ENGINEERING (ELECTRONIC AND ELECTRICAL) BEng /
UCAS CODE: H600
2021 ENTRY

www.ucl.ac.uk/prospectus
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 well-being, to global data networks, driverless cars and renewable energy. The BEng gives you a broad education in the engineering, mathematics, physics and computer science underpinning these technologies, whilst at the same time giving you the skills needed to put your theoretical understanding into practice.

**Degree benefits**

- You will gain a solid technical understanding of the subject together with the requisite set of analytical, problem solving and collaborative skills necessary to build a successful career at the cutting edge of technological innovation and engineering. Your transferable skills would also be applicable to employment in other sectors such as finance or consultancy.
- You will benefit from close interaction with many of our world-leading research activities through project work and our emphasis on research-led teaching. 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 Institution of Engineering and Technology (IET), the UK’s professional engineering body.

**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 accredited study at Master's level.

**Key information**

**Programme starts**
September 2021

**Location**
London, Bloomsbury

**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 can make a final choice between remaining on the BEng or joining one of our MEng programmes during your second year (subject to your grades and any visa requirements if applicable). Applying initially for a MEng gives you the most control over your plans.

Project work is undertaken every year including an individual final year project which can range from original research to design and development of new software or devices. In the first two years projects are team-based in the form of Engineering Challenges and week-long Scenarios where you apply your theoretical knowledge to solving real problems.

This degree is part of UCL’s Integrated Engineering Programme (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.

Upon successful completion of 360 credits, you will be awarded a BEng (Hons) in Engineering (Electronic and Electrical).

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**

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<tr>
<th>Compulsory module(s)</th>
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<tbody>
<tr>
<td>Analogue and Power Electronics</td>
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<tr>
<td>Design &amp; Professional Skills</td>
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<tr>
<td>Digital Electronics 1</td>
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<tr>
<td>Engineering Challenges</td>
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<tr>
<td>Introduction to Electronic Engineering</td>
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<tr>
<td>Mathematical Modelling and Analysis 1</td>
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<tr>
<td>Physics of Electronics and Nanotechnology</td>
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<tr>
<td>Programming 1</td>
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<td>Signals and Systems 1</td>
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<tr>
<th>Optional modules</th>
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<tr>
<td>All first-year modules are compulsory.</td>
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YEAR TWO

Compulsory module(s)

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

Optional modules

- Minor I
  - You will take one minor, chosen from a wide range offered across UCL Engineering, in areas such as Intelligent Systems, Crime and Security Engineering, 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 which you are also free to choose.

FINAL YEAR

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 I
    - Digital Signal Processing and Systems
    - Electronic Circuits III
    - Electronic Devices and Nanotechnology
    - Numerical Methods
    - Photonics II
    - Renewable Energy
    - Power Electronics
    - Robotics
  - Plus further options from a wide range including the following to a total of 4.0 credits:
    - Corporate Financial Strategy
    - Entrepreneurship: Theory and Practice
    - Atomic and Molecular Physics
    - Quantum Physics
    - Networked Systems

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.

All applications are considered individually and carefully. In addition to academic requirements, we are looking for applicants who are highly motivated and have high expectations for their future achievements. Applicants need to clearly set out in their personal statement their motivation to study Electronic and Electrical Engineering given that it is not generally taken as a standalone high school subject. This could be through a range of relevant interests or experiences, although we have no specific requirements for what should be included.

We base all our decisions on your academic profile and the information you and your referee supply through UCAS. We do not hold further interviews.

Your learning

Your modules will be taught in a number of ways; some highly innovative and some, such as lectures, more traditional. We were amongst 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

The majority of 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.

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

The breadth of employment opportunities our graduates enjoy around the world demonstrates the value of our degree programme with its strong emphasis on using teamwork to provide novel engineering solutions to real world problems. The thorough training we provide in areas such as advanced mathematics, problem-solving, engineering design and computer simulation is highly regarded by a wide range of employers across many different sectors.
Entry requirements

A LEVELS
Standard Offer: AAA. 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.
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 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.

CONTACT
Dr Ed Romans
Email: e.romans@ucl.ac.uk
Telephone: +44 (0)20 7679 0054
Department: Electronic and Electrical Engineering

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.