Course Summary: April 18, 2025

Electronics and Computer Engineering BEng Honours

- UCAS code: **H652**
- Full time
- 3 years

This degree focuses on the development of systems that involve electronic hardware and software working together, such as the microcomputers embedded in many modern products.

You are currently viewing course information for entry year: **2025**

Next start date:

- September 2025

Tuition fees (Year 1)

- Home: **£9,535**
- International: **£29850**

Entry requirements and offers

- A-Level: **ABB**
- IB: **32 points**

View contextual offers

UCAS Institution name and code:

- NEWC / N21

Course overview

This three-year degree will give you the opportunity to develop an in-depth knowledge of computer engineering. You'll be equipped with the programming skills and the practical skills you need to combine software and hardware that will enable you to integrate computer systems into a wide range of electronic systems.

Working on projects designed in collaboration with leading companies, you'll develop the skills and knowledge demanded by industry, through computing laboratories, practical project work and research-informed teaching.

Throughout the degree you will develop skills in Java, C and Python and will gain experience programming microcontrollers and computers, such as the Arduino and Raspberry Pi.

BEng or MEng?

Both our BEng and MEng degrees provide a pathway to becoming a Chartered Engineer. This is one of the most recognisable international engineering qualifications.

Our MEng degrees are a direct route to becoming a Chartered Engineer (CEng). You don't need to study any more qualifications after your degree to work towards chartered status.

Our three-year BEng degrees can also lead to Chartered Engineer status. However, you'll need to complete further study, such as an approved master's degree.

Your course and study experience - disclaimers and terms and conditions
Please rest assured we make all reasonable efforts to provide you with the programmes, services and facilities described. However, it may be necessary to make changes due to significant disruption, for example in response to Covid-19.

View our Academic experience page, which gives information about your

Newcastle University study experience for the academic year 2024-25.

See our terms and conditions and student complaints information, which gives details of circumstances that may lead to changes to programmes, modules or University services.

Quality and ranking

Professional accreditation and recognition

All professional accreditations are reviewed regularly by their professional body.

Modules and learning

Modules

The information below is intended to provide an example of what you will study.

Most degrees are divided into stages. Each stage lasts for one academic year, and you'll complete modules totalling 120 credits by the end of each stage.

Our teaching is informed by research. Course content may change periodically to reflect developments in the discipline, the requirements of external bodies and partners, and student feedback.

Optional module availability
Student demand for optional modules may affect availability.

Full details of the modules on offer will be published through the Programme Regulations and Specifications ahead of each academic year. This usually happens in May.

To find out more please see our terms and conditions

In Stage 1, you'll be introduced to core areas of electronics and computer engineering.

You'll cover topics such as programming, circuit theory, signals and communications, and engineering mathematics.

Modules

Compulsory Modules	Credits
Programming Portfolio	30
Engineering Mathematics I	20
Electrical and Magnetic Systems	15
Electronics and Sensors	10
Properties & Behaviour of Engineering Materials	15
Introduction to Programming Languages (C, Matlab and Python)	15
Sustainable Design, Creativity and Professionalism	15

During your second year, you'll develop your knowledge further, exploring areas including operating systems, computer networks, digital electronics, and analogue electronics.

You'll complete a design-based project in groups, working with students from other electrical engineering programmes.

Modules

Compulsory Modules	Credits

Security Programming	20
Project and Professional Issues	20
Signals and Communications	20
Semiconductor Devices and Analogue Electronics	20
Engineering Internet-of-Things Project	10
Computer Programming and Organisation	20
Digital Electronics	10

In Stage 3, you'll complete in-depth modules covering topics such as database technology, telecommunication networks, and accounting, finance, and law for engineers.

You'll also complete a significant individual project and dissertation, applying your expertise to investigate a complex problem such as developing an ultrasonic robot navigation system, multibiometric systems for face recognition, and 3D reconstruction through stereo vision.

Alongside this, you will be able to choose from optional modules such as web technologies, system and network security, website design and construction, digital signal processing, and real-time and embedded systems.

Modules

Compulsory Modules	**Credits**
System and Network Security	20
Signal Processing and Machine Learning	20
Individual Project and Technical Report	30
Business and Law for Engineers	10
Optional Modules	**Credits**

Digital Communication Systems	20
Electronic Devices and Semiconductor Technology	20
Integrated Circuit Design and Embedded System	20

Information about these graphs

We base these figures and graphs on the most up-to-date information available to us. They are based on the modules chosen by our students in 2023-24.

Teaching time is made up of:

- scheduled learning and teaching activities. These are timetabled activities with a member of staff present.
- structured guided learning. These are activities developed by staff to support engagement with module learning. Students or groups of students undertake these activities without direct staff participation or supervision

Teaching and assessment

Teaching methods

You'll learn through a combination of:

- lectures
- lab sessions
- tutorials

Up to 10 hours will consist of practical sessions, taking part in experiments and project work in our state-of-the-art labs.

Assessment methods

You'll be assessed through a combination of:

- Assessments
- Assignments – written or fieldwork
- Case studies
- Coursework
- Dissertation or research project
- Examinations – practical or online
- Group work
- Practical sessions
- Presentations
- Reports
- Seminar tasks/exercises

Skills and experience

Practical skills

With access to the latest engineering equipment and our state-of-the-art computer labs in the well-equipped Urban Science building, your practical work will focus on electronic systems that involve hardware and software working together. You'll also develop practical skills in Java and GUI programming.

You'll also complete an individual design project, where you'll apply your engineering expertise.

Business skills

In your second year, you'll complete the Project and Professional Issues module, where you'll develop an understanding of the planning and management of technical projects, as well as business organisation and planning.

