

School of Engineering



Welcome

Newcastle has a long tradition of engineering excellence. It is here that great innovators such as Armstrong, Stephenson, Merz and Swan developed ideas that changed the world. By engaging our students, undertaking groundbreaking research, and working alongside governmental and industrial partners, we are proud to continue our city's rich history in world-leading engineering, innovation and creativity.

The School of Engineering formed in 2017 to augment our work across chemical, civil, electrical and electronic, marine and mechanical engineering.

Our research spans engineering disciplines, from fundamental principles to multi-disciplinary projects. We tackle global challenges such as climate change, sustainable energy, transport, water supply and waste management. Our research is enabled by world-class laboratories and facilities.

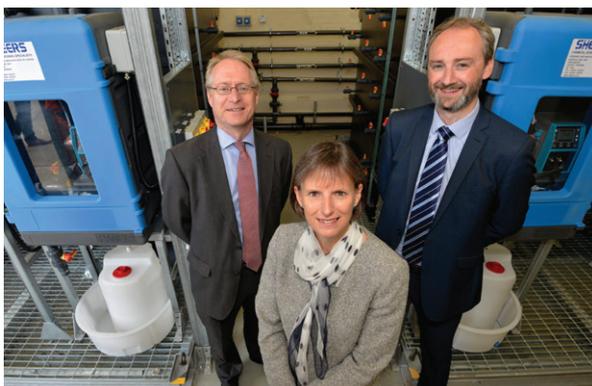
Students in the School are partners in our learning and teaching model. From research-led teaching to experiential learning, the student experience is varied, challenging and rewarding. In addition to our undergraduate and postgraduate courses in Newcastle, engineering is the mainstay of the University's teaching and research in Singapore.

86% of our research is world-leading or internationally excellent*

Here are some of the many highlights from across our School.

Reducing the energy used to clean our water

The water industry generates four million tonnes of CO₂ per annum. We are speeding up the transition from energy-intensive treatment processes to low-carbon alternatives through our BE:WISE facility, part of our award-winning partnership with Northumbrian Water**. The largest of its kind in Europe, BE:WISE contains more than a quadrillion microbes (that's 10¹⁵!). It is a complex biological treatment works that seeks to discover and engineer new sustainable and affordable wastewater treatment technologies.



Delivering affordable energy and clean growth

Climate change, market uptake of new energy technologies, system interdependencies and changes to the way energy markets work mean we need to find ways of reducing risk in the UK energy system. We are working with global technology giant Siemens and more than 30 other industrial and government organisations to lead the National Centre for Energy Systems Integration, where energy experts from around the world will unravel the energy system and understand future supply and demand.

* REF 2014

** Business/Industry Collaboration of the Year, Educate North 2017

Upgrading infrastructure - evidence for change

The University's £60m Urban Sciences Building, opened in September 2017, hosts at-scale infrastructure experiments including Sustainable Urban Drainage, SmartGrid Laboratory, Energy Storage Test Bed and the control centre for our Urban Observatory.

The largest set of publicly available real time urban data in the UK, the Urban Observatory collects more than 50 different data types from across the North East of England. From flood levels to air quality, structural monitoring to power consumption, the data creates a detailed picture of the relationships between urban infrastructure systems.

600 million data points in the Urban Observatory, growing at 5 observations per second



Newcastle University received Gold - the highest rating - in the first national Teaching Excellence Framework

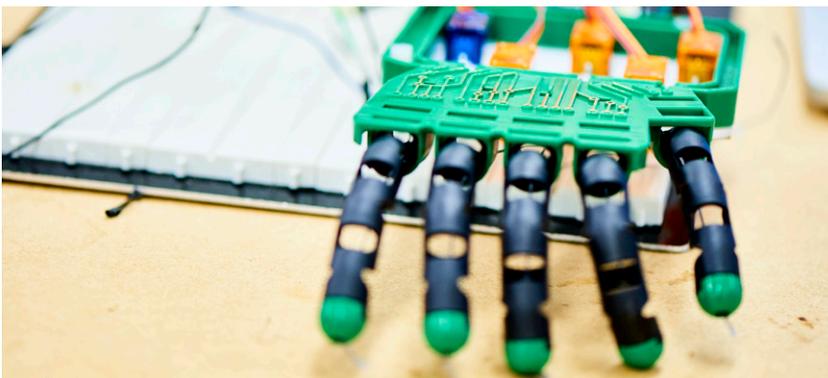
National Centres and Projects

We lead, or are part of, some the UK's most important research centres and projects:

