

UNIVERSITY OF
Southampton

ENGINEER
A NEW
WORLD

SCHOOL OF ENGINEERING

INTRODUCTION

The University of Southampton is a world-leading, research-intensive university, with a strong and high quality educational offering, renowned for its innovation and enterprise.

It is a founding member of the Russell Group - an organisation of 24 top UK universities committed to maintaining the highest research and teaching standards. Southampton is ranked in the global top 100 universities in the QS World University Rankings and 20th in the UK's Complete University Guide 2020, with 15 of its subjects in the national top 10.

Southampton is ranked 8th in the UK for 'research intensity', according to Research Excellence Framework (REF) 2014, which assessed the quality of research in UK higher education institutions. The University is also a three-time winner of the Queen's Anniversary Prize, most recently for its expertise in photonics and fibre optic technology.

In 2018, the University was awarded Silver in the Teaching Excellence and Student Outcomes Framework (TEF) for its quality teaching and learning. Southampton is also a founding signatory of the Athena Swan Charter and holds a silver-level Athena SWAN award.

The University's mission is to change the world for the better. Central to the success of this strategy and underpinning all of the University's activities are four principles. These principles are: *Collegiality*, one team working, planning and delivering together, toward our shared vision; *Quality*, always striving to achieve the highest quality in everything we do; *Internationalisation*, delivering across global markets and building strong partnerships with other leading organisations; and *Sustainability*, ensuring our actions lead to financial, social and environmental sustainability.

The University's Faculty of Engineering and Physical Sciences includes the Schools of Chemistry, Electronics and Computer Science, Engineering, Physics and Astronomy, and the Zepler Institute for Photonics and Nanoelectronics, together with the research-led Web Science and Southampton Marine and Maritime Institutes.

The Faculty's specialist teaching and research laboratories and testing facilities, including one of the world's leading cleanroom complexes, are spread across the University's Highfield and Boldrewood Innovation Campuses. It is home to over 4,000 undergraduate students, over 600 postgraduate taught students, 1,030 postgraduate research students and over 880 education, research and enterprise staff. This represents an annual research income of around £60 million.



Above: 138m towing tank: Hydraulics Laboratory, Boldrewood Campus

Front cover: National Infrastructure Laboratory, Boldrewood Campus

SCHOOL OF ENGINEERING

The School of Engineering represents the largest and most diverse engineering grouping in the UK, with expertise that looks deep below the Earth's crust, reaches into space, and encompasses everything in between.

Engineering at Southampton was ranked first in the UK for research power in General Engineering in the Research Excellence Framework (REF) assessment in 2014.

The School includes the Departments of Aeronautical and Astronautical Engineering; Civil, Maritime and Environmental Engineering; Mechanical Engineering and the Institute of Sound and Vibration Research.

Southampton was placed in the UK top 10 for Engineering in the Complete University Guide 2020, including a sixth place ranking for Aeronautics and Astronautics and an eighth place ranking for Mechanical Engineering. Our teaching in Civil Engineering was ranked fifth in the UK in the Guardian University Guide 2020.

The School of Engineering's scale was demonstrated in the REF 2014, when it returned 192 academic and senior research staff. In addition, the School has a large community of early career researcher staff and students, all supported by approximately 40 technical staff.

The School's world-leading facilities include the new UKCRIC National Infrastructure Laboratory and Hydrodynamics laboratory on the Boldrewood Innovation Campus, Acoustic Chambers, Wind Tunnels and μ -VIS microtomographic imaging suite on the Highfield Campus. The Boldrewood Innovation Campus has been largely funded by external grants and contracts, which is an indication of strong external confidence and esteem in the School's activities.

Research strengths include pioneering activities in the fields of autonomous vehicles, biomedical technologies, energy storage, rail infrastructure and resilience, manufacturing and materials and space technology.

The School's teaching expertise is combined with a practical approach to offer students the best possible start to their career. All courses offer students the chance to put theory into practice at the School's state-of-the-art facilities, with many of the students' innovative engineering projects showcased at an annual Design Show. The School is home to approximately 1,850 undergraduates, 250 postgraduate taught and 400 postgraduate research students.

Taught programmes are variously accredited by Institute of Mechanical Engineers (IMechE), Institute of Marine Engineering, Science & Technology (IMarEst), Royal Institute of Naval Architects (RINA), Royal Aeronautical Society (RAeS) and Joint Board of Moderators (JBM – which includes the Institution of Civil Engineers and the Institution of Structural Engineering).

