

A person wearing a blue cleanroom suit, hood, and gloves is working on a device inside a cleanroom enclosure. The person is wearing safety glasses and a white face mask. In the background, another person in a white cleanroom suit is visible. The scene is lit with a cool blue light.

Developing our
future world today.
Postgraduate
programmes

Welcome to Electronics and Computer Science

Welcome to Electronics and Computer Science (ECS) at the University of Southampton – one of the best places in the world to study electronics and computer science. We are first in the UK for the volume and quality of our research in Electrical and Electronic Engineering and 100% of our Computer Science research impact is recognised as world-leading or internationally excellent*.

Our range of Masters and research programmes, our distinguished record of research success and our thriving Graduate School will ensure you get the best possible start in your future career.

As a postgraduate student, you will be part of world-changing research as it happens. You can expect to be taught by researchers at the forefront of their disciplines, tackling some of today's biggest challenges. Our programmes are continuously updated to reflect developments.

In ECS our academics are investigating key global issues such as Web science, artificial intelligence, cyber security, harvesting energy from vibration to power devices such as pacemakers, and nanotechnology to enable devices to be created that are smaller, cheaper and faster.

As one of the top one percent of universities worldwide** and a founder member of the prestigious Russell Group of leading research universities in the UK, we provide an outstanding postgraduate education. Southampton is one of the leading entrepreneurial universities in the world, with excellent relationships with business and industry. As a postgraduate student, you will benefit from these strong links and have many opportunities to develop your entrepreneurial skills.

At the University of Southampton you will benefit from our superb facilities and our worldwide reputation for education and research that have been ranked among the highest in the UK.

We look forward to welcoming you.

Professor Nick Jennings
Head of Electronics and Computer Science

*Research Excellence Framework (REF) 2014

**QS World University Ranking 2014/15

Cover image: Our £120m cleanroom complex includes specialist facilities for nanofabrication, characterisation and photolithography

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Find out more
www.southampton.ac.uk/ecs

Global leader: We are in the top one per cent of universities worldwide.*

Research excellence: We are a founder member of the Russell Group of 24 major research-intensive universities in the UK, with a strong history of translating research into real-world impacts. We are first in the UK for the volume and quality of our research in Electrical and Electronic Engineering and 100% of our Computer Science research impact is recognised as world-leading or internationally excellent.**

Committed to education: We are ranked among the leading research universities in the UK with consistently high scores for teaching and learning activities. Our Electronics and Electrical Engineering degrees are ranked first in the UK and we are sixth for Computer Science and IT.***

World-class facilities: With cutting-edge research facilities, from one of the premiere cleanrooms in Europe to a world-renowned high-voltage laboratory, we make world-changing research happen.

Worldwide partnerships: We provide opportunities for our students to spend part of their degree at a partner university abroad. Our collaborations with major global companies such as BAE Systems, ARM, and JP Morgan will give you the edge in today's global careers market.

* QS World University Ranking 2014/15

** Research Excellence Framework (REF) 2014

*** Guardian University Guide 2016 and Times/Sunday Times Good University Guide 2015



Welcome to Southampton

Choosing to study at Southampton means becoming part of a vibrant postgraduate community. Working with internationally renowned academics on projects that have a real impact on society, you will have access to some of the best facilities in the world. Southampton is ranked in the top one per cent of universities worldwide, is a member of the prestigious Russell Group of Universities and can offer you the expertise and support to inspire success in your future career.

To take part in a virtual open day, visit
www.southampton.ac.uk/virtualopenday



Find out more

www.southampton.ac.uk/pg



Why Southampton?

With a Masters degree from Southampton, you can realise your career ambitions.

- ➔ Research has shown that completing a Masters programme increases your average life time earning potential by £150,000*
- ➔ Southampton is among the top 20 UK universities targeted by the largest number of top 100 graduate recruiters
- ➔ High-profile organisations such as Bloomberg, Google, Imagination Technologies and Thales recruit our graduates
- ➔ We are a founding member of the Russell Group of research-intensive universities, which means your education will be informed by research as it unfolds
- ➔ Southampton is ranked first in the UK for the volume and quality of Electrical and Electronic Engineering research**
- ➔ 100 per cent of our Computer Science research is assessed as having world-leading or internationally excellent impact**

**The Sutton Trust, 2010*

***Research Excellence Framework 2014*

Working alongside world-leading academics, with access to cutting-edge facilities and global collaborations, a research degree at Southampton is the first step to becoming a leader in your field.

- ➔ We work in collaboration with global businesses, including Lloyd's Register, ARM and BAE Systems, giving you the chance to work on projects with a real-world impact
- ➔ We are among the top 10 per cent of UK universities for attracting research funding. In 2013/14 the University's research income exceeded £110m
- ➔ We are part of the Science and Engineering South Consortium, the most powerful cluster of research-intensive universities in the world
- ➔ We will give you support to enable you to build your profile as a researcher – from writing research papers and enhancing your presentation skills, to applying for funding to attend international conferences and research visits
- ➔ Academic staff in Electronics and Computer Science are highly qualified and many are nationally and internationally acknowledged for their contribution to engineering, science and technology. They include seven fellows of the UK Royal Academy of Engineering, two fellows of the Royal Society, a Knight and a Dame as well as the United Kingdom's first Regius Professor of Computer Science

“Southampton’s relationship with ARM is a very good partnership; I felt like my PhD was three years’ work experience. There were always people around to offer advice on my research and I also learnt skills such as time management, organisation and how to push your ideas.”

Matthias Boettcher

PhD in Electronic and Software Systems, 2014;
now working as a Research Engineer at ARM, Cambridge



Find out more

www.southampton.ac.uk/ecs/careershub

A global education

As the birthplace of the technology that led to the development of the internet, Southampton is a place of innovation and discovery. By studying or undertaking research here, you will have the opportunity to make a real impact on today's most pressing global issues.

- We attract academics who are world leading in their fields
- Our 200,000 alumni span 178 countries
- Southampton research is making a life-changing impact on every continent
- We are a partner in the Worldwide Universities Network (WUN), a collaboration of global institutions working together to address global issues

We are ranked in the **top 1%** of universities worldwide

Dr Themis Prodromakis is leading the Lloyd's Register Foundation International Consortium in Nanotechnologies, bringing together talented PhD students from around the world to find new ways of using nanotechnologies to improve safety

Zoltán Beck, a PhD student in the Agents, Interaction and Complexity research group, competed against 856 participants from 22 countries to achieve third place – and best in the UK – at the ninth annual International Microelectronics Olympiad

Smart-energy company Joulo, a spin-out from researchers Dr Reuben Wilcock and Professor Alex Rogers, has been bought by Quby, Europe's leading developer of smart thermostats and energy displays



ECS staff members come from more than **40** different countries around the world



A professional skier in Austria battled simultaneously against online gamers in Greece and Germany in the world's first interactive mixed reality downhill ski race using technology pioneered by ECS researchers

Researchers have been developing high voltage cables that can meet the demands of future energy needs, save millions of pounds, minimise risks of network failure, and cut carbon emissions

Collaborating with industry

Our researchers have been collaborating with industrial partners including GnoSys Global to develop new high voltage cables



An imaging system designed and built by Professor Kirk Martinez and Dr Philip Basford has been delivered to the Louvre to help researchers study small surface details in cuneiform tablets



Researchers led by Professor Steve Gabriel are developing high powered hollow cathodes for spacecraft propulsion in collaboration with the Japan Aerospace Exploration Agency



International opportunities

In 2012, we opened a new campus in Malaysia, offering both undergraduate programmes in engineering and PhD research opportunities

Alongside Nanyang Technological University, we have launched a Photonics Institute in Singapore, where we will build on our research excellence involving light technology, such as fibre optic cables and lasers



Find out more
www.southampton.ac.uk/research



Re-inventing our relationship with computers

Researchers from Electronics and Computer Science are at the forefront of a new science that is finding ways in which computers can work intelligently in partnership with people. This could support the management of some of today's most challenging situations, such as the aftermath of major disasters.

The five-year ORCHID project has looked at how we work with computers: instead of issuing instructions to passive machines, we will increasingly work in partnership with agents, highly interconnected computational components that are able to act autonomously and intelligently, forming human-agent collectives (HACs).

A key technology developed by ORCHID has been 'human-agent collectives for emergency response' (HAC-ER), where human and software agents can be in sensors collecting and analysing information to give the 'bigger picture' of an emergency situation as it develops.

HAC-ER addresses the key challenges of situational awareness and coordination of resources faced by emergency responders in a disaster scenario. Using state-of-the-art algorithms, it enables humans and agents to collaboratively plan and carry out tasks. In particular, HAC-ER utilises crowdsourcing combined with machine learning to extract situational awareness information from large streams of reports posted by members of the public and trusted organisations. It incorporates a tool for tracking and analysing the provenance of information shared across the entire system. HAC-ER has been validated by real-world emergency responders in a number of training exercises.

In addition to disaster response, the results of ORCHID have also been demonstrated and applied within energy systems with a view to supporting a sustainable future and within citizen science to harness the power of the crowd.

