at **AS level** or equivalent is required. Standard **GCSE** offer (see page 30).

**IB Diploma:** 34-38 points. A score of 16-18 points in three higher level subjects preferably including Mathematics and Physics, with no score lower than 5.

**Other qualifications:**  
see online Prospectus entry.

This three-year programme offers an excellent education in a thriving field of science and engineering. The foundation in core physics together with the major areas of physics applied to medicine prepare you for a wide variety of careers inside and outside medical physics, including those in scientific research and industry.

Core courses introducing you to medical imaging, biophysics and the physics of the human body are compulsory in years one and two. During year three you will choose three medical physics courses from a range of options and will work on a major project with one of the department's research groups. As well as attending lectures, you will also undertake tutorials and practical work. Projects are conducted in active, well-equipped research groups, often involving collaborations with local hospitals.



**Marta Caballero**

Medical Physics MSci

Fourth Year

“I like the small size of the department. Lecturers and researchers are extremely approachable, which makes opportunities for research experience and work placements in hospitals easy to obtain. While studying Medical Physics, you feel part of the much bigger Physics group, but also have the privileges associated with a small and research-based department.

London has everything you can think of to offer students. Studying in London has allowed me to get involved in projects with startups (through UCL Advances and the HELO project), to continue to train in ballet part-time in a professional academy, and to feel part of an extremely fun and international community! Because of UCL's location in the heart of London, I have been able to benefit from several career events and networking opportunities at companies.

I hope to obtain some work experience in several different science and engineering-based industries during a year while travelling, and then hopefully pursue a PhD in a Medical Physics-related field.”