Welcome to...

Electrical and Electronic Engineering

From Newcastle. For the world.
What is Electrical Engineering?

Electrical Engineering focuses on the generation, distribution, storage and conversion of electrical power:

- Motor technology
- Power generation & distribution
- Renewable energy
- Electric vehicles
- Smart cities
- Automation
- Aerospace
What is Electronic Engineering?

Electronic Engineering focuses on the transmission and processing of DATA:

- Digital technology
- Wireless communications
- Mobile devices
- Multimedia
- Internet of things
- Medical instrumentation
- Implantable electronics
What do our graduates do?

• Electrical & Electronic Engineers are instrumental in almost every comfort or convenience you take for granted in modern society.
• Communications, computing, transport, healthcare, food, entertainment...
• Newcastle’s EEE graduates are turning sand into gold, exploring space and the oceans, fighting climate change and helping the blind to see!
Our graduates

“Can you imagine anything better than working for Formula 1? It is the best learning challenge one could experience in real world cutting-edge technology and I feel very lucky to be here with such an amazing team.

My time at Newcastle University gave me a great grounding - there is a strong synergy between my research project and the application of high temperature electronics which is what I’m doing here at Mercedes.”

Dr Omid Mostaghimi
Electronics Team Leader at Mercedes AMG HPP F1
Power Electronics Graduate
Electric drives - aerospace

- Postgraduate research staff involved in world leading research on electric motors
- Helped develop the world’s first solar powered aircraft
- Advanced power electronics and motor system enables it to stay in the sky for years
Electric drives – automotive and consumer

- Advanced motors for electric/hybrid vehicles vehicles e.g. Jaguar Land Rover
- High performance and high efficiency
- Battery and energy management systems.
- High speed “digital motors” for Dyson consumer products
Communications - underwater

- Newcastle’s researchers lead the world in the development of underwater wireless technology.
- Used for oil and gas installations, remote underwater vehicles, diving, submarines....
- Commercially available worldwide.
Biomedical engineering – implantable electronics

• With neuroscientists we develop implants to restore sight to the blind and movement after spinal damage
• Next generation prosthetics with brain-machine interface
• “Electroceuticals” – treat disease with electronic stimulation rather than drugs
Biomedical engineering – affordable ultrasound

- Small USB device which costs £30-£40 to manufacture
- Uses any available PC or mobile device for signal processing and image display
- Started off as student project
Microelectronics & nanotechnology

• Researchers at Newcastle are developing new designs, materials and processes for the next generation of electronic devices
• Graduates working at Intel, ARM, Imagination
• Start with sand, end up with the most valuable commodity on earth ounce for ounce
Electrical and Electronic Engineering

Why study with us?

Flexible degree programmes

- IET accredited BEng (3 years) & MEng (4 years) degrees
- The first year of the programme covers the core engineering subjects.
- The 2nd year covers electrical and electronic engineering.
- In final years, you may choose a specialism e.g:
  - Electrical Power
  - Microelectronics
  - Automation & Control
  - Electronics and Computer Engineering
Degree course structure

Stage 1 – core engineering subjects

- Electrical and Magnetic Systems
- Electronics and Sensors
- Mechanics
- Materials
- Thermofluids
- Design and Professional Skills (hands on interdisciplinary engineering project)
- Engineering Maths
Degree course structure

Stage 2 – advanced concepts

- Fields, Materials and Devices
- Electronics
- Signals and Communications
- Computer Systems and Microprocessors
- Group design project
- Business and project management
Degree course structure

Stage 2 project work

- Develop an automatic guided vehicle in a team of 3
- Apply your knowledge of sensors, microprocessor control and power electronics
- Competitive project with trophies and cash prizes for winning team
Degree course structure

Stage 3/4 – Specialisms

• Specialise in the area you want to pursue for your career and your interests

• Research informed teaching – you’ll learn about ground-breaking developments and benefit from the close links with industry

• Individual projects – your chance to shine
Electrical and Electronic Engineering

Individual projects

Group projects
Entry requirements

**A-Levels**
- AAB (MEng), ABB (BEng), including maths and science
- ABB in any three subjects for foundation year
- Lower offers through the PARTNERS scheme

**BTEC**
- **BTEC Level 5 HND** – distinction in maths + science, must include Analytical Methods and Further Analytical Methods
- **BTEC Level 3 diploma** – Overall DDD in an engineering discipline, to include distinctions in mathematics and analytical science units
Why study with us?

High quality teaching and learning

- World-leading research informs our teaching
- Dedicated student mentorship programme and personal tutoring
- Active student society “ShockSoc” for social
- Strong mix of practical and theoretical study
Engineering Excellence Scholarship

£1000 awarded to all new home/EU undergraduates of a degree offered by the School of Engineering who:

- achieve AAA at A level (A2) or equivalent including any subjects specified in their offer but excluding A level General Studies
- have made Newcastle University their first choice (Conditional or Unconditional Firm by 1 August 2020)

The award is for the first year of study only.