“ORCHID has been an extraordinary opportunity to engage with multidisciplinary research and to be at the forefront of multi-agent systems, human-computer interaction and machine learning research. I have had the pleasure to significantly advance these technologies in collaboration with world leading research teams and several industrial partners.”

Matteo Venanzi
PhD in Computer Science, 2014


Find out more
www.orchid.ac.uk



Wearable soft robotics for independent living

Rehabilitation technologists from seven UK universities, including the University of Southampton, will join forces to produce prototypes of soft robotic trousers to transform the lives of those with mobility impairments.

This is the first time soft robotic technologies have been used to address rehabilitation and healthcare needs in a single piece of clothing, enabling our ageing population to live with greater independence and dignity.

The Engineering and Physical Sciences Research Council (EPSRC) has awarded the team £2m for this project. The wearable technology will include trousers and socks that are comfortable, adaptable and meet each user's individual mobility needs.

Dr Chris Freeman, Reader in Electronics and Computer Science, who leads the Southampton team, says: "We will develop fundamental technologies that will transform independent living for the disabled and infirm."

This intelligent clothing will use artificial 'muscles' made from smart materials and reactive polymers, which are capable of exerting great forces. Smart trousers could help vulnerable people avoid falls by supporting them whilst walking, give people added bionic strength to move between sitting and standing positions, and help people climb stairs. They ultimately have the potential to free many wheelchair users from their wheelchairs.

“Working on this project has given me the opportunity to collaborate closely with clinicians and people with stroke. I've been able to use this experience to make sure our technology addresses their needs, and will one day be of benefit to society.”


Mustafa Kutlu

PhD in Electromechanical Engineering,
third year



Find out more

www.ecs.soton.ac.uk/news/4660

A photograph showing two researchers in a laboratory setting. One researcher, wearing a dark hoodie with a logo, is leaning over a large, cylindrical industrial chamber. The other researcher, wearing a dark jacket and blue gloves, is looking into the chamber's circular opening. The chamber has various ports and a large circular door. The background shows a typical laboratory environment with metal grates and equipment.

Developing high powered hollow cathodes for spacecraft propulsion

The ever-increasing demand on spacecraft size requires ever-larger propulsion systems. Researchers at Southampton are working on the next generation of propulsion systems, which will allow for greater exploration of the solar system and beyond.

PhD student Alexander Daykin-Ilioulos works within the Tony Davies High Voltage Laboratory on an international partnership programme with the Japan Aerospace Exploration Agency (JAXA) to develop high powered hollow cathodes for spacecraft propulsion. The hollow cathode is one of the key components for modern propulsion thruster designs, emitting electrons for long-time space applications.

“It is a privilege to be a part of such a process,” say Alexander. “A great highlight my time so far has been going to Japan for the International Electric Propulsion Conference and presenting my research to an international audience.”

The partnership with JAXA aims to establish the scaling laws and physical modelling of hollow cathodes for a variety of current classes; develop a 100-A-class hollow cathode design for future high power electric propulsion; and enable space applications of high power electric propulsion in Japan and the UK based on the cathode technology achieved by this collaboration.

Alexander Daykin-Iliopoulos

PhD in Electronic Engineering, second year



Find out more

www.highvoltage.ecs.soton.ac.uk

Learn with the best

Making global connections

One of the first computer scientists to undertake serious research in multimedia and hypermedia, Professor Dame Wendy Hall has been at its forefront ever since. The influence of her work has been significant in many areas including digital libraries, the development of the Semantic Web, and the emerging research discipline of Web Science. She is now a Director of the Web Science Institute and in 2014 she was named as the most influential woman in UK IT by Computer Weekly.

Throughout your postgraduate career at Southampton, you will work alongside academics who are changing the world for the better through their research. Here are some of the ways in which we are impacting on the most crucial global challenges of the 21st century.



Leading research into energy-efficiency

Founder and director of the University's Pervasive Systems Research Centre and co-director of the industry-academic research centre, ARM-ECS, Professor Bashir M. Al-Hashimi has a worldwide reputation for research into energy-efficient, reliable and testable digital hardware. He leads a £5.6m programme on Power efficient, Reliable, Many-core Embedded Systems (PRiME), bringing together world-leading universities and industrial partners to address major research challenges in high performance and low-energy embedded computing systems. Bashir is the Dean of the Faculty of Physical Sciences and Engineering – home to ECS.



Royal recognition

Nick Jennings, Professor of Computer Science and a Chief Scientific Advisor to the UK Government, has been appointed as the first Regius Professor in Computer Science by HM The Queen in recognition of exceptional high-quality teaching and research at Southampton. Professor Jennings is an internationally-recognised authority in the areas of agent based computing and intelligent systems. He leads the ORCHID programme, which investigates how people can work in partnership with highly inter-connected computational components as 'human agent collectives' to manage the response to a disaster.



Walk this way

Professor Mark Nixon works at the forefront of research into gait biometrics that identifies and recognises people by the way they walk. Its pioneering research has had a significant impact on public policy, national security processes, forensic service practice and the economy. The research has been developed using multi-million pounds of funding from the United States' Defense Advanced Research Projects Agency, the Ministry of Defence, the US Army Research Laboratory and the European Union.



Find out more

www.southampton.ac.uk/ecs/people

Get ahead in your career

At Southampton we focus on your talent to help you become a future leader in your field.

Our links with employers, international collaborators, governments and graduates enable us to develop programmes that will give you the skills that today's employers are really looking for.

As well as being academically rigorous, our postgraduate programmes offer opportunities such as placements and internships. Over 120 leading technology companies are affiliated to ECS' dedicated Careers Hub and around 400 placement and internship positions were posted to ECS students in 2013.

Through these types of activities, which will vary depending on the course you choose, you will further develop the critical thinking and independent learning skills that will give you the competitive edge in today's global employment market.

We also offer a range of services to give you a head start in finding your dream job, including web resources for career development, employer presentations, mock interviews, career mentoring, funded work experience opportunities and employability workshops by employers and career practitioners. ECS operates a vigorous programme of engagement with employers, including holding a dedicated engineering and technology Careers Fair and maintaining a dedicated Careers Hub website. We do all we can to help ensure our graduates get the jobs or research positions they are aiming for.

Engineering
& Technology
Graduate Careers Fair

“One of the most valuable elements of my PhD was my close relationship with employers. Not only did this give me extremely valuable experience in working with professionals at the forefront of cybersecurity but has also allowed me to build up my professional network within this industry.”

Michael Yip
PhD Web Science, 2013



Find out more

www.southampton.ac.uk/ecs/careershub
www.southampton.ac.uk/careers

A centre for world-leading research

We are proud of our world-leading research groups that have been constantly evolving in response to new technology and new methods. They enable us to combine research expertise across Electronics and Computer Science. All postgraduate students will be linked to one of our research groups.

Agents, Interaction and Complexity (AIC)

AIC undertakes world-leading research into the science and engineering of complex socio-technical, socio-economic and socio-ecological systems that underpin the most pressing challenges facing society.

Problems as diverse as engineering resilient and sustainable smart infrastructure, or refactoring healthcare systems to cope with demographic change, or anticipating and mitigating the impacts of climate change, all involve building and analysing complex systems. These systems comprise many interacting agents, including people and other organisms, hardware robots and autonomous software agents.

Our research ranges from theoretical modelling of the fundamental nature of such systems, their constituent actors and their dynamics, to the development and deployment of real-world applications, informed by these models. This work draws inspiration and insight from a broad range of related disciplines including biology, economics, psychology, physics, neuroscience and mathematics whose fusion with computer science and electronic engineering provides a vibrant and fundamentally interdisciplinary research culture.

Head of group: Professor mc schraefel
www.aic.ecs.soton.ac.uk

Electronic and Software Systems (ESS)

ESS's research focuses on the challenge of engineering electronic and software systems covering theoretical foundations, electronic and software engineering methods and systems applications.

Its research on theoretical foundations includes program semantics, logics, programming and modelling languages and statistical analysis.

Its research on engineering methods includes requirements analysis, model-based design, program construction and generation, verification methods and system optimisation. Its tool development work includes tools for formal modelling, model verification, programme verification, simulation, optimisation and testing.

The group applies its foundations, methods and tools to the construction of a range of electronic and software systems, including pervasive systems, embedded systems, distributed systems, healthcare systems, mobile devices and information services.

Head of group: Professor Steve Gunn
www.ess.ecs.soton.ac.uk

Electronics and Electrical Engineering (EEE)

EEE was formed in 2011 combining the Electronic Systems Design and Electrical Power Engineering groups.

It conducts research across a range of areas including advanced materials and devices, energy and power engineering, electronic systems and devices, modelling and simulation, healthcare and medical engineering, sensor networks and embedded systems.

Students and researchers are able to make use of the globally-renowned Tony Davies High Voltage Lab and its state-of-the-art facilities that are supported by a specialist engineering team who are all actively involved in internationally leading research. The lab is an active centre for research into dielectric materials and insulation systems as well as high voltage and related phenomena. It is also a commercial testing house and consultancy service.

Another purpose-built High Voltage Teaching Lab has also recently been opened in the Zepler Building that is an excellent hub for MSc students carrying out research projects.

