UNIVERSITY OF LIVERPOOL

MSc (Eng)

Telecommunications and Wireless Systems with a Year in Industry

Study mode	Duration	
Full-time	24 months	Apply by: **29 August 2025** Starts on: **22 September 2025**

About this course

Place yourself at the forefront of modern telecommunications on an MSc that's accredited by the Institution of Engineering and Technology and includes an extended industrial placement. We'll combine theory and practice as we immerse you in all aspects of digital and wireless communications, two key programming languages and advanced signal processing techniques.

Introduction

Graduates with expertise in telecommunications are highly sought after in industry. On this MSc, you'll combine theory and practice to discover the existing and emerging technologies driving rapid advances in telecommunications and wireless systems.

In year one, we'll introduce you to the components of communication networks, examine the fundamentals of radio frequency engineering, and show you how to design and develop digital and wireless communication systems.

Gaining knowledge of the programming languages C++ and MATLAB, you'll receive a grounding in advanced signal processing techniques, learn how to use industry standard software, and develop research and project management skills.

We'll explore the principles, components and protocols of communication networks and analyse the mechanisms, models and characteristics of radio signal transmission in wireless systems. An introduction to information theory will additionally familiarise you with source coding techniques.

Further opportunities to specialise are available through optional modules. These cover mobile communications and security, microelectronics, electromagnetics, antennas, image processing and advanced systems.

In year two, you'll undertake a research project in a real-world engineering environment as part of an extended placement opportunity. While on placement, you'll develop transferable skills and gain insights into the operations, products, practices and culture of the placement provider.

Please note: We regularly review and develop our postgraduate programmes. This MSc is also available with the alternative title Cyber Security and Communications Engineering with a Year in Industry MSc (Eng) for entry September 2025, and gives students the option to graduate with either of these two MSc titles.

What you'll learn

- Advanced signal processing techniques
- Principles, protocols and components of communications networks
- How to design and code software for engineering applications using the programming languages C++ and MATLAB
- Research and project management skills
- Mechanisms, models and characteristics of radio signal transmission in wireless systems
- How to design and simulate a wireless communication system using industrial standard software
- The fundamentals of radio frequency engineering
- Source coding techniques
- Principles, protocols and security mechanisms of mobile communications networks
- High frequency electromagnetics and circuit design techniques

Accreditation

Accredited by the Institution of Engineering and Technology 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.

Accreditation in detail

IET

IET are one of the world's leading professional societies for engineers and technicians and their accreditation covers a whole range of subjects including electrical, electronic, manufacturing, mechanical, systems and software engineering, as well as bioengineering, nanotechnology and renewable energy. It's recognised globally as an indicator of quality through the Washington and Sydney accords, which are governed by the International Engineering Alliance (IEA).

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Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

Year one

You'll study eight compulsory modules in year one and choose 15 credits of optional modules. Your optional module choice could take the form of two 7.5-credit modules or one 15-credit module.

Modules

Compulsory modules	Credits
ENGINEERING PROGRAMMING (ELEC431)	15
DIGITAL AND WIRELESS COMMUNICATIONS (ELEC477)	15
ADVANCED SIGNAL PROCESSING (ELEC474)	15
RESEARCH SKILLS & PROJECT MANAGEMENT (ELEC483)	15
WIRELESS SYSTEMS AND CAD DESIGNS (ELEC462)	15
COMMUNICATIONS NETWORKS (ELEC461)	15
INFORMATION THEORY AND CODING (ELEC415)	7.5
RADIO PROPAGATION FOR WIRELESS SYSTEMS (ELEC411)	7.5

Optional modules	Credits
ADVANCED LOW POWER COMPUTER ARCHITECTURE (ELEC470)	15

Optional modules	Credits
INTEGRATED CIRCUITS - CONCEPTS AND DESIGN (ELEC472)	15
IMAGE PROCESSING (ELEC319)	7.5
ADVANCED SYSTEMS MODELLING & CONTROL (ELEC476)	15
PHOTONICS AND OPTICAL INFORMATION SYSTEMS (ELEC313)	15
PLASMA SYSTEM ENGINEERING (ELEC391)	7.5
RF ENGINEERING AND APPLIED ELECTROMAGNETICS (ELEC311)	7.5
ANTENNAS (ELEC312)	7.5
ELECTROMAGNETIC COMPATIBILITY (ELEC382)	7.5
MOBILE COMMUNICATIONS AND SECURITY (ELEC463)	15

Programme details and modules listed are illustrative only and subject to change.

Year two

ELEC499 MSc Industrial Project and ELEC498 MSc Placement Experience are completed across the duration of year two.

Modules

Compulsory modules	Credits
MSC INDUSTRIAL PROJECT (ELEC499)	60
MSC PLACEMENT EXPERIENCE (ELEC498)	60

Programme details and modules listed are illustrative only and subject to change.

Teaching and assessment

How you'll learn

The first year of the programme is taught through a mixture of formal lectures, tutorials, practical laboratory sessions, guided reading, student-centred learning and project work. Many of the modules require you to develop your skills through independent learning.

In your second year, you'll undertake an industrial project in a real-world environment.

How you're assessed

Modules in the first year of the course are assessed through a combination of examinations and coursework. a combination of examinations and coursework. The examinations take place at the end of each semester and typically take the form of an in-person written assignment, usually to be completed in a couple of hours. You'll be assigned coursework across the length of each semester. This typically takes the form of marked laboratory reports, assignments, essays, class tests and presentations.