The School of Engineering contributes to a large and vibrant enterprise community, providing consultancy and practical solutions to industry, locally, nationally and globally. Staff work closely with partners and tailor solutions to ensure that we provide the most beneficial service, enabling them to achieve their goals. It might be as simple as a day's consultancy or a longer-term joint research project.



There are seven enterprise units within the Faculty which include the Wolfson Unit for Marine Technology and Industrial Aerodynamics (WUMTIA), working on ship design and industrial aerodynamics, and Institute for Sound and Vibration Research consulting, working on noise and vibration measurement/control in buildings, public spaces and workplaces.

Equality

The School of Engineering is fully committed to the Athena SWAN Charter that recognises a commitment to addressing gender inequalities and holds an Athena SWAN Bronze Award.

Our involvement in the Athena SWAN project aims to tackle an uneven representation of women in science and as a result achieve a significant increase in the number of women recruited to top posts.

LECTURER AND ASSOCIATE PROFESSOR POSITIONS

Departments of Aeronautics and Astronautics; Civil, Maritime and Environmental Engineering and Mechanical Engineering

Location: Highfield and Boldrewood Innovation Campus

Salary: Lecturer: range £37,706-£47,722 per year depending on qualifications

Associate Professor: range £49,149-£61,775 per year depending on qualifications

Full-time permanent

The University of Southampton invites outstanding applicants for faculty positions at Lecturer (Assistant Professor) or Associate Professor level across three departments in the School of Engineering.

The successful candidates will have an academic reputation, demonstrated by high-quality journal publications in their specialist field. She/he will be expected to develop, largely through external funding, a research team in a promising research area that complements existing strengths in engineering at Southampton.

For applicants to be considered at Associate Professor level, experience in teaching at undergraduate and postgraduate level as well as a strong track record in securing research funding is essential. Applications at full Professor level may also be considered in the Future Automotive Engineering area for outstanding applicants.

In education, the ability and enthusiasm to develop and deliver a range of innovative teaching and assessment approaches in different areas of your chosen department is essential. The vision is to further develop our range of modules and project work, widen our teaching activities and integrate advances in digital engineering in your area of interest.

Civil, Maritime and Environmental Engineering

The Department of Civil, Maritime and Environmental Engineering represents the ideal environment and career springboard for early and mid-career academics.

We have a leading national and international reputation for excellence in onshore, coastal and offshore infrastructure, for example through leadership roles in UKCRIC (UK Collaboration for Research in Infrastructure & Cities), UKRRIN (UK Rail Research and Innovation Network), the EPSRC (Engineering and Physical Sciences Research Council) Offshore Renewables Supergen Hub and Chairs supported by Shell and the Royal Academy of Engineering. We also host particular expertise and capabilities in sensing, robotics, mechatronics and data science, as applied to engineered systems and the natural and built environments.

Many of the department's activities are based on the

recently-completed Boldrewood Innovation Campus, where the £48M UKCRIC National Infrastructure Laboratory (N|I|L) was opened in 2019, as part of UKCRIC.

The N|I|L features brand new laboratories for large structures, detailed materials testing and geomechanics (including centrifuge modelling). Adjacent to the N|I|L are new hydrosiences laboratories, with flumes and the UK's largest University long towing/wave tank, at 138m in length, for coastal and maritime applications.



Successful candidates will further develop and exploit the potential of the N|I|L and the Boldrewood Innovation Campus in close collaboration with other research groups across the School, industrial collaborators and academic partners worldwide.

We are seeking to make appointments in the areas of:

1. Experimental Geomechanics. This successful candidate will lead research in experimental geomechanics, taking advantage of the new N|I|L facilities. The N|I|L features a 6m-diameter geotechnical beam centrifuge, equipped with the latest robotic actuation and data acquisition systems, as well as a 200m² geomechanics laboratory.
2. Structural Engineering and Design. This successful candidate will focus on structural engineering and design, using the new facilities in the large structures hall and materials testing laboratory. Challenges related to the resilience of structures, including structural protection and monitoring, corrosion resistance and the capabilities for passive and active control of smart structures are of particular interest, together with the harnessing of advanced manufacturing and novel materials in structural engineering.