Head of group: Professor Alun S Vaughan
www.eee.ecs.soton.ac.uk

Nanoelectronics and Nanotechnology (Nano)

This group focuses on engineering and fabrication from the micro-scale down to the nanometre scale to produce a wide range of novel devices, materials and integrated systems. This includes

the creation and characterisation of nano-electronic systems and the study of bioinspired devices, which borrows evolutionary solutions from the natural world and applies them to the design of emerging technologies.

The Nano Group is part of the Zepler Institute, which manages the Southampton Nanofabrication Centre, a state-of-the-art cleanroom that provides a flexible capability for a wide range of nano- and bio-nano technologies. Current research topics include spintronic and functional materials, nanophotonics, solar cells, Lab-on-Chip, nanowire sensors, quantum information and MEMS/NEMS devices.

Our research has four main themes:

- novel materials for electronics
- integrated smart sensor systems
- hybrid biodevices
- micro and nanofabrication

In 2015, the group received a multi-million grant from the Lloyd's Register Foundation to develop the International COnsortium in Nanotechnologies (ICON). ICON will support more than 50 PhD students to undertake research at leading global universities, aided by matched funding from the institutions. They will work together with partners from industry on interdisciplinary projects, with access to world-leading facilities, on the use of nanotechnologies to improve safety for people and property at sea, on land and in the air.

Head of group: Professor Hywel Morgan
www.nano.ecs.soton.ac.uk

Southampton Wireless (SW)

Mobile multimedia communications have become part of everyday life right across the globe. However, the provision of flawless 'tele-presence' services requires a further quantum leap in research if we are to move

forward from conventional mobile phones. SW and its predecessors have been playing a key role in advancing wireless communications since the early 1980s throughout all consecutive generations of wireless standards.

The team is involved in the research of literally all the necessary enabling technologies to facilitate this quantum leap in the achievable network throughput; for example our research in multi-layer and holographic video communications requires radical cross-layer research across the entire protocol stack.

Long-term research in the group focuses on both communications theory and information theory as well as on visible light, free space optical and quantum communications.

Head of group: Professor Lajos Hanzo
www-mobile.ecs.soton.ac.uk

Vision, Learning and Control (VLC)

Vision, Learning and Control (VLC) is a highly numerate group within ECS covering much of the central theory in Electronics, Electrical Engineering and Computer Science. It has a rich spread of technological areas over which around ten staff and 40 students. Our facilities include a biometrics laboratory, a quiet room, experimental production platforms as well as facilities for computational and sensor capability.

The group's three research areas are:

- Computer Vision: research in image processing and computer vision spans techniques from preprocessing, to feature extraction and on to image analysis.
- Machine Learning: ranging from developing new classification and clustering tools for big data sets, mathematical modelling of complex systems and optimisation.

– Control: VLC's work on fundamental theory includes behavioural approaches to system theory, system identification, multidimensional systems theory, robust nonlinear control, iterative learning control, adaptive control and flow control.

Head of group: Professor Mark Nixon
www.vlc.ecs.soton.ac.uk

Web and Internet Science (WAIS)

WAIS is made up of an interdisciplinary team of people who have dedicated their efforts to better understand the origin, evolution and growth of the World Wide Web and the internet.

The group has a long-standing reputation for research of international excellence in the fields of web and internet science. Members of the group helped to form the web as it is today and are helping to evolve not only its technologies but our understanding of it as an organic human-driven thing including socio-political, economic and legal aspects as well as its use by researchers to further their work.

The group has three research aims:

- to examine the Web and understand its impact on contemporary society
- to explore novel changes that the Web enables in the way we run our lives
- to develop innovative Web services and enhancements to the way that the Web operates in the future

Head of group: Professor Luc Moreau
www.wais.ecs.soton.ac.uk



Find out more
www.southampton.ac.uk/ecs/research

Learning and research environment

As a member of our thriving postgraduate community you will be supported throughout all the stages of your research.

Supervisors and tutors will offer you that one-to-one support while our study areas are flexible to meet your changing needs. You will also become a member of our Graduate School that will help you develop your skills as a researcher and provide access to a range of transferable skills.

Computer rooms and laboratories have quiet areas and special areas for MSc and PhD students to concentrate on their studies. They also provide student-run servers and offer dedicated helpdesk support. PhD students are given their own desk and computer in a laboratory shared with other members of their research group plus an allowance for the purchase of specialist equipment or travel to conferences.

Facilities

Our unrivalled world-class facilities are fitted with industry-standard equipment in superb laboratories.

The **Mountbatten Building** houses one of the world's leading multidisciplinary cleanroom complexes providing flexible research space for nanotechnology and photonics. The £120m complex is a state-of-the-art facility for microfabrication and high-spec nanofabrication, as well as a wide range of characterisation capabilities.

The **Tony Davies High Voltage Laboratory** is one of only a handful of similar facilities in Europe and is an active centre for research into dielectric materials, insulation systems and high voltage related phenomena.

2015 saw a multimillion pound investment in our **MSc projects, computing and electronics laboratories**, providing access to advanced test, design, build and computing equipment.

Research centres

With a reputation for linking fundamental research with real-world applications, Southampton is home to cutting-edge research centres that consistently break new ground.

Our research centres have strong links with business, industry and government, and they focus their activity on global challenges that really impact on society.

Research centres in ECS include:

– **Academic Centre of Excellence in Cyber Security.** A multidisciplinary Centre focusing on the security of the cyber space from all digital and human threats whether malicious or not. The Centre of Excellence status was awarded by GCHQ as part of the Government's national cyber security strategy.

– **The Zepler Institute** is a unique multidisciplinary research centre that brings together world-leading expertise in nanoelectronics, photonics and quantum technologies. With over 2000m² of state-of-the-art cleanrooms and laboratories, the ZI provides a collaborative environment for over 350 scientists working on cutting-edge fundamental and applied research.

– **Pervasive Systems Centre.** Pervasive systems represent a major market for wireless and mobile electronics industries, and are of critical importance to society and the economy. The Centre draws on expertise from across ECS in developing enabling hardware and software technologies, from sensing, processing and communications to system-on-chip and computer science.

– **Web Science Institute.** World-leading and multidisciplinary expertise come together in the Institute to tackle the most pressing global challenges facing the World Wide Web and wider society today. It is necessarily interdisciplinary; as much about social and organisational behaviour, as about the underpinning technology.

Research impact

Transforming research into answers to real world problems produces business opportunities, enhances quality of life, creates jobs, boosts the economy and helps make our world safer and more rewarding. Our research has had a significant impact on society, industry, Government, and public service, for example:

– **Leading the open data revolution.** Research at Southampton is placing the UK at the forefront of the global data revolution, transforming open data initiatives across the United States, the EU and G8. Opening up data has lowered barriers to data access, increased government transparency and delivered significant economic, social and environmental impact.


– **Reliable cable systems for energy security.** We are working with major industrial partners to develop new high voltage cables that can meet the demands of future energy needs, save millions of pounds annually, minimise the risk of network failure, and cut carbon emissions.

– **Intelligent energy management.** Pioneering research at Southampton is leading the way in the battle to reduce the impact of greenhouse gas emissions on our environment by developing key tools for energy management that allow energy to be used more effectively and our carbon footprint to be reduced.

Discover more about the impact of our research at www.ecs.soton.ac.uk/researchimpact



Find out more
www.southampton.ac.uk/ecs/research



“Southampton gave me the opportunity to be at the forefront of cutting-edge research, using multi-million pound machines every day. I loved having the ability to come up with a research idea, turn that into reality and have the support of staff to ensure I got the best results.”

Katrina Morgan
PhD Nanoelectronics, 2015

Your study options

We offer a full range of taught and research opportunities in a high-calibre learning environment.

Our range of programmes

At Southampton we offer a wide range of postgraduate study programmes in Electronics and Computer Science – from one-year taught courses to three- and four-year research-led programmes. All are predominantly offered on a full-time basis but some can also be studied part-time.

A team of supervisors will support you throughout your time at the University, helping you to develop your research skills, to acquire a deep knowledge of your chosen field and its application, and to steer you towards creative and original thinking. As well as working independently, you will also work as part of a team and as a member of a relevant research group.

Master of Science (MSc)

Our MSc programmes are designed to deliver expertise to industry in specialised and emerging areas of real need. As such we continuously update our programmes which all involve practical work in specialised laboratories. Many graduates from the MSc programme are employed worldwide in leading companies at the forefront of technology. Others will choose to continue their study at PhD level either in the UK, or a leading research university elsewhere in the world.

The one-year taught programmes combine compulsory and taught units over two semesters with examinations at the end of each semester. After successful completion of your examinations you will embark on a research project and dissertation. You will be assigned to a research group and will carry out an independent investigation into a specific problem related to that research area.

We have a total intake of 350 MSc students across all programmes at ECS.

Doctor of Philosophy (PhD)

Our PhD programmes normally last three or four years and give you the chance to gain rigorous research training using our outstanding facilities and surrounded by enthusiastic and highly committed people from a range of different backgrounds.