The second year of the course is assessed through a portfolio of evidence from your industrial placement and a major project undertaken in your placement setting.

Liverpool Hallmarks

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

The Liverpool Curriculum framework sets out our distinctive approach to education. Our teaching staff support our students to develop academic knowledge, skills, and understanding alongside our **graduate attributes**:

- Digital fluency
- Confidence
- Global citizenship

Our curriculum is characterised by the three **Liverpool Hallmarks**:

- Research-connected teaching

- Active learning
- Authentic assessment

All this is underpinned by our core value of **inclusivity** and commitment to providing a curriculum that is accessible to all students.

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Careers and employability

The programme is accredited by the Institution of Engineering and Technology (IET), one of the world's leading professional societies for engineers and technicians.

The accreditation provides an internationally respected benchmark of quality. It enables you to complete the first step towards achieving professional Chartered Engineer status. This can be applied for following a period of suitable industrial experience after graduation.

Whether you're looking to secure a position in telecoms engineering or wireless networking engineering, and whether you want to focus on design, development, research, manufacturing, maintenance or consultancy, you'll be able to demonstrate the expertise needed for a variety of roles with engineering companies of all sizes.

Skilled telecoms engineering graduates are in high demand. On graduation, you'll be ready to pursue a career involving:

- Design and development of communication networks
- Maintenance and upgrading of existing telecommunications infrastructure
- Internet of Things (IoT)
- Wireless communications and networking
- Cyber security.

The majority of our graduates go on to pursue professional qualifications and work in telecommunications engineering, programming, or network management. Previous graduates have gone on to work for companies including:

- Huawei
- EE
- Imagination Technologies.

The analytical, communication and IT skills you develop will also prepare you for a variety of non-engineering positions, as well as potential PhD study.

Career support from day one to graduation and beyond

Career planning

From education to employment

Networking events

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Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

Tuition fees

UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)

Full-time place, per year - £13,300
Year in industry fee - £2,700

International fees

Full-time place, per year - £29,900
Year in industry fee - £6,000

Fees stated are for the 2025-26 academic year.

Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support.

- You can pay your tuition fees in instalments.
- All or part of your tuition fees can be funded by external sponsorship.
- International applicants who accept an offer of a place will need to pay a tuition fee deposit.

If you're a UK national, or have settled status in the UK, you may be eligible to apply for a Postgraduate Loan worth up to £12,167 to help with course fees and living costs. **Learn more about paying for your studies**.

Additional costs

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This could include buying a laptop, books, or stationery.

Find out more about the additional study costs that may apply to this course.

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Entry requirements

The qualifications and exam results you'll need to apply for this course.

Postgraduate entry requirements

We accept a 2:2 honours degree from a UK university, or an equivalent academic qualification from a similar non-UK institution. This degree should be in a related subject, such as Electrical Engineering and Electronics.

International qualifications

Select your country or region to view specific entry requirements.

Many countries have a different education system to that of the UK, meaning your qualifications may not meet our entry requirements. Completing your Foundation Certificate, such as that offered by the University of Liverpool International College, means you're guaranteed a place on your chosen course.

English language requirements

You'll need to demonstrate competence in the use of English language, unless you're from a majority English speaking country.

We accept a variety of international language tests and country-specific qualifications.

International applicants who do not meet the minimum required standard of English language can complete one of our Pre-Sessional English courses to achieve the required level.

IELTS

6.5 overall, with no component below 5.5

TOEFL iBT

88 overall, with minimum scores of listening 17, writing 17, reading 17 and speaking 19. TOEFL Home Edition not accepted.

Duolingo English Test

125 overall, with speaking, reading and writing not less than 105, and listening not below 100

Pearson PTE Academic

61 overall, with no component below 59

LanguageCert Academic

70 overall, with no skill below 60

PSI Skills for English

B2 Pass with Merit overall and no band below B2 Pass

INDIA Standard XII

National Curriculum (CBSE/ISC) - 75% and above in English. Accepted State Boards - 80% and above in English.

WAEC

C6 or above

Pre-sessional English

Do you need to complete a Pre-sessional English course to meet the English language requirements for this course?

The length of Pre-sessional English course you'll need to take depends on your current level of English language ability.

Pre-sessional English in detail

If you don't meet our English language requirements, we can use your most recent IELTS score, or the equivalent score in selected other English language tests, to determine the length of Pre-sessional English course you require.

Use the table below to check the course length you're likely to require for your current English language ability and see whether the course is available on campus or online.

Your most recent IELTS score	Pre-sessional English course length	On campus or online
6.0 overall, with no component below 5.5	6 weeks	On campus
5.5 overall, with no component below 5.5	10 weeks	On campus and online options available
5.5 overall, with no more than one component below 5.5, and no component below 5.0	12 weeks	On campus and online options available
5.5 overall, with no component below 4.5	20 weeks	On campus
5.0 overall, with no component below 4.5	30 weeks	On campus
4.5 overall, with no more than one component below 4.5, and no component below 4.0	40 weeks	On campus

If you've completed an alternative English language test to IELTS, we may be able to use this to assess your English language ability and determine the Pre-sessional English course length you require.

Please see our guide to Pre-sessional English entry requirements for IELTS 6.5 overall, with no component below 5.5, for further details.

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