3. Maritime Control and Autonomy. This successful candidate will be focussed on challenges associated with future ships and offshore structures and the digital technologies that will influence design and offshore operations. Smart ships and other ocean vehicles will maximise their power, control and capabilities by sensing and responding to their physical environment, making decisions with ever increasing range and fidelity of sensors, and through increasing use of autonomy and AI.
4. Coastal Engineering. This successful candidate will strengthen our capabilities in coastal engineering, facing the challenge of responding to climate change and sea level rise and taking a whole systems approach looking at mitigation, alleviation as well as practical engineered solutions across deltas, islands and coastal cities.

Aeronautics and Astronautics

The Department of Aeronautical and Astronautical Engineering comprises three groups: Aerodynamics and Flight Mechanics (AFM), Astronautics (Astro) and Computational Engineering and Design (CED). The department undertakes a broad range of research including the Rolls-Royce University Technology Centre at Southampton and the Airbus Noise Technology Centre (ANTC).

These involve fundamental and applied studies of aerodynamics, aeroacoustics, flight dynamics, space physics and spacecraft systems, using both computational and experimental facilities. Applications include reducing aircraft noise and fuel consumption, increasing wind-turbine efficiency, the fidelity of computational fluid dynamics (CFD) software and mitigating space debris.

Research and teaching is supported by access to a range of state-of-the-art computational and experimental facilities, some of which are the largest of their kind to be found in university environments. Our facilities include a range of large and small wind tunnels, the Iridis supercomputer, the Astronautics Lab & Vibration test facility and the UAV development lab.

We are seeking to make appointments in the areas of:

1. Experimental aircraft/spacecraft structural mechanics including composite material mechanics
2. Data-driven dynamics & Modelling and/or control engineering relevant to aerospace applications
3. Autonomous Systems and Intelligent Robotics Aerospace Engineering

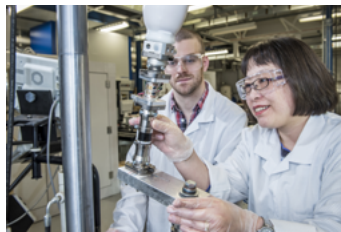
Mechanical Engineering

The Department of Mechanical Engineering is a leading international centre for research and teaching in its field: we are consistently ranked amongst the top UK universities in this domain, and our scientists, engineers and their research rank amongst the most influential in the world.

A broad teaching programme is available to students including BEng and MEng Mechanical Engineering as well as postgraduate courses in Advanced Mechanical Engineering Science, which incorporates all the classical aspects of Mechanical Engineering and expands to incorporate many interdisciplinary subjects.

Mechanical Engineering research in the University of Southampton is carried out in a diverse range of research groups and centres. The work covers many topics, from solar cells to robots, engines to artificial hips, nanomechanics to design of airplanes, energy generation to tribology, computational engineering to batteries.

There are over 50 specialist teaching and research laboratories and testing facilities dedicated to mechanical engineering and related engineering sciences across the University. Our key facilities include the Transportation Systems Research Laboratory (TSRL), Science and Engineering Electron Microscopy Centre, Thick Film Unit, Tribology laboratory, g-VIS: Multidisciplinary, Multiscale, Microtomographic Volume Imaging, Iridis computational cluster, Southampton wind tunnels and Rolls - Royce UTC in Gas Turbine Noise.



Other facilities across the School include six design studios containing specialist equipment, including computer-aided design (CAD) and computer-aided manufacture (CAM), a bioengineering laboratory (cell culture, tissue characterisation, microscopy and fabrication of lab-on-chip devices) and the Engineering Development and Manufacturing Centre (EDMC), which provides a professional engineering design service for staff (as well as students and industry).

We are seeking to make appointments in the areas of:

1. Future automotive engineering – including electric power systems, batteries, mechatronics and robotics
2. Sensors – design and integration, data acquisition and management
3. Fabrication, modelling and testing of advanced composite materials
4. Additive Manufacturing including 3D printing; design, fabrication and characterisation of nanoscale materials
5. Numerical modelling and/or machine learning, including solid mechanics applications

THE UNIVERSITY AND THE REGION



Our main Highfield Campus is home to state-of-the-art teaching and research facilities, as well as two of the UK's leading arts venues, Nuffield Southampton Theatres and Turner Sims Southampton.

The University campuses

The University has seven lively and diverse campuses: Highfield, Avenue, Boldrewood and Waterfront in Southampton; Winchester; Malaysia; and Southampton General Hospital.