Your research project will be linked to one of our seven leading research centres or two Centres for Doctoral Training and you will be assigned a team of supervisors to support you throughout your studies. You will usually spend the first year registered for a Master of Philosophy (MPhil) before progressing on to the PhD for your final two years.

Many PhD graduates will remain in academic research after graduation but they are also much in demand by companies where research and innovation is a crucial component of their activity – for example, IBM, ARM, Microsoft Research, Imagination Technologies, Nvidia, Altera, Samsung, Google, Apple, BBC, and Roke are all major employers of our research graduates.

Integrated Doctor of Philosophy (IPhD)

This flexible four-year PhD consists of a first year taught MSc course and research training, followed by three years of original research in a research group or Centres for Doctoral Training. Graduation is possible at Masters or PhD level, depending on needs and performance.

Centres for Doctoral Training (CDT)

Researchers cannot be constrained by the boundaries that separate traditional subject areas. CDTs provide an innovative approach to research, enabling our postgraduate students to work effectively across disciplines, creating excellent opportunities for professional development and collaboration.



Find out more

www.southampton.ac.uk/ecs/msc
www.southampton.ac.uk/ecs/phd

Postgraduate research

Doctor of Philosophy – PhD

Becoming a PhD research student in ECS ensures your research will take place in a stimulating environment; you will gain rigorous research training, will be able to take advantage of outstanding facilities, and will be surrounded by enthusiastic and highly committed people from a range of different and interesting backgrounds.

We offer a wide range of PhD research themes and projects and many of these are linked to our seven world-leading research groups and research centres.

Details of current PhD studentships are advertised on the University's job opportunities web page: www.southampton.ac.uk/jobopps

Assessment

Assessment is through a thesis and viva voce examination.

Key information

PhD Admissions Coordinator: Dr Enrico Costanza

Start date: late September (but possible throughout the year)

Programme duration: three years full-time

Entry requirements: first or upper second-class honours degree or equivalent

Language requirements: IELTS 6.0 overall with at least 5.5 in each competency

Total intake: 70

Fees and funding: applicants receiving a formal offer are considered (subject to eligibility) for the following studentships – contract scholarships, ECS studentship (full fees and maintenance), EPSRC doctoral training awards

Career destinations: our alumni go on to gain leading positions in academia and industry including with ECS spin-out companies and postdoctoral and senior positions at leading universities worldwide

Integrated PhD (IPhD)*

This programme is specially designed for international candidates and offers a one-year, specialist-taught MSc course, followed by a three-year PhD programme.

We will provide you with the knowledge and skills required for a career as a researcher and teacher, or a career in a public or private research organisation.

Programme structure

Year 1

You will get a comprehensive knowledge and understanding of:

- Advanced theoretical foundations of Computer Science, Electronic Engineering or Electrical Engineering
- Techniques for design and evaluation of computing, electronic and/or electrical systems
- Current important research issues and recent research developments in specialised areas

Years 2-4

You will complete a full, PhD-level thesis

Assessment

Assessment in Year 1 is through examinations, projects and dissertation, and in Years 2-4 is through thesis and viva voce examination

Key information

IPhD Admissions Coordinator: Dr Enrico Costanza

Start date: late September (but possible throughout the year)

Programme duration: four years full-time

Entry requirements: first or upper second-class honours degree or equivalent

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Total intake: 10

Fees and funding: applicants must be self-funded or have been awarded an external scholarship (there is no ECS funding available for this programme)

Career destinations: our alumni go on to gain leading positions in academia and industry including with ECS spin-out companies and postdoctoral and senior positions at leading universities worldwide

**This programme is subject to validation*

Centre for Doctoral Training (CDT) in Web Science

The Web Science CDT is funded by the Research Councils UK Digital Economy Programme, and underlines Southampton's pre-eminence in this new research discipline. Web Science has an ambitious agenda. It is inherently interdisciplinary – as much about social and organisational behaviour as about technology. Its research programme targets the web as a primary focus of attention, adding to our understanding of its architectural principles, its development and growth, its capacity for furthering global knowledge and communication, and its inherent values of trustworthiness, privacy and respect for social boundaries.

The first year is a taught MSc and includes short courses and project work tailored to your research interests. This is followed by three years of challenging and original research at PhD level.

Find out more about Web Science at: www.southampton.ac.uk/webscience

Programme structure

Semester 1 modules include:

- Foundations of Web Science
- Web Architecture
- Qualitative Research Methods for Assessing Technology
- Quantitative Methods
- Interdisciplinary Thinking

Semester 2 modules include:

- Semantic Web Technologies
- The Science of Online Social Networks
- Further Web Science
- Consuming Open Data
- Computational Thinking
- Innovation and Technology Transfer
- MSc Project Work and Dissertation

Key information

Programme Coordinator: Professor Leslie Carr

Start date: late September

Programme duration: four years full-time

Entry requirements: first or high upper second-class honours degree or equivalent

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Total intake: 10

Fees and funding: fully-funded studentships are available for UK applicants. Tuition-only studentships are available for EU residents. International students are welcome to apply but there is no funding available

Career destinations: graduates are prepared to become leaders in the emerging Digital Economy from cybercrime experts to internet law specialists

Find out more

Tel: +44 (0)23 8059 2882
Email: fpse-phdapply@southampton.ac.uk
www.southampton.ac.uk/ecs/phd

Computer Science and Software Engineering MSc Programmes

MSc Artificial Intelligence

This research-led MSc incorporates traditional and state-of-the-art aspects of artificial intelligence and machine learning, through a contemporary approach which covers the fundamental aspects of traditional symbolic and sub-symbolic aspects.

You will gain a range of data analysis skills that are in high demand from the academic research community and a wide range of industrial companies from the biotechnology to finance sectors.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Richard Watson

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as mathematics, physics, engineering or computer science

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: our graduates go on to gain jobs in both the academic and industrial sectors such as bioinformatics, chemoinformatics, financial services and web applications

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Foundations of Artificial Intelligence	MSc Project Preparation	MSc project work and dissertation
Machine Learning	Computational Biology	
Intelligent Agents	Advanced Computer Vision	
Evolution of Complexity	Advanced Intelligent Agents	
Computer Vision	Advanced Machine Learning	
Robotic Systems	Biometrics	
	Computational Finance	
	Semantic Web Technologies	
	Simulation Modelling for Computer Science	
	Biological Inspired Robotics	
	Image Processing	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscAI

MSc Computer Science

Computer science drives the fundamental technologies of today's connected world.

This umbrella programme allows you to choose modules from more specialist programmes in Artificial Intelligence, Cyber Security, Data Science, Software Engineering, and Web Science & Technology. In the first semester you will cover the foundations of a number of specialist areas and for your MSc you will then select modules through which to deepen your understanding in one or more areas.

Your programme leader and personal tutor will help you to make an appropriate selection based on your background and interests.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Abdolbaghi Rezazadeh

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in computer science. Good degrees in related subjects such as physics or engineering may be considered provided you also have significant programming experience

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: computer science students from Southampton frequently go on to work in the software industry, often as developers, but also as consultants, project managers, testing and support, or technical specialists.

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Topics in Computer Science	MSc Project Preparation	MSc project work and dissertation
Computer Vision	Automated Code Generation	
Designing Usable and Accessible Technologies	Automated Software Verification	
Evolution of Complexity	Biological Inspired Robotics	
Foundations of Artificial Intelligence	Biometrics	
Implementing Cyber Security	Open Data Innovation	
Machine Learning	Semantic Web Technologies	
Software Modelling Tools and Techniques for Critical Systems	Simulation Modelling for Computer Science	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscCS

MSc Cyber Security

Cyber security has emerged to be a topic of critical importance to commercial organisations, to governments, and to their citizens. This MSc offers a multidisciplinary programme aiming to address the global shortage of skilled practitioners of cyber security, in particular those who have a well-rounded, multi-disciplinary view of the subject area, by embracing not only technical subjects but also aspects of risk management, law, criminology and other social factors.

This programme has been awarded Provisional Certification against the GCHQ Certified Master's degree in General Cyber Security standard, subject to choosing modules marked * below.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Tim Chown

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in computer science or a closely related discipline (certain modules assume a level of programming and mathematics knowledge)

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for either immediate employment in the cyber security field or further research in industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Foundations of Cyber Security*	MSc Project Preparation	MSc project work and dissertation
Implementing Cyber Security*	Cyber Crime, Insecurity and the Dark Web*	
Software Engineering and Cyber Security*	Secure Systems*	
Machine Learning	Biometrics	
Criminal Behaviour – Applied Perspectives	Data Mining	
Management of Corporate Security	Cryptography*	
Corporate Risk Management Processes	Project Risk Management	
Interdisciplinary Thinking		

■ Compulsory modules ■ Optional module *required for GCHQ certification

We are one of only 13 universities recognised as an Academic Centre of Excellence in Cyber Security Research by the UK Government.



Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscCYBER

MSc Data Science

This programme prepares you to become a proficient data scientist, developing your specialist knowledge in subjects that are crucial for mastering the vast and ever-more complex information landscape that is characteristic of modern, digitally empowered organisations.