- National Centre for Energy Systems Integration
- Tyne Subsea - National Centre for Subsea and Offshore Engineering
- Supergen - Sustainable Power Generation and Supply
- UK Collaboratorium for Research on Infrastructure and Cities
- Integrel - the Integrated Transport Electricity Gas Research Laboratory
- Advanced Propulsion Centre, Electric Machines Spoke
- Faraday Institution

Engineering the future of upper-limb prosthetics

We are pushing the boundaries of biomedical engineering including prosthetic limbs, biofabrication, implants and replacement joints. We have developed a bionic hand that 'sees' an object and automatically reacts to set the hand to the best position to pick up the object. News of our "hand that sees" attracted media coverage across the world including BBC Click, New Scientist, and webMD.



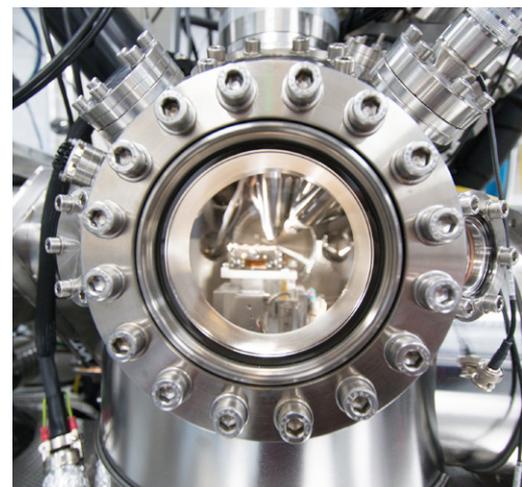
Students driving innovation

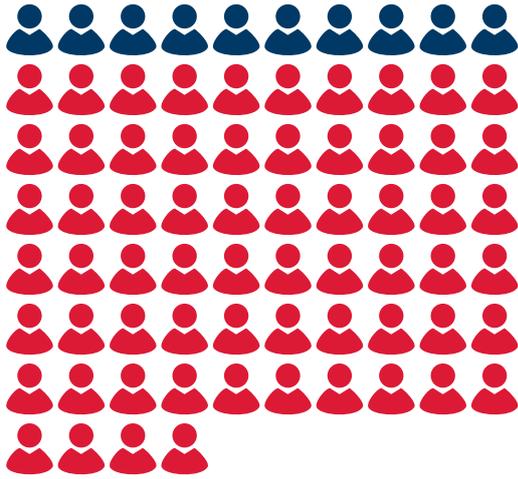
Formula Student is a testing ground for the next generation of world-class engineers. All aspects of the challenge to design and build a single-seat racing car are student-led, allowing them to hone technical, design, manufacturing, and project skills. Drawing on expertise across the School of Engineering, our students were the first UK team to pass Formula Student scrutineering with an electric car.

Professor Phil Blythe is the Chief Scientific Adviser to the Government's Department for Transport

Industrial Partners

- Siemens - Principal Partner Status
- Arup
- Bel Valves
- British Engines
- Dyson
- Northumbrian Water Group
- Northern Gas Networks
- Northern Powergrid
- Reece Group
- Sevcon
- and many more





500
staff

3200
students

21%
female students



14
professional
accreditations

More than **100** nationalities



Contact

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5
academic
disciplines



Chemical
Engineering



Civil
Engineering



Electrical and
Electronic
Engineering



Marine, Offshore
and Subsea
Technology



Mechanical
Engineering