Engineering (Chemical) MEng

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

Key information

Programme starts
September 2021

Location
London, Bloomsbury

Degree benefits

// At UCL’s Department of Chemical Engineering, you will be taught by lecturers recognised as international leaders in their field.

// The department offers an impressive national and international network of industrial contacts and has strong collaborative links with other university departments in the UK and abroad.

// All of our undergraduate programmes are accredited by the Institution of Chemical Engineers (IChemE).

// The degree is part of an integrated programme across engineering providing opportunities to broaden your horizons through interactions with other disciplines. There is also the flexibility to choose the fine details of your individual degree options gradually as you progress through the programme.

Accreditation

The MEng Engineering (Chemical) programme, including the Chemical with Biochemical route and the Study Abroad route, is fully accredited by the Institution of Chemical Engineers (IChemE) as meeting the requirements, in full, for registration as a Chartered Engineer, for a period of five years, from the 2017 student cohort intake.

Degree structure

In each year of your degree you will take a number of individual modules, normally valued at 15 or 30 credits, adding up to a total of 120 credits for the year. Modules are assessed in the academic year in which they are taken. The balance of compulsory and optional modules varies from programme to programme and year to year. A 30-credit module is considered equivalent to 15 credits in the European Credit Transfer System (ECTS).

The Chemical Engineering BEng and MEng, follow a common curriculum for the first three years. A final decision between the different programmes can be delayed until the end of the third year when you will have greater experience on which to base your choice. Suitably qualified BEng candidates can change to MEng at the end of year three. Students on the MEng programme have the option to spend their final year following the Chemical Engineering; Chemical with Biochemical Engineering, Chemical Engineering with Chemistry; Chemical Engineering with Engineering Mathematics; or the Study Abroad route.

In year three you will undertake a compulsory design project, carried out in small teams. Each team designs a complete process plant, including detailed unit design (of, for example, a reactor or a distillation or absorption column), environmental impact, safety and risk assessment, process control and costing.

Your final year may include a research project, compulsory advanced modules, and other options, depending on your chosen route.

We are committed to, and encourage you to take, a formal industrial training (sandwich) year during your degree programme. This is usually during the year before your final study year, and provides invaluable experience.

The MEng is part of the Integrated Engineering Programme (IEP), a teaching framework that engages students in specialist and interdisciplinary activities designed to create well-rounded graduates with a strong grasp of the fundamentals of their discipline and a broad understanding of the complexity and context of engineering problems. Students register for a core discipline, but also engage in activities that span departments so the development of fundamental technical knowledge takes place alongside specialist and interdisciplinary research-based projects and professional skills. This creates degrees encouraging professional development, with an emphasis on design and challenging students to apply knowledge to complex problems.

Upon successful completion of 480 credits, you will be awarded a MEng (Hons) in Engineering (Chemical).

Please note that the list of modules given here is indicative. This information is published a long time in advance of enrolment and module content and availability is subject to change.

YEAR ONE

Compulsory subjects

// Computational Modelling and Analysis
// Design and Professional Skills I
// Engineering Challenges
// Introduction to Chemical Engineering
// Mathematical Modelling and Analysis I
// Physical Chemistry
// Thermodynamics
// Transport Phenomena
YEAR TWO

Compulsory module(s)

- Chemical Reaction Engineering I
- Design and Professional Skills II
- Engineering Experimentation
- Modelling and Analysis II
- Particulate Systems and Separation Processes II
- Process Design Principles
- Process Heat Transfer
- Separation Processes I

Optional modules

- IEP Minor I
- You will undertake the first module of an IEP Minor subject, chosen from a wide range of options. Find out more on the Integrated Engineering (IEP) webpage.

YEAR THREE

Compulsory module(s)

- Advanced Safety and Loss Prevention
- Chemical Reaction Engineering II
- Process Dynamics and Control
- Process Plant Design Project
- Transport Phenomena II

Optional modules

- IEP Minor II and III
- You will undertake the two modules of an IEP Minor subject, chosen from a wide range of options. Find out more on the Integrated Engineering (IEP) webpage.

FINAL YEAR

Compulsory module(s)

- Chemical Engineering route: Chemical Engineering Research Project; Process Systems Modelling and Design
- Chemical Engineering with Chemistry route: Chemical Engineering with Chemistry Research Project; Process Systems Modelling and Design; Advanced Materials Processes and Nanotechnology; Advanced Topics in Environmental and Energy Materials
- Chemical Engineering with Engineering Mathematics route: Chemical Engineering with Engineering Mathematics Research Project; Process Systems Modelling and Design; Advanced Process Optimisation; Mathematical Methods 4
- Biochemical Engineering route: Applied Molecular Biology; Bioprocess Validation and Quality Control; Cell Therapy Biology, Bioprocessing and Clinical Translation; Design and Control of Biochemical Reactors; Fundamental Biosciences; Integrated Biochemical Engineering Design; Integrated Downstream Processes; Sustainable Industrial Bioprocesses and Biorefineries
- Study Abroad route: you will spend your final year in a selected university in Europe (France, Germany, Spain, Italy), the USA or Australia. If you spend your final year in a non-English speaking country, you will need to have taken language modules as an IEP minor in years two and three (unless you are already proficient in the language).