This is typically linked to a number of core areas of expertise, from the ability to operate high-performance computing clusters and cloud-based infrastructures, to the know-how that is required to devise and apply sophisticated Big Data analytics techniques, and the creativity involved in designing powerful visualisations.

You will gain advanced knowledge in areas such as data mining, machine learning, and data visualisation, including state of the art techniques, programming toolkit, and industrial and societal application scenarios.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Machine Learning	Data Visualisation	MSc project work and dissertation
Foundations of Data Science	Data Mining	
	MSc Project Preparation	
Cloud Application Development	Advanced Databases	
Evolution of Complexity	Advanced Intelligent Agents	
Intelligent Agents	Advanced Machine Learning	
Foundations of Artificial Intelligence	Computational Finance	
Foundations of Web Science	Open Data Innovation	
	Semantic Web Technologies	
	Simulation Modelling for Computer Science	
	The Science of Online Social Networks	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscDS

MSc Software Engineering

Engineering high quality, secure and reliable software systems has never been so challenging. The modern world is driven by an astonishing variety of interconnected software, from phone apps to systems that control critical utilities and infrastructure.

At Southampton we produce sought-after graduates who can create the next generation of software systems and who go on to work with some of the world's biggest technology companies. This programme covers traditional and contemporary approaches to software development, from object-oriented modelling to formal methods. You will study with experts in subjects such as computer vision, critical systems, cryptography, distributed computing systems, e-business, intelligent agents, model checking and multimedia.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Julian Rathke

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in computer science, software engineering, or a closely related subject. You should also have programming experience and be familiar with modern software development techniques

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: our students go on to work in software engineering research or advanced software development projects

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Software Project Management and Development	MSc Project Preparation	MSc project work and dissertation
Software Modelling Tools and Techniques for Critical Systems	E-Business Strategy	
Machine Learning	Advanced Intelligent Agents	
Intelligent Agents	Advanced Machine Learning	
Web Development	Automated Code Generation *	
Web Architecture	Automated Software Verification *	
Designing Usable and Accessible Technologies	Semantic Web Technologies	
Implementing Cyber Security	The Science of Online Social Networks	
Software Engineering and Cyber Security	Cryptography	

* At least one of these modules must be selected

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscSE

MSc Systems, Control and Signal Processing

This programme focuses on core areas of systems and signal processing, with specialisms in control and systems theory, image processing and machine learning. You will develop skills that are sought after by the academic research community, as well as the biotech, financial services, systems engineering and medical imaging industries.

The programme is centred around our leading research in these areas. Its high mathematical content and strong computational-base will help you build good transferable skills in algorithmic development and programming.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Bing Chu

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as mathematics, physics, engineering or computer science

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for further research in either industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Computer Vision	MSc Project Preparation	MSc project work and dissertation
Machine Learning	Advanced Systems and Signal Processing	
Signal Processing	Computational Biology	
Control System Design	Advanced Computer Vision	
	Advanced Machine Learning	
	Biometrics	
	Computational Finance	
	Biological Inspired Robotics	
	Image Processing	
	Applied Control Systems	
	Digital Control System Design	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscSCSP

MSc Web Science

Explore the impact of the Web on the digital economy and all aspects of human society, from the individual right through to national and global scales.

Pioneered by ECS in the UK and MIT in the US, Web Science analyses the Web at a systems level; on the one hand investigating the technical capabilities of its distributed information infrastructure whilst also scrutinising the public policy and social practices that have made it a transformative global phenomenon.

This programme develops a multidisciplinary understanding of the Web in society and is open to graduates of Computer Science, IT, Social Sciences and the Humanities.

MSc Web Science is complementary to the MSc Web Technology. Whereas web technologists are expected to program the Web, web scientists are expected to analyse the Web and its human impact.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Professor Leslie Carr

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in any of computer science, information technology, mathematics, a social science or the humanities

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for further research in industry, the digital economy or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Foundations of Web Science - impact of Web on society	The Science of Online Social Networks (Web 2.0)	MSc project work and dissertation
Web Architecture (Web 1.0)	Semantic Web Technologies (Web 3.0)	
Qualitative Research Methods for Assessing Technology	Further Web Science - innovating and evaluating policy	
Quantitative Methods	Consuming Open Data	
Interdisciplinary Thinking	Computational Thinking	
	Innovation and Technology Transfer	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscWS

MSc Web Technology

This programme studies the Web as a foundational technology for the digital economy, including the architecture and services that support a mobile infrastructure of social networks and big data services. The programme specialises in web system development and requires a technical background with good programming experience.

There is also the chance to study the foundations of the Web, its architecture and the principles of the social and semantic web, as well as their applications in e-business, security, cryptography, intelligent agents, interaction design, and mobile applications.

MSc Web Technology is complementary to the MSc Web Science. Whereas web technologists are expected to program the Web, web scientists are expected to analyse the Web and its human impact.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Professor Leslie Carr

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as mathematics, physics, engineering or computer science

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for either immediate employment in the digital economy or further research in industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Web Architecture	MSc Project Preparation	MSc project work and dissertation
Cloud Application Development	E-Business Strategy	
Intelligent Agents	Open Data Innovation	
Web Development	Semantic Web Technologies	
Designing Usable and Accessible Technologies	The Science of Online Social Networks	
Qualitative Research Methods for Assessing Technology		
Implementing Cyber Security		
Quantitative Methods		
Foundations of Web Science		

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscWT

European Masters in Embedded Computing Systems (EMECS)

This two-year programme is run in conjunction with Kaiserslautern University and the Norwegian University of Science and Technology at Trondheim. The Masters is pursued at two of the three participating institutions and students spend one year at each of their selected universities. Students will benefit from Southampton's expertise in system on chip and electronics; Trondheim's knowledge of electronics and communications; and Kaiserslautern's strong track record in embedded systems.

The course consists of a core programme, an elective programme and a Masters thesis. The core programme covers the fundamentals of embedded computing systems and is the same in all three institutions, while the elective programme reflects the specific profiles of the participating partner university and its associated research institute.

Assessment

Students spend one of their two years at Kaiserslautern or Trondheim and the other at Southampton. They then receive a joint degree from the respective institutions. Assessment is through examinations, coursework and a dissertation/project; language of instruction and assessment is English.

Programme structure

Modules at Southampton	Year 1 students at Southampton	Year 2 students at Southampton	Year 2 students at Southampton
Nanoelectronic Devices	Compulsory	Semester 1	Semester 2
Digital System Design	Compulsory	Select any four modules	EMECS MSc Project
System on Chip Electronic Design Automation	Compulsory		
System on Chip Design Techniques	Compulsory		
SOC Design Project	Optional		
Automated Software Verification	Optional		
Advanced Wireless Communications Networks and Systems	Optional		
Medical Electrical and Electronic Technologies	Optional		
Analogue and Mixed Signal CMOS Design	Optional		
Digital Systems Synthesis	Optional		
Embedded Processors	Optional		
Cryptography	Optional		

■ Compulsory modules ■ Optional module

Key information

Programme Coordinator: Professor Koushik Maharatna

Start date: late September

Programme duration: two years full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in electrical and computer engineering, computer science or related disciplines

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Duration: two years

Applying: <http://mundus.eit.uni-kl.de>

Closing date: January

Funding: scholarships available

Fees: kunz@eit.uni-kl.de

Career destinations: our graduates go on to work as architects of hardware and/or software systems, or as specialists in design methodology or gain employment in companies involved in system-on-chip design, telecommunications, automotive systems and manufacturing

Electronics and Computer Science at Southampton

Founded over 60 years ago, ECS's achievements have been changing the world: from Eric Zepler's pioneering work on radio engineering in the 1940s to the creation of the first graphene transistor in 2011 and the recent Regius Professorship in Computer Science.

Today we continue to build on our inheritance and developing technology at the cutting-edge.

- ➔ In the top 1% of global universities QS World Rankings
- ➔ First in the UK for the volume and quality of our research in Electrical and Electronic Engineering (REF 2014)
- ➔ 100 per cent of our Computer Science research impact is recognised as world-leading or internationally excellent (REF 2014)
- ➔ £18.6m research income for ECS in 2013/14

“During my research I've had a great opportunity to approach the latest technologies, theories and concepts within electronics and computer science. It's the most amazing feeling to work with people who are trying to find solutions to the biggest challenges facing modern society.”

Ba Tung Tran
MSc Systems and Signal Processing, 2014

Find out more

Tel: +44 (0)23 8059 2630

Email: fpse-mscapply@southampton.ac.uk

www.southampton.ac.uk/ecs/mscEMECS

Electrical and Electronic Engineering MSc Programmes

MSc Biodevices

Electronic technologies are now being applied to biomolecular and biomedical research and the electronics industry is moving towards healthcare applications, e.g. Google Life Sciences, Panasonic Healthcare, etc. Examples include microfluidic units mounted on mobile phones for point-of-care medical diagnostics. Learn how modern micro- and nanofabrication methods can be used to develop these biodevices and position yourself at this exciting new interface between electronic engineering and the life sciences.

