This MSc covers the key technologies required for the physical layer of broadband communications systems. The programme unites concepts across both radio and optical communication to give students a better understanding of the technical challenges they will face in engineering the rapid development of the broadband communications infrastructure. There is exceptionally strong industry demand for engineers with this skill base.

**Degree summary**

This MSc provides training in the key technologies required for the physical layer of photonic, wireless and wired communications systems and other applications of this technology, ranging from THz imaging to radar systems. The programme encompasses the complete system design from device fabrication and properties through to architectural and functional aspects of the subsystems that are required to design and build complete communication systems.

UCL Electronic & Electrical Engineering is one of the most highly rated electronic engineering research departments in the UK. It is the oldest in England, founded in 1885 with Professor Sir Ambrose Fleming (the inventor of the thermionic valve and the left-hand and right-hand rules) as the first head of department.

Our research and teaching ethos is based on understanding the fundamentals and working at the forefront of technology development. We cover a wide range of areas from materials and devices to photonics, radar, optical and wireless systems, electronics and medical electronics, and communications networks.

The programme is delivered through a combination of formal lectures, laboratory and workshop sessions, seminars, tutorials and project work. All of the programme lectures carry out leading research in the subjects they are teaching. Student performance is assessed through unseen written examination, coursework, design exercises and the dissertation.

**Accreditation**

Accredited by the Institution of Engineering and Technology (IET) on behalf of the Engineering Council as meeting the requirements for Further Learning for registration as a Chartered Engineer. Candidates must hold a CEng accredited BEng/BSc (Hons) undergraduate first degree to comply with full CEng registration requirements.

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**Degree structure**

Mode: Full-time: 1 year
Location: London, Bloomsbury

Students undertake modules to the value of 180 credits. The programme consists of five core modules (75 credits), three optional modules (45 credits) and a research dissertation (60 credits).

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.

**COMPULSORY MODULES**

- Introduction to Telecommunications Networks
- Wireless Communications Principles
- Broadband Communications Laboratory
- Communications Systems Modelling
- Broadband Technologies and Components
- Professional Development Module: Transferable Skills (not credit bearing)

**OPTIONAL MODULES**

- Students choose three of the following:
  - Advanced Photonic Devices
  - Antennas and Propagation
  - Photonic Sub-systems
  - Optical Transmission and Networks
  - Radar Systems
  - RF Circuits and Sub-systems
  - Internet of Things
  - Mobile Communications Systems
  - Internet Multimedia Systems

**DISSERTATION/REPORT**

All students undertake an independent research project which culminates in a dissertation of approximately 12,000 words.
Your career

Rapid growth of the internet and multimedia communications has led to an unprecedented demand for broadband communication systems. There is exceptionally strong industry demand for engineers with this skills base and a clear shortage of supply. Recent graduates have moved into roles as electrical and technical engineers at companies including Société Générale and Ericsson.

Employability

The programme provides a broad package of knowledge in the areas of wireless and optical communications networks, from devices to signal processing theory and techniques, network architecture, and planning and optimisation. Students are expertly equipped to pursue careers as engineers, consultants and system architects in wireless and optical communications. A considerable number of graduates also stay in the education sector undertaking research and teaching.
Entry requirements

A minimum of an upper second-class Bachelor’s degree in a relevant discipline from a UK university or an overseas qualification of an equivalent standard.

English language proficiency level

If your education has not been conducted in the English language, you will be expected to demonstrate evidence of an adequate level of English proficiency.

The level of English language proficiency for this programme is: Standard.

Information about the evidence required, acceptable qualifications and test providers is provided at:
www.ucl.ac.uk/graduate/english-requirements

Your application

Students are advised to apply as early as possible due to competition for places. Those applying for scholarship funding (particularly overseas applicants) should take note of application deadlines.

When we assess your application we would like to learn:

- why you want to study Wireless and Optical Communications at graduate level
- why you want to study Wireless and Optical Communications at UCL
- what particularly attracts you to this programme
- how your academic and professional background meets the demands of this programme
- how you envisage your career path after the MSc

Together with essential academic requirements, the personal statement is your opportunity to illustrate whether your reasons for applying to this programme match what the programme will deliver.

There is an application processing fee for this programme of £75 for online applications and £100 for paper applications. Further information can be found at:
www.ucl.ac.uk/prospective-students/graduate/taught/application.

FEES AND FUNDING 2019/20 ENTRY

// UK: £12,750 (FT)
// EU: £12,750 (FT)
// Overseas: £26,110 (FT)

The tuition fees shown are for the year indicated above. Fees for subsequent years may increase or otherwise vary. Further information on fee status, fee increases and the fee schedule can be viewed on the UCL Students website.

The Institution of Engineering and Technology (IET) awards competitive scholarships for postgraduate study, for details visit www.theiet.org

Please visit the UCL Electronic and Electrical Engineering Scholarships website for more information on funding.

Full details of funding opportunities can be found on the UCL Scholarships website: www.ucl.ac.uk/scholarships

APPLICATION DEADLINE

All applicants: 28 June 2019

Details on how to apply are available on the website at:
www.ucl.ac.uk/graduate/apply

CONTACT

Electronic Engineering

Email: mscenquiries@ee.ucl.ac.uk
Telephone: +44 (0)20 7679 7300

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/brexit