Eligible candidates who meet the above criteria will automatically be considered for this scholarship as part of their course application.
E3 Academy

- Consists of 6 sponsoring companies & 3 Universities £2500 per year of study
- Company sponsorship of tuition fees
- Attendance at the E3 Academy Summer School
- 8 week paid summer placement
- Potential of a first class career with your sponsoring company once you graduate
- To be eligible you must select Newcastle University as your UCAS first choice
- Application deadline is in April 2020
UK Electronic Skills Foundation

- Supported by major companies such as ARM and Imagination Technologies
- Annual bursaries of up to £1655
- Paid summer work placements
- Industrial mentoring
- Professional development training at UKEFS workshops
- Applications open to all EEE students
The IET Power Academy

- UK and EU students on Power Engineering
- Bursary of £2,750 pa, a book allowance £250 pa
- Residential two-day Summer Seminar
- Minimum of eight weeks well-paid work experience and
- Free IET Student Membership during degree course.
- Apply in October
Further funding

Sevcon Sponsorship
• Global company based in Gateshead
• Working in electric vehicle technology
• Awarded to Stage 2 students who achieved an average of 60% or over during Stage 1
• Applications open to all students in Semester 2 or Stage 1
• Sevcon will cover the tuition fees, provide paid summer work placement and offer employment to successful candidates

IET Grants
• Available to students in Stages 2, 3 and 4
• £1000 grant
• Applications open to all students
• Application must be supported by a reference
• Must achieve an average of 60% in each year of study
Wider University

- 6th in UK for student satisfaction *National Student Survey*
- 16th in the UK for Research Power *REF 2014*
- Top 20 most targeted universities by the UKs leading employers *The Times*
- Top 50 university in the world *International Student Barometer*
Shocksoc

- Society for students in the Electrical & Electronic Engineering department of Newcastle University and others who love electronics
- Socials, trips, robot wars and more!
Teaching Excellence

- TEF recognises excellence in teaching and learning
- Gold is the highest quality found in the UK
- We are delivering consistently outstanding teaching, learning and outcomes for its students

- Recognises our teaching and learning environment for students
- More than 240 universities across western Europe have been ranked
Why study with us?

Cutting-edge facilities

- State-of-the-art, dedicated teaching labs including electronics lab, electrical power lab and computing lab
- World-leading research labs including the Neuro-prosthesis lab, the SEALab, Electrical Power lab and Smart Grid Lab
- The Buttery – in-school café and relaxing space for students
Why study with us?

Outstanding career prospects

• 91%* of recent graduates were in employment or further study 6 months after graduating
• 97%* of graduates were in professional or managerial jobs
• Typical starting salary between £24,000 and £30,000
• Graduates have found roles with leading companies such as Siemens, Dyson, ARM, Intel & BAE Systems

*DLHE Survey 2016/17
Electrical and Electronic Engineering

Why study with us?

• World leading research informs our teaching
• Dedicated student mentorship programme
• Strong mix of practical and theoretical study

Supporting your studies

All new students entering year 1 or 2 will receive a Tablet to download learning resources, helping us make our campus more sustainable.

*DLHE Survey 2016/17
5 components of Employability

- Knowledge
- Social Capital
- Character attributes
- Hard skills
- Soft skills
Professional Chartership

Our degrees provide a pathway to professional chartership:

Student Engineer
- BEng
- MSc
- MEng

Graduate Engineer
- CPD and Work Experience

Professional Chartered Engineer
- CEng
Industry Engagement

Activities:
• Placements
• Projects
• Industry Prizes
• Competitions
• Guest Lectures
• Site Visits
• Careers Support
• Careers

Facilitators:
• Placements
• Professional Bodies
• Industrial Advisory Boards
• Academic Leads
• Industrial Liaison Managers
• Careers Service
• Marketing Professionals
• Business Development Managers
• Alumni
• Fairs
Why study with us?

Virtual Learning

- Blackboard
- Notes
- Slides
- Assessment Submission
Industrial Partners

SIEMENS  Imagination  bp  QinetiQ  Intel  BOSCH  Höganäs  ALSTOM  Rolls-Royce  dyson  AIMEL  International  RICARDΟ  TRIDONIC.ATCO  TATA  TSMC  TWI  National Semiconductor  TOYOTA  TURBOPowersystems
Newcastle City

- Compact city-centre
- Low cost of living
- Cultural life
- Metro System
- 25 min to the coast
- 20 min to the airport
- Well-connected
- Fun, friendly and safe
- Stunning countryside and greenspaces
Electrical and Electronic Engineering
Sport at Newcastle

We're a top 10 University for sport (British Universities and Colleges rankings), with over 65 student-led sports clubs, including football, rugby, badminton, cheerleading and hockey.

Our sports scholarship programme enables high-performing student athletes to fulfil both their sporting and academic potential. You could be awarded up to £10,000 if you meet the requirements.

Find out more:
0191 208 7224
performance.sport@newcastle.ac.uk
Accommodation

We have a range of competitively priced accommodation to choose from, and you're guaranteed a room in your first year.

Most of our accommodation sites are within 10 minutes' walk of campus and the city centre.

**With over 5,000 rooms, there is something to suit everyone.**

Rent is inclusive of utility bills (up to a set amount for Managed Partnership schemes and excluding family accommodation). We offer free Internet connection or Wi-Fi and personal possessions insurance.

Full details and virtual tours can be found on the accommodation website: www.ncl.ac.uk/accommodation/university
Thank you