This programme is multidisciplinary, exploring the functional integration of nanofabricated components and biological molecules into microscale biodevices and systems for a wide variety of applications, including biosensors and lab-on-a-chip. State-of-the-art micro- and nanofabrication methods are addressed. The programme will also impart a thorough understanding of the specific design requirements for biomedical samples such as blood plasma. You will gain extensive practical experience in our specialised (bio)electronics research laboratories and in our cleanroom.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Maurits de Planque

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in a related subject discipline such as electronic engineering, medical engineering, bioengineering, (bio)chemistry or physics, taken with advanced engineering modules

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme prepares students to work in the life sciences oriented electronics industry, device-focused start-up companies or academic research

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Microfabrication	MSc Project Preparation	MSc project work and dissertation
Microfluidics and Lab-on-a-Chip	Nanofabrication and Microscopy	
Bionanotechnology	Biosensors	
Nanoelectronic Devices	Molecular Recognition	
Introduction to MEMS	Biomedical Technology	
	Green Electronics	
	Photonics	
	MEMS Sensors and Actuators	
	Practical Application of MEMS	
	Medical Electrical and Electronic Technologies	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscBD

MSc Embedded Systems

The applications of embedded systems can be found in all sectors of the economy: consumer electronics, car industry, media and process industries and also banking and commerce. The rapid growth of tools, techniques and application in this area has led to a significant skills shortage, particularly for engineers who have both hardware and software skills.

This programme will equip you with the key skills required to design embedded systems. This includes hardware design and verification, real-time computing, embedded processors with extensive practical use of cutting-edge and industry-standard tools and methods. You will be taken through the embedded system design process, from concept to implementation and testing.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Basel Halak

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in a related discipline such as mathematics, engineering and computer science

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: Students on this programme are developed to work in leading worldwide companies at the forefront of technology. Typical careers may include academia, consumer electronics, automotives, banking and commerce

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Real-Time Computing and Embedded Systems	Embedded Processors	MSc project work and dissertation
Digital System Design	MSc Project Preparation	
System on Chip Design Techniques		
Digital Coding and Transmission	Personal Multimedia Communications	
Signal Processing	Advanced Systems and Signal Processing	
	Cryptography	
	Formal Design of Systems	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscES

MSc Energy and Sustainability with Electrical Power Engineering

In order to design and develop our future energy networks, we must have knowledge and understanding of the current infrastructure. This MSc course considers aspects of sustainable energy generation and the issues concerned with bulk electrical energy transport to the ultimate user.

You will get a solid grounding in generation, transmission and distribution engineering, as well as considering the wider issues of energy, renewable generation and sustainability.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Paul Chappell

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as engineering, physics or applied mathematics

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent base for students considering a career in the electrical power industry

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Power Systems Analysis	MSc Project Preparation	MSc project work and dissertation
Power Generation: Technology and Impact on Society	Bioenergy	
Power and Distribution	Green Electronics	
Fundamental Principles of Energy	Mechanical Power Transmission and Vibration	
Energy Resources and Engineering	Advanced Electrical Materials	
	High Voltage Insulation Systems	
	Power Electronics for DC Transmission	
	Nuclear Energy Technology	
	Renewable Energy from Environmental Flows	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscESEPE

MSc MicroElectroMechanical Systems (MEMS)

Electronic technologies have evolved enabling many new device concepts, fabrication methods and characterisation techniques. This has led to the simultaneous fabrication of micro scale mechanical structures with integrated electronics to form MicroElectroMechanical Systems (MEMS). MEMS technology is becoming ubiquitous; it is the key enabling technology that will underpin the internet of things and the proliferation of smart technology in the world around us.

You will gain an understanding of the techniques developed by the microelectronics industry to produce micron-scale mechanical devices such as accelerometers and micropumps on silicon wafers. You will work in research laboratories and in the cleanroom.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Professor Steve Beeby

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as mathematics, physics or engineering

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for further research in either industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Microfabrication	MSc Project Preparation	MSc project work and dissertation
Introduction to MEMS	MEMS Sensors and Actuators	
Microfluidics and Lab-on-a-Chip	Practical Application of MEMS	
Nanoelectronic Devices	Green Electronics	
Advanced Memory and Storage	Nanofabrication and Microscopy	
Bionanotechnology	Quantum Devices and Technology	
	Biosensors	
	Medical Electrical and Electronic Technologies	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscMEMS

MSc Microelectronics Systems Design

The field of microelectronic systems design embodies many of the key skills relating to integrated circuit design and electronic systems engineering. Our cutting-edge programme produces highly regarded graduates that are sought after by commercial enterprises and universities worldwide.

The course examines aspects of system integration and discrete device properties and is an excellent platform for further research in the Nanoelectronics and Nanotechnology group and the Electronics and Electrical Engineering group.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Professor Koushik Maharatna

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as mathematics, physics, engineering or computer science

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for further research in either industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Nanoelectronic Devices	MSc Project Preparation	MSc project work and dissertation
Digital IC and Systems Design	VLSI Design Project	
VLSI Systems Design	Automated Software Verification	
Digital System Design	Advanced Wireless Communications Networks and Systems	
Compulsory modules ■ Optional module	Medical Electrical and Electronic Technologies	
	Nanofabrication and Microscopy	
	Analogue and Mixed Signal CMOS Design	
	Digital Systems Synthesis	
	Embedded Processors	
	Cryptography	

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscMSD

MSc Nanoelectronics and Nanotechnology

Nanoelectronics and nanotechnology relate to development and application of 'next generation' technologies and fundamental components which underpin smart phones, LEDs, solar cells, LCD display and flash RAM. Nano-scale components are already used to get high performance and low cost in common consumer devices such as these. New markets are emerging in environmental sensing particularly with emergence of 'internet of things'. For example nano-scale sensors can now be combined with lasers and embedded systems for environmental monitoring and security applications.

This course covers each of these areas and teaches how to combine nano-scale devices with other 'on chip' systems to produce devices with real world applications. This programme includes the development of new materials and effects that exploit the quantum mechanical nature of devices only a few tens of nanometers long. You will learn about device design and gain a strong grounding in how to make and characterise these devices. You will also gain extensive practical experience in our world leading research laboratories and cleanroom facilities. A key part of this course includes 'hands on' experience with cutting edge industrial design software and fabrication equipment used in mass production by global electronics manufacturers.

Students often find jobs in manufacturing, and a diverse

range of research and development environments.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Dr Martin Charlton

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in a related subject discipline, such as engineering, materials science or physics

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for further research in either industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Nanoelectronic Devices	MSc Project Preparation	MSc project work and dissertation
Microfabrication	Green Electronics	
Advanced Memory and Storage	Nanofabrication and Microscopy	
Introduction to MEMS	Quantum Devices and Technology	
Microfluidics and Lab-on-a-Chip	MEMS Sensors and Actuators	
Bionanotechnology	Practical Application of MEMS	
	Biosensors	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscNANO

MSc System on a Chip

Systems in mobile telephones, computers, cars and aircraft are shrinking, with many parts of the design now implemented as a single integrated circuit. This course will give you the rapidly changing skills to support this.

You will focus on system-on-chip design techniques from conception to implementation, with extensive practical use of cutting-edge and industry-standard tools and methods.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Professor Koushik Maharatna

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as mathematics, physics, engineering or computer science

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for further research in either industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Nanoelectronic Devices	MSc Project Preparation	MSc project work and dissertation
Digital System Design	SOC Design Project	
System on Chip Electronic Design Automation	Automated Software Verification	
System on Chip Design Techniques	Advanced Wireless Communications Networks and Systems	
	Medical Electrical and Electronic Technologies	
	Analogue and Mixed Signal CMOS Design	
	Digital Systems Synthesis	
	Embedded Processors	
	Cryptography	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscSOC

MSc Wireless Communications

This popular, intensive programme, taught in our world-leading Southampton Wireless research group, covers all the technologies that contribute to mobile speech and data communications. You will be taught by some of the most highly cited researchers in their field in the world.

It is aimed at equipping students with both the systematic knowledge and the essential training for engineering design and independent research in the field of wireless communications.

Assessment

Assessment is through examinations, coursework, project and a dissertation.

Key information

Programme Coordinator: Professor Lie-Liang Yang

Start date: late September

Programme duration: one year full-time

Entry requirements: upper second-class honours degree or higher (or equivalent) in an appropriate subject discipline such as mathematics, physics, engineering or computer science

Language requirements: IELTS 6.5 overall with at least 6.0 in each competency

Fees and funding: www.southampton.ac.uk/ecs/mscmoney

Career destinations: this programme provides an excellent platform for further research and development in either industry or academia

Programme structure

Semester 1 modules include	Semester 2 modules include	Project period
Digital Coding and Transmission	Personal Multimedia Communications	MSc project work and dissertation
Radio Communications Engineering	Wireless and Mobile Networks	
Signal Processing	Advanced Wireless Communications Networks and Systems	
Research Skills and Practice	Integrated RF Transceiver Design	
	Advanced Systems and Signal Processing	
	Cryptography	

■ Compulsory modules ■ Optional module

Find out more

Tel: +44 (0)23 8059 2630
 Email: fpse-mscapply@southampton.ac.uk
www.southampton.ac.uk/ecs/mscWC

ECS alumnus Ghaithaa Manla has been pioneering in her work to encourage women into engineering

Promoting women in science and engineering

In ECS we are proud to have received the Athena SWAN Bronze Award recognising our work in tackling the problem of gender inequality in science.