Optional modules

- Chemical Engineering, Chemical Engineering with Chemistry and Chemical Engineering with Engineering Mathematics routes: You will select from a range of advanced optional modules in Chemical Engineering, other engineering disciplines, Chemistry, Management or Languages. A list is shown on the department website and may include: Advanced Materials Processes and Nanotechnology; Advanced Process Engineering; Advanced Separation Processes; Nature Inspired Chemical Engineering; Energy Systems and Sustainability; Electrochemical Engineering and Power Sources; Fluid-particle Systems, Molecular Thermodynamics
- Biochemical Engineering and Study Abroad routes: All final-year modules are compulsory.

Assessment

You will be assessed through a combination of coursework during term-time, usually contributing 20-50% of the module mark, and final examinations in the third term, except for a few modules which are assessed on the basis of project or coursework alone.

Accessibility

Details of the accessibility of UCL buildings can be obtained from AccessAble. Further information can also be obtained from the UCL Student Support & Wellbeing team.

Your career

Our core programme is designed to develop transferable management, business, professional and personal skills, and the diverse curricula and training will equip you well for employment both in the process industry as well as other economic sectors such as management consulting, banking, finance and accountancy.

You will have employment opportunities in many sectors such as energy, pharmaceuticals and biotechnology, oil and gas production, contract engineering and manufacturing. You will also be well prepared to consider further study at postgraduate or doctoral level at UCL or elsewhere.

Your application

Application for admission should be made through UCAS (the Universities and Colleges Admissions Service). Applicants currently at school or college will be provided with advice on the process; however, applicants who have left school or who are based outside the United Kingdom may obtain information directly from UCAS.

In addition to academic entry requirements, we are looking for evidence of your commitment to, and enthusiasm for, studying chemical engineering.

The department does not interview candidates. Wherever possible, offer holders based in the UK are invited to visit the department. The visit provides an excellent opportunity to see the department and its facilities.

Your learning

You will be taught through a combination of lectures, interactive tutorials and computer workshops supplemented by coursework and laboratory training, and through our innovative and award-winning scenario-based learning. For problem-solving and design classes you will be using leading-edge industrial-standard computer software. Our programmes offer regular opportunities for students to put their learning into practice.

Placement

Undergraduate students are encouraged to take an extramural year (EMY) in industry during their degree as it will significantly improve employment prospects on graduation. This option is taken in the penultimate year of study, between the third and fourth years.
Entry requirements

A LEVELS
Standard Offer: AAA. Mathematics and Chemistry required. Another science preferred as third subject, but not essential.

GCSE: English Language and Mathematics at grade C or 5. For UK-based students, a grade C or 5 or equivalent in a foreign language (other than Ancient Greek, Biblical Hebrew or Latin) is required. UCL provides opportunities to meet the foreign language requirement following enrolment, further details at: www.ucl.ac.uk/ug-reqs.

Contextual Offer: AAB. Grades AA in Mathematics and Chemistry required. Another science preferred as third subject, but not essential.

GCSE: English Language and Mathematics at grade C or 5. For UK-based students, a grade C or 5 or equivalent in a foreign language (other than Ancient Greek, Biblical Hebrew or Latin) is required. UCL provides opportunities to meet the foreign language requirement following enrolment, further details at: www.ucl.ac.uk/ug-reqs.

IB DIPLOMA
Standard Offer: 38 points. A total of 18 points in three higher level subjects to include grades 6,6 in Mathematics and Chemistry, with no score lower than 5. Another science at higher level preferred, but not essential.

Contextual Offer: 36 points. A total of 17 points in three higher level subjects to include Mathematics and Chemistry at 6, with no score lower than 5. Another science at higher level preferred, but not essential.

CONTEXTUAL OFFERS – ACCESS UCL SCHEME
As part of our commitment to increasing participation from underrepresented groups, students may be eligible for a contextual offer as part of the Access UCL scheme. For more information see www.ucl.ac.uk/prospectus.

OTHER QUALIFICATIONS
UCL considers a wide range of UK and international qualifications for entry into its undergraduate programmes. Full details are given at: www.ucl.ac.uk/otherquals.

UNDERGRADUATE PREPARATORY CERTIFICATES (International foundation courses)
UCL Undergraduate Preparatory Certificates (UPCs) are intensive one-year foundation courses for international students of high academic potential who are aiming to gain access to undergraduate degree programmes at UCL and other top UK universities.

Typical UPC students will be high achievers in a 12-year school system which does not meet the standard required for direct entry to UCL.

For more information see: www.ucl.ac.uk/upc.

TUITION FEES
The fees indicated are for undergraduate entry in the 2021/22 academic year. The UK fees shown are for the first year of the programme at UCL only. Fees for future years may be subject to an inflationary increase. The Overseas fees shown are the fees that will be charged to 2021/22 entrants for each year of study on the programme, unless otherwise indicated below.

// UK: £9,250 (2021/22)
// Overseas: £31,200 (2021/22)

Full details of UCL’s tuition fees, tuition fee policy and potential increases to fees can be found on the UCL Students website.

ADDITIONAL COSTS
This programme does not have any additional costs outside of purchasing books or stationery, printing, thesis binding or photocopying.

A guide including rough estimates for these and other living expenses is included on the UCL Fees and funding pages. If you are concerned by potential additional costs for books, equipment, etc., please get in touch with the relevant departmental contact (details given on this page).

FUNDING
Various funding options are available, including student loans, scholarships and bursaries. UK students whose household income falls below a certain level may also be eligible for a non-repayable bursary or for certain scholarships. Please see the Fees and funding pages for more details.

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UK withdrawal from the EU
For up-to-date information relating to specific key questions following the UK’s withdrawal from the EU, please refer to: www.ucl.ac.uk/brexit.