ENGINEERING (ELECTRONIC AND ELECTRICAL) MEng / UCAS CODE: H601 2018 ENTRY

www.ucl.ac.uk/prospectus/eleceng
Electronic and electrical engineers invent and create the technology that typifies today’s high-tech society, and this four-year programme provides a thorough coverage of the theory, devices and systems that underpin it. Applying for the MEng provides the most flexibility with the opportunity to specialise at the end of year two.

**Degree structure**

In each year of your degree you will take a number of individual modules, normally valued at 0.5 or 1.0 credits, adding up to a total of 4.0 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 1.0 credit is considered equivalent to 15 credits in the European Credit Transfer System (ECTS).

In the first and second years you will cover 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. You will have the choice of the following routes: with Communications; with Computer Science; with Nanotechnology; or the International Programme. Applying initially for a MEng will give you the most control over your plans.

The International Programme enables students to spend their third year in a selected university in Europe (France, Germany, Spain, Italy), the USA or Australia.

Project work is undertaken every year, and your final year will include a substantial 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.

In years three and four you will choose options from a wide range of electronic engineering subjects and may select modules from other departments such as UCL Computer Science, the UCL School of Management, and UCL Medical Physics & Bioengineering.

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

<table>
<thead>
<tr>
<th>Core or compulsory module(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analogue and Power Electronics</td>
</tr>
<tr>
<td>Design &amp; Professional Skills</td>
</tr>
<tr>
<td>Digital Systems</td>
</tr>
<tr>
<td>Integrated Engineering</td>
</tr>
<tr>
<td>Introduction to Electronic Engineering</td>
</tr>
<tr>
<td>Mathematical Modelling and Analysis</td>
</tr>
<tr>
<td>Physics of Electronics</td>
</tr>
<tr>
<td>Programming</td>
</tr>
<tr>
<td>Signals and Systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>All first-year modules are compulsory.</td>
</tr>
</tbody>
</table>

---

**Key information**

**Programme starts**
September 2018

**Location**
London, Bloomsbury

**Degree benefits**

- You will benefit from the wide range of choices as well as the intellectual challenge and stimulation deriving from our world-class research department.
- You will have access to state-of-the-art software and instruments in our extensive teaching laboratories. We offer professional practice sessions, a three-day residential course, and opportunities for team work.
- The degree is part of an integrated programme across engineering providing you with opportunities to broaden your horizons through interactions with other disciplines. There is also the flexibility to add a specialism to your MEng programme towards the end of year two, to match your evolving interests.

**Research Excellence Framework (REF) 2014**

The Research Excellence Framework, or REF, is the system for assessing the quality of research in UK higher education institutions. The 2014 REF was carried out by the UK’s higher education funding bodies, and the results used to allocate research funding from 2015/16.

- 97% rated 4* (‘world-leading’) or 3* (‘internationally excellent’)

Learn more about the scope of UCL’s research, and browse case studies, on our [Research Impact website](#).

**Accreditation**

All our MEng programmes have been accredited by the IET as fully meeting the academic requirements for registration as a Chartered Engineer.
YEAR TWO
Core or compulsory module(s)
- Analogue Electronics
- Communications Systems
- Control Systems
- Design and Professional Skills
- Digital Design
- Electromagnetic Theory
- Mathematical Modelling and Analysis II
- Photonics
- Programming II
- Semiconductor Devices

Optional modules
- Minor I
  - You will take one minor, chosen from a wide range across UCL Engineering, in areas such as aerospace engineering, entrepreneurship and management, or 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, Sustainable Energy and Networking Technologies.

YEAR THREE
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 I
    - Digital Signal Processing
    - Electronic Circuits
    - Electronic Devices and Nanotechnology
    - Numerical Methods
    - Optoelectronics
    - Renewable Energy
  - 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

FINAL YEAR
Core or compulsory module(s)
- Project II

Optional modules
- You will select 1.5 credits from a wide range of modules (each worth 0.5 credits) including the following:
  - Advanced Digital Design
  - Control Systems I
  - Digital Signal Processing
  - Electronic Circuits
  - Electronic Devices and Nanotechnology
  - Numerical Methods
  - Optoelectronics
  - Renewable Energy
  - Plus further options from a wide range including the following to a total of 4.0 credits:
    - Advanced Photonics Devices
    - Analogue CMOS IC Design and Applications
    - Antennas and Propagation
    - Distributed Systems and Security
    - Machine Vision
    - Mastering Entrepreneurship
    - Molecular Physics
    - Nanoelectronic Devices
    - Nanotechnology in Healthcare

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, enabling students to put their learning into practice. In years one and two you will attend tutorials, while in years three and four you 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.

First career destinations of recent Electronic and Electrical MEng graduates (2013-2015) at UCL include:
- Technology Analyst, Goldman Sachs
- Structural Design Engineer, Intel
- Operations Critical Telecommunications Engineer, BP
- Associate System Engineer, Cisco Systems
- Full-time student, PhD in Electronic and Electrical Engineering, UCL

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 that you have 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
Grades
AAA

Subjects
Mathematics required, plus either Physics or Further Mathematics preferred.

GCSE
English Language and Mathematics at grade C. For UK-based students, a grade C 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
Points
38 overall.

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

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)
The 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 2017/18 academic year and are for the first year of the programme at UCL only. Fees for 2018 entry will appear here as soon as they are available.

UK & EU: £9,250 (2017/18 - see below)
Overseas: £23,710 (2017/18)

The UK/EU fee quoted above may be subject to increase for the 2018/19 academic year and for each year of study thereafter and UCL reserves the right to increase its fees in line with UK government policy (including on an annual basis for each year of study during a programme). Fees for overseas students may be subject to an annual increase in subsequent years of study by up to 5%.

Please see the full details of UCL’s fees and possible changes on the UCL Current Students website.

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.ro mans@ucl.ac.uk
Telephone: +44 (0)20 7679 0054
Department: Electronic and Electrical Engineering

EU referendum
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/eu-referendum

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