This national achievement reflects our commitment to ensure women are encouraged into an area that has historically been dominated by men.

In ECS our female academics and students are already showing the success that women can have in the fields of Electronics and Computer science.

Our female academics are world-renowned for their work and research, including:

- Professor Dame Wendy Hall, a pioneer of the Web, who is dedicated to raising the profile of women in Electronics and Computer Science;
- Professor mc schraefel, awarded a Microsoft Research/ Royal Academy of Engineering Research Chair to investigate how interactive technology can better support creativity, innovation and discovery;
- Dr Elena Simperl, the technical lead for the new European Data Science Academy who also coordinates the Open Data Incubator for Europe (ODInE).

Many of our female students are also accomplishing great things in the field. Syrian-born Ghaithaa Manla is just one of our success stories. She came over to the UK to study her MSc in Electronic Engineering and enjoyed her time at Southampton so much she has stayed. Since then she has completed her PhD, helped other international students settle into Southampton, been Coordinator of women's networking group Theano and is now a Research fellow in ECS.

In ECS we actively promote diversity across our courses. A diversity Committee supports training and career coaching for women, while ECS Women was started by our students to support women across all levels. The group takes an active part in conferences promoting females in science, engineering, and mathematics (STEM) subjects, and organises events to improve employability such as self-confidence building, CV and interview workshops, and network meetings.

ECS was also instrumental in instigating the formation of the University's Theano networking group that aims to promote the advancement of women in science, engineering and technology in higher education. It also regularly takes part in outreach initiatives in schools and colleges such as Think IT with IBM.

“I thoroughly enjoyed doing my doctorate in ECS, where I was surrounded by many bright minds and had the focused attention of my supervisor. The PhD was a springboard for postdocs in other institutions (and countries), before returning to Southampton where I now enjoy a permanent job doing fascinating applied research.”

Clare Hooper

PhD, 2011

Research Engineer at the University's IT Innovation Centre.



Student life

Campuses

As an ECS student all of your work will be based at our main Highfield Campus, in the north of Southampton. This is home to the Students' Union, the Jubilee Sports Centre, the Hartley Library, a 330-seat Uniplex cinema and three leading arts venues: The Nuffield Theatre, the Turner Sims concert hall and the John Hansard Gallery.

A few minutes' walk from Highfield is Avenue Campus, which houses most disciplines within Humanities, and the Centre for Language Study. It has a library, lecture theatres, focused study spaces and catering amenities.

Our Boldwood Campus, near Highfield, is the home of the University's collaboration with Lloyd's Register. The £124m development houses the Southampton Marine and Maritime Institute.

Three miles west of Highfield is Southampton General Hospital, one of the country's leading teaching hospitals and the base for Medicine.

Located on the city's waterfront, the National Oceanography Centre Southampton is one of the world's leading research centres for the study of Ocean and Earth sciences.

Winchester School of Art is located 12 miles north of Southampton, in Winchester city centre. The campus provides purpose designed studios and workshops, an extensive specialist library, Students' Union facilities, a café and a well-stocked art supplies shop.

Our branch campus for engineering is in EduCity, Nusajaya in Malaysia and benefits from innovative world-class facilities for engineering and full access to the learning resources at our UK campuses.

Students' Union

The University of Southampton Students' Union (SUSU) is here to represent the voice of students at every level, and make sure that you get the very best out of your university experience.

By studying at Southampton, you are automatically a member of SUSU. Its mission is to unlock the potential and enrich the life of every student, by providing activities and facilities to enhance your time here, and offering support on matters to do with your course, money and accommodation.

Being part of SUSU is all about developing new skills, meeting new people and having fun by joining one of 300 student groups, clubs and societies.

At SUSU you'll also find fantastic facilities. These include food from a Michelin-trained chef at student prices in the Bridge, our new Lettings Agency, our multipurpose dance facilities, The Stags' Head pub, and the on-campus shop catering for all student needs.

Find out more about what SUSU has to offer at www.susu.org

Sport

Our sporting facilities are among the best of any UK university. We have fostered Olympic and Paralympic competitors as well as British Universities and Colleges Sports (BUCS) champions. We have a state-of-the-art sports complex with facilities including:

- a six-lane, 25-metre swimming pool
- a split-level gym, with 170 fitness stations
- sports halls with badminton, netball, volleyball and basketball courts, five-a-side football, cricket, handball and roller hockey
- an indoor climbing wall
- four squash courts
- a martial arts studio
- an unrivalled range of watersports, including sailing, kayaking, powerboating and windsurfing
- floodlit synthetic pitches for hockey and football
- 20 grass pitches for winter and summer sports
- eight tennis courts
- sports performance centre
- sports injury clinic
- Team Southampton gym
- The new Mayflower Gym, featuring cutting-edge technology

Sport and Wellbeing membership also gives you free access to Southampton Athletics Track, the Alpine Centre (dry ski slope), the Quays Swimming and Diving Centre, Bitterne and Chamberlayne Leisure centres.



“I love sports and was really impressed with the Sport Centre at the University. As well as having a great gym and swimming pool, it's also amazing value for students and, being on the campus, really convenient too.”

Xinyu Zhao
MSc Microelectronics System Design, 2014



Find out more

www.southampton.ac.uk/unilife
www.southampton.ac.uk/accommodation

Living here

Staying in halls

There is something to suit everyone in our halls of residence, and all our accommodation offers an excellent study and living environment in which to experience student life. Choose from a selection of accommodation types, in a number of different locations including the two new halls sites, Mayflower and City Gateway, all with a range of facilities included in the cost.

The deadline for applications for University accommodation is 1 August.

UK/EU postgraduate students

If you are a UK or EU student, we welcome your application for a place in halls, which we will allocate subject to availability. If we are unable to offer you a place in halls, we can give you help and advice on securing private rented accommodation.

International postgraduate students

We offer all full-time registered international postgraduate students a place in accommodation during their first year of study, providing certain criteria are met.

Couples and families

We have a smaller selection of self-contained studio flats with small kitchen and en suite bathroom, and one bedroom flats suitable for couples, or two bedroom flats for parents with one child. There are also a number of University-owned properties close to the main Highfield Campus that are suitable for families. Please note that the flats and University-owned properties are subject to availability and are in high demand.

The benefits for you

- All utility charges including contents insurance, broadband and a unilink bus pass (unilink buses connect all our Southampton halls sites with our Southampton campuses and the city centre) are included in your accommodation fees*
- Facilities in halls including common rooms, bars, launderettes, computer rooms, barbecue areas and study spaces

- 24-hour support and advice from the residences team and Residences Support Service
- 24-hour security and CCTV on all sites

**Broadband and unilink bus pass not available for Shaftesbury Avenue residents*

Halls fees

For the academic year 2014/15, weekly room rates for our postgraduate accommodation range from £89.32 to £263.41. The cost is reflective of a number of factors, including the facilities available in the room, flat and at the site, location and how recently the room has been built or refurbished.

Private rented accommodation

SUSU, the University of Southampton Students' Union, has recently launched a brand new letting agency to help you find private rented accommodation in Southampton or Winchester, as an alternative to halls. The agency is approachable and trustworthy for both landlords and students, and ensures students get the best possible standard of accommodation.

We are also a core partner in the Southampton Accreditation Scheme for Student Housing (SASSH), in partnership with Southampton City Council. SASSH advertises properties on a student-only website (www.sassh.co.uk) that only advertises housing where the landlord confirms their property complies with SASSH safety and quality standards.

Living costs

When planning your finances, you will need to take into account the costs of living. For more information, go to www.southampton.ac.uk/livingcosts

Finance calculator

Our finance calculator is a useful tool to help you estimate how much university study and living will cost and the benefits you will receive for your tuition fees, including bursaries you are eligible for.

To use the calculator, visit

www.southampton.ac.uk/calculator



Find out more

www.southampton.ac.uk/accommodation

Discover your city

Southampton is one of the most lively and dynamic cities in the south of England. It offers a vibrant and varied nightlife, superb heritage attractions, a bustling marina, beautiful parks, and is home to the Premier League football club, Southampton FC.

Southampton is also one of the UK's greenest cities with several large parks situated in its centre. The city has a rich maritime heritage and a major focus on water sports, sailing and ocean racing.

The New Forest National Park is right on our doorstep, and the coastal resorts of Bournemouth, Poole and Brighton are nearby. The historic cathedral cities of Salisbury and Winchester are even closer. London is also just over an hour away by train.

With its own international airport, the city is within easy reach of Europe.