You'll also have the option to undertake a work placement between Stages 2 and 3, allowing you to put your learning into practice and develop your professional expertise.

Research skills

You'll be taught by academics who are leaders in their field, with teaching informed by our ground-breaking research.

In your final year, you'll complete an individual research project, resulting in the design and development of an original system or device.

Opportunities

Work placement

Get career ready with a work placement and leave as a confident professional in your field. You can apply to spend 9 to 12 months working in any organisation in the world, and receive University support from our dedicated team to secure your dream placement. Work placements take place between stages 2 and 3.

You'll gain first-hand experience of working in the sector, putting your learning into practice and developing your professional expertise.

If you choose to take a work placement, it will extend your degree by a year. Your degree title will show you have achieved the placement year. Placements are subject to availability.

Find out more about work placements.

Facilities and environment

Facilities

Our Engineering courses are taught at our city-centre campus, within the School of Engineering based in Merz Court.

You'll benefit from world-class facilities and living labs, ranging from microbiology laboratories through to at-scale engineering equipment.

Each engineering discipline has its own specialist facilities, including:

- the Millennium Laboratory – home to a wide range of facilities and experimental rigs
- Merz Court Pilot Plant Laboratory – a pilot plant with 28 experimental rigs
- BE:WISE – Europe's largest wastewater treatment research facility
- the Urban Observatory – with sensors gathering over 50 types of data across the city
- Electronics Teaching Lab – home to state-of-the-art Agilent/Keysight digital test equipment
- Clean-Room Microfabrication Lab – home to two class 100-10000 clean rooms

Support

To support you in your studies, all new students entering year 1 or year 2 will receive:

- a tablet so you can download the online learning resources you'll need for your course (helping us to make our campus more sustainable)
- a start-up pack containing essential personal protective equipment

You'll receive comprehensive support from the moment you arrive at the University. You'll be supported by personal tutors, stage tutors, and degree tutors. You'll also benefit from the School's student buddies scheme.

Your future

Electronics and Computer Engineering graduates are in high demand within the growing technology sector.

Many of our graduates move on to roles within embedded systems, with companies including:

- Imagination Technologies
- Microsoft
- Apple
- Google
- ARM

You'll also develop a wide range of transferable skills, including analytical skills, teamwork, time management, and IT skills, which are valued by employers across all sectors.

Our graduates go on to work in a wide range of roles, industries, and sectors. Recent graduates have secured positions in:

- ABB
- Centrica
- Satorius
- BP
- Nissan
- BAE Systems
- Ministry of Defence
- Caterpillar
- ABS Group
- Anek Lines
- Royal Navy

Engineering is a broad field with a number of different specialisms. Whichever engineering discipline you study, you'll emerge as an in-demand graduate with great career prospects.

From global careers in the oil, gas and energy, pharmaceutical, or consumer products sectors, through to marine engineering and offshore engineering. There are also opportunities in groundbreaking research and consultancy, as well as

business and management.

Many of our students also progress on to further study, either within engineering or in a related field.

Careers support

Our Careers Service is one of the largest and best in the country, and we have strong links with employers. We provide an extensive range of opportunities to all students through our ncl+ initiative.

Visit our Careers Service website

Recognition of professional qualifications outside of the UK

From 1 January 2021 there is an update to the way professional qualifications are recognised by countries outside of the UK

Check the government's website for more information.

Additional information

Advice on maths and science requirements

If you don't think you will have the exact mathematics and science qualifications referred to in our entry requirements by the time you need them, you may not be sure what to do.

- If you have a maths qualification but will not have it at A Level (or equivalent) when you start your degree, you should apply for the relevant degree with Foundation Year. We may give you the opportunity to take the Newcastle University Pre-Entry Maths Course* and the option to start in Year 1 if we think that this will be the best route for you.
- If you have A Level Maths (or equivalent) already but not at the required grade, you should contact us for advice. We may decide that you could be considered for Foundation Year entry, or it may be that this course is not the best option for you.
- If you will not have the equivalent of an A Level in the science subject (if any) required, you should apply for the relevant degree with Foundation Year.

If you are still not sure, don't worry. Whatever you apply for, our Admissions Tutors will help you decide which is the best route for you. They may, therefore, make you an offer for a different course from the one you apply for (eg Foundation Year entry instead of Year 1 entry).

*The Newcastle University Pre-Entry Maths Course aims to provide the requisite mathematical skills and concepts needed on our engineering, maths and physics degree courses and to prepare students for the modes of learning they will encounter. The materials for the course are delivered electronically and include opportunities to practise your skills. You study the materials in your own time and, when you are ready, you book your exam with the Engineering School to which you have applied. A fee of £150 is payable at the time of booking the exam or shortly before the date set for examination.

Additional information

Sponsorship

Our students are highly sought after. Many industry-leading companies offer sponsorship and scholarships to our students through the E3 Academy and UK Electronics Skills Foundation (UKESF).

We are one of three university members of the E3 academy, which provides scholarships and work placements to electrical engineering students.

We're also a UKESF partner university. UKESF provides bursaries, work placements and mentoring to students.

Find out more about the E3 Academy

Find out more about the UK Electronics Skills Foundation

Find out more...

- Go online for information about our full range of degrees: **www.ncl.ac.uk/undergraduate**
- To watch videos about student life in Newcastle, visit **www.ncl.ac.uk/lovenewcastle**
- Visit **www.ncl.ac.uk/tour** to take virtual tours of the campus and city
- Book for an Open Day to come and see us in person **www.ncl.ac.uk/openday**
- Contact us online at **www.ncl.ac.uk/enquiries** or phone +44 (0)191 208 3333

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