Highfield Campus is home to state-of-the-art teaching and research facilities, as well as three of the UK's leading arts venues, the John Hansard Gallery, the Nuffield Theatre and Turner Sims Southampton – one of the UK's leading music venues. It also houses our sports complex, the Hartley Library, the Students' Union and Staff Social Centre.

The Avenue Campus houses most of the humanities disciplines and the Centre for Language Study. It also has a purpose built £3 million archaeology building with state-of-the-art facilities for teaching and research.

The University's collaboration with Lloyd's Register, Boldrewood Innovation Campus, represents one of the largest business partnerships with any single university in the world. This new campus is the result of this partnership and is home to the Southampton Marine and Maritime Institute.

Situated on the City's waterfront, the National Oceanography Centre Southampton (NOCS) is one of the world's leading research centres for the study of ocean and Earth science.

Close to Winchester city centre, 12 miles north of Southampton, our internationally renowned Winchester School of Art provides studios and workshops, an extensive specialist library and a well-stocked art supplies shop. The Winchester Gallery is based on campus.

Southampton

Southampton is a thriving modern city, steeped in history and culture, while less than an hour away, the New Forest National Park offers vast open heathland and beautiful forest. In 2016, it was rated by The Guardian as one of the top ten happiest cities to work in the UK.

A lively city

The City offers a vibrant mix of recreation, culture and entertainment – from restaurants, cafés, bars and nightclubs to cinemas, sports facilities and internationally acclaimed arts venues. Close to the city centre, the University forms an integral part of this dynamic, multicultural city.

A growing city

The City is benefiting from substantial, ongoing investment with £1.6 billion committed and a further £1.4 billion planned in the next ten years. Facilities include: the new £40 million cultural quarter scheduled for completion in 2016, £90 million of investment in West Quay and a £400 million redevelopment of the Royal Pier Waterfront which sees over 400 cruise ship visits a year. The University is worth over £1 billion-a-year to the regional economy and is a key part in ensuring Southampton's thriving future.

A coastal location

Southampton has one of the biggest commercial ports in Europe, and the City is known across the world as the home of the prestigious cruise liners, Queen Elizabeth, Queen Mary 2 and Queen Victoria. With a coastal location, there is a vast range of opportunities for sport and leisure, with a major focus on water sports, sailing and ocean racing.

A gateway to the world

Just over an hour from central London, Southampton has excellent transport links with the rest of the UK and internationally, by road, rail, sea and air. Our award-winning unilink bus service connects all Southampton campuses and halls of residence, the city centre, the airport and railway stations.

Winchester

The historic city of Winchester has a rich cultural heritage, complemented by a lively atmosphere and a wide variety of pubs and restaurants, museums, theatres and galleries.

See for yourself what the University and surrounding area has to offer:



[View our virtual tours](#)



[Watch our video](#)

HOW TO APPLY

You should submit your completed online application form at jobs.soton.ac.uk.

All applicants must include a Curriculum Vitae, a three-page research statement, which includes a three page research vision including expected grant income over the next five years, and a one-page teaching statement highlighting the areas of interest to which you can contribute in the Aeronautics and Astronautics, Mechanical Engineering or Civil, Maritime and Environmental Engineering programmes. Details of our undergraduate programmes, including modules that are currently delivered, can be seen [here](#).

Your research and teaching statements will be treated in the strictest confidence and with full respect to ownership. This is an essential component of the selection process.

For informal inquiries, please contact the relevant Head of Department:

Aeronautics and Astronautics - Professor Bharathram Ganapathisubramani (email G.Bharath@soton.ac.uk)

Civil, Maritime and Environmental Engineering - Professor Stephen Turnock (email S.R.Turnock@soton.ac.uk)

Mechanical Engineering - Professor Philippa Reed (email P.A.Reed@soton.ac.uk)

In recognition of our continued commitment to improving equality for women in science and engineering, we were awarded an Athena SWAN bronze award in September 2013.

Due consideration will be given to applicants who have taken a career break or wish to adopt a part-time role. The University has generous maternity/paternity/adoption leave policies and onsite childcare facilities; employees are able to participate in the childcare vouchers scheme. Other benefits include state-of-the-art on-campus sports, arts and culture facilities, a full programme of events and a range of staff discounts.

The application deadline will be midnight on the closing date. If you need any assistance, please call Georgie Warren (Recruitment Team) on +44 (0) 23 8059 7749.



Above: Southampton University Driving Simulator laboratory (SUDDS), Boldrewood Campus.