Electronic and electrical engineers invent and create the technology that typifies today’s high-tech society, from devices and systems that monitor our health and wellbeing to global communications networks and renewable electric energy. The BEng gives a broad education in the mathematics, science and engineering that underpins this subject.

**Key information**

**Programme starts**
September 2020

**Location**
London, Bloomsbury

**Degree benefits**

// You will gain the analytical and problem-solving skills required for employment in engineering as well as a diverse range of fields including finance and consultancy services.

// You will benefit from the intellectual challenge and stimulation deriving from our world-class research. You will also have access to state-of-the-art software and instruments in our extensive teaching laboratories.

// The degree is part of an integrated programme across UCL Engineering which provides opportunities to broaden your horizons through interactions and projects with students from other engineering disciplines.

// The programme is accredited by the IET.

**Accreditation**
The BEng has been accredited by the IET as partially meeting the academic requirements for registration as a Chartered Engineer. Full satisfaction of the academic requirements would generally require one year of further study at Master’s level.

**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).

All our degree programmes have a common first and second year covering material fundamental to electronic and electrical engineering. You will make your final choice between the BEng or one of the MEng programmes towards the end of the second year (subject to any visa requirements if applicable). Applying initially for a MEng gives you the most control over your plans.

Project work is undertaken every year, and your final year will include a substantial individual project. The work is varied. There are projects to suit all tastes, ranging from original research to intricate design and development of software and devices.

This degree is part of the IEP, a teaching framework that engages students in specialist and interdisciplinary engineering 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.

**YEAR ONE**

**Core or compulsory module(s)**

// Analogue and Power Electronics
// Design & Professional Skills
// Digital Systems
// Engineering Challenges
// Introduction to Electronic Engineering
// Mathematical Modelling and Analysis
// Physics of Electronics
// Programming I
// Signals and Systems

**Optional modules**

// All first-year modules are compulsory.
YEAR TWO

Core or compulsory module(s)

- Analogue Electronics
- Photonics and Communications Systems
- Design and Professional Practice II
- Digital Design
- Semiconductor Devices and Electromagnetic Theory
- Mathematical Modelling and Analysis II
- Programming and Control

Optional modules

- Minor I
  - You will take one minor, chosen from a wide range across UCL Engineering, in areas such as Intelligent Systems, Crime and Security Engineering, Biomechanics, Entrepreneurship and Management, or Modern Languages.
- A minor consists of three related modules on the same topic. One is taken in the second year (Minor I) and two are taken in the third year (Minors II and III).
  - UCL Electronic & Electrical Engineering currently offers minors in Nanotechnology and Networking Technologies/Connected Systems.

FINAL YEAR

Core or compulsory module(s)

- Project I

Optional modules

Minors II and III
- You will also select 1.5 credits from the following modules (each is worth 0.5 credits):
  - Advanced Digital Design
  - Control Systems
  - Digital Signal Processing
  - Electronic Circuits
  - Electronic Devices and Nanotechnology
  - Numerical Methods
  - Photonics
  - Renewable Energy
  - Power Electronics

Plus further options from a wide range including the following to a total of 4.0 credits:

- Computer Music
- Corporate Finance
- Entrepreneurship: Theory and Practice
- Image Processing
- Medical Electronics and Neural Engineering
- Networked Systems

Your learning

Your modules will be taught in a number of ways: some highly innovative and some, such as lectures, more traditional. We are among the first in the country to introduce a scenario-based learning approach. In years one and two you will attend tutorials, while in year three you will have project supervision sessions with an academic member of staff.

Assessment

Modules are examined in the summer term of each year. In many cases a proportion of the total mark is allocated for laboratory and coursework.

Your career

The breadth of employment opportunities our graduates enjoy proves the value of your UCL degree. The sound grounding in numeracy, problem-solving, industry, computing and other technical matters that is involved in the programme is highly regarded by employers.

Careers for graduates of this programme are available in diverse environments such as the electronics industries in the UK, Europe and East Asia. You may wish to start your own business in software design or production or join a financial or trading institution. Alternatively, if you wish to continue studying towards a Master’s or PhD qualification, your degree will provide a firm foundation for this.

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 requirements, we will be very interested in applicants who are highly motivated and have high expectations of their own achievements. All applications are considered individually and carefully.

If your application demonstrates the academic and personal qualities we are looking for, you will receive an offer and an invitation to visit the department and find out what our programmes are all about. Distance may make such a visit difficult, but we do encourage it wherever possible.
Entry requirements

A LEVELS

Standard Offer: AAA. Mathematics required, plus either Physics or Further Mathematics preferred.

Contextual Offer: ABB. Grade A in Mathematics required, plus either Physics or Further Mathematics preferred.

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 score of 18 points in three higher level subjects including grade 6 in Mathematics and preferably Physics, with no score lower than 5.

Contextual Offer: 34 points. A total of 16 points in three higher level subjects including grade 6 in Mathematics and preferably Physics, with no score lower than 5.

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 2020/21 academic year. The UK/EU 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 2020/21 entrants for each year of study on the programme, unless otherwise indicated below.

- UK & EU: £9,250 (2020/21)
- Overseas: £28,610 (2020/21)

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

If you are concerned by potential additional costs for books, equipment, etc. on this programme, 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.

CONTACT

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Brexit

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

Disclaimer

This information is for guidance only. It should not be construed as advice nor relied upon and does not form part of any contract. For more information on UCL’s degree programmes please see the UCL Undergraduate Prospectus at www.ucl.ac.uk/prospectus