Southampton at a glance:

- ➔ Southampton Airport serves 50 UK and European destinations, and handles nearly two million passengers per year
- ➔ In 2010, the city's population was 239,700, making it the largest city on the south coast
- ➔ One in every 15 people in Southampton is a University of Southampton student
- ➔ Southampton is ranked in the top four best places to live in Britain based on economic growth*
- ➔ There has been £175m of recent investment in a new cultural quarter
- ➔ Southampton Common is a protected Site of Special Scientific Interest
- ➔ The city is a top 15 retail destination in the UK **

- ➔ Southampton hosts a diverse collection of theatres, cinemas, art galleries and museums housing everything from ancient culture to cutting-edge designs
- ➔ The city is home to a Premier League football club, and a variety of music venues, including O2 Guildhall Southampton
- ➔ The nearby Ageas Bowl is home to national and international cricket
- ➔ There are two mainline train stations – Southampton Central and Southampton Airport Parkway - and the University is within easy access of the M3 and M27 motorways

To find out more about what Southampton has to offer, take our virtual city tour at

www.southampton.ac.uk/visitus/cityandregion

* *Good Growth for Cities report, PricewaterhouseCoopers*

** *Venuescore UK Shopping Venue Rankings 2014-15*

Winchester

Just 12 miles north of Southampton, Winchester offers a wide variety of pubs and restaurants, museums, theatres and galleries. It is home to the 11th century cathedral and the Great Hall that houses the mysterious Round Table of King Arthur. Spectacular architecture is complemented by bustling shopping streets, making Winchester the ideal home for the University's Winchester School of Art.



Find out more

www.southampton.ac.uk/visitus/cityandregion

Applying

How to apply

To apply for postgraduate study you must satisfy (or be predicted to satisfy) the general entry requirements of the academic unit and any specific requirements of your chosen programme. These are set out in the key facts section for each programme in this brochure and online.

You will then need to complete an online application form which you can find on the University website at www.southampton.ac.uk/pgapply

For most programmes this will include submitting supporting documentation, for example a copy of your undergraduate degree certificate, which you can upload with your application form. You can find the exact list of documents you will need to submit for your programme at www.ecs.soton.ac.uk/mscapply or www.ecs.soton.ac.uk/phdapply. We will send you an acknowledgement email shortly after we have received your completed application.

As well as academic qualifications and practical experience, we are looking for evidence of your interest in the subject area and an understanding of the rigorous demands of postgraduate study. It is a good idea to cover these areas when you are writing your personal statement.

There is no University deadline for applications for taught or research programmes, however you should apply as early as possible if you need to secure a UK visa or if you are applying for funding or sponsorship.

We operate a fair and transparent admissions policy which we review annually. You may read the current policy online at www.southampton.ac.uk/admissions_policy

English language requirements

All of our programmes are taught in the medium of English. As such, all applicants must satisfy the University's general entrance requirement by possessing at least a grade C in GCSE English, or equivalent. Specific IELTS requirements are detailed in the key information for each programme. In addition, international applicants requiring a visa to study in the UK will need to satisfy the English language requirements set out by the UK Home Office (for further information relating to visas see www.southampton.ac.uk/sais/visa).

The University recognises a wide range of English language tests and other qualifications which are listed in full online at www.southampton.ac.uk/admissions_language. This page also lists those countries for which the requirement to sit a specific English language test for visa purposes does not apply.

The University also offers its own, tailored pre-sessional programme for applicants who need to improve their English language skills before enrolling on their chosen programme. Further information regarding pre-sessional opportunities may be found online at www.southampton.ac.uk/presessional

In addition to the shorter pre-sessional programme, the Centre for Language Studies offers a variety of courses and support for international students. These include year-round English language tuition and online opportunities, some of which are free of charge for postgraduate students. Further information can be found online at www.southampton.ac.uk/international/english

Our pre-Masters programme is designed to equip you with the academic and English language skills you will need to get the most from a taught Masters degree. For more information please visit www.southampton.ac.uk/pre-masters

Fees and funding

Tuition fees

As a postgraduate student, you will need to pay an annual tuition fee to the University for your programme of study. This varies according to the type of programme you choose. The fee charged for full-time students includes the full cost of tuition, examinations, Students' Union membership and research support expenses, where applicable.

Fees noted in this brochure for UK/EU students are for 2015/16 entry and may be subject to increase for 2016/17, and fees noted for international students are for 2016/17 entry. Fees payable by students from the Channel Islands and the Isle of Man are set annually by the islands' governments, and UK universities are typically notified of the levels in the spring prior to the next academic session.

Which fees apply to me?

The University is required to classify your fees status in accordance with the Education (Fees and Awards) (England) Regulations 2007. The amount you will have to pay depends on a number of criteria – details are available from the UK Council for International Student Affairs (UKCISA), which provides free advice and information to international students studying in the UK. Publicly funded educational institutions charge two levels of fee: the lower 'home' fee and the higher 'overseas' fee. There are certain categories of students who must be charged the home fee. More information is available at www.ukcisa.org.uk

Overseas (international) fees apply if you do not meet the criteria for UK/EU (home) fees.

Note: all figures in this section are subject to change and were correct at time of print.

Funding your studies

The University offers help, advice and support on funding for prospective postgraduate students, including a variety of bursaries across the University for UK/EU and international students. We also receive high levels of funding from external bodies and research councils, specifically for postgraduate researchers. ECS receives funding from the Engineering and Physical Sciences Research Council (EPSRC). It is possible for candidates to apply to research councils directly. For more information visit: www.epsrc.ac.uk

Postgraduate loans

The government has announced a postgraduate loan scheme for 2016/7. To find out more, please visit postgradsteps.hefce.ac.uk

Alumni discount

If you are a Southampton graduate, you may be eligible for a 10 per cent discount on your postgraduate tuition fees. For more information, visit

www.southampton.ac.uk/alumni/postgraddiscount

	UK/EU 2015/16*	International 2016/17**
Taught course fees	£7,300 (full-time), £3,650 (part-time)	£19,570 (full-time), £9,785 (part-time)
Research programme fees	£4,052 (full-time), £2,026 (part-time)	£21,360 (full-time), £10,680 (part-time)

*International students commencing a programme of study in the 2016/17 academic year will pay the same fixed fee for each year of their programme

Supporting you

IT services and facilities

You have access to free Wi-Fi, thousands of computer workstations and many express workstations, across our campuses and halls of residences. As a student your email will be provided through Office 365, which includes a host of additional features, including the ability to download Microsoft Office for free on up to five devices, including iPads. Other IT facilities include print, copy, scan, 'filestore' storage space for your files and folders, extensive general and course-specific software and a dedicated helpline for all your IT needs.

For more details, visit

www.southampton.ac.uk/isolutions/students/im_new

Centre for Language Study

The Centre offers courses in a large number of languages, including Arabic, Chinese, Japanese and English as a foreign language, that can be studied as a component of your degree, as an evening course or as a lunchtime taster session. You will be able to study at one of seven language stages, from beginner to near-native speaker.

For more information on the Centre for Language Study, visit

www.southampton.ac.uk/cls

Doctors and dentists

There are two health practices based at the Highfield Campus, both offering NHS practitioners.

For more details, visit

www.unidocs.co.uk

www.highfieldhealth.nhs.uk

There are also several local practices; you can find a full list of surgeries at www.nhsdirect.nhs.uk

Early Years Centre

Situated on the Highfield Campus, the Early Years Centre, provides a stimulating and caring environment for children from newborn to five years of age.

Tel: +44 (0)23 8059 3465

Email: eycentre@southampton.ac.uk

For more information on the Early Years Centre visit

www.southampton.ac.uk/earlyyears

Enabling Services

Enabling Services offers support for students with disabilities, mental health problems and specific learning difficulties, from application through to graduation. Before you arrive, we are able to help with queries regarding getting the right support and funding in place. We can also provide support with accommodation and prospective visits. We encourage you to contact Enabling Services before you arrive to discuss the support available to you. Once you arrive, we can offer support to help you to settle in, meet the team, provide 'buddy' support and drop-in sessions.

During your studies, we can provide ongoing specialist support. This can include study skills workshops and tutorials, wellbeing workshops, drop-in sessions and counselling support. Enabling Services is available for all students who may encounter problems while at the University of Southampton.

Please contact us for further information and support.

Tel: +44 (0) 2380 597726

Email: enable@southampton.ac.uk

Financial information and assistance

The main contact point for funding information and financial assistance is within the Student Services Centre at Highfield. The financial information and assistance team organise hardship support for students experiencing financial difficulties, as well as administering a range of bursaries and fee waivers.

Tel: + 44(0) 23 8059 9599

www.southampton.ac.uk/fia

Libraries

As hubs of information, our libraries provide support for your learning wherever you are based. With online access to 34,000 journals and 450,000 books from anywhere in the world, you can fit your study and research around your life, making the most of academic, social, arts and sporting opportunities. Our team of library staff provide online guides, email, chat and face-to-face support to help you make best use of our library resources.

The libraries provide individual, group and informal learning space set up for use of laptops or tablets, with access to



We offer a range of services to support your needs

printing and PCs. More than two million printed books and journals are held across the five largest libraries.

For more information on the library, visit

www.southampton.ac.uk/library

Nightline

SUSU's phone-based, student-run Nightline service provides information, emotional support and a listening ear from 8pm right through to 8am during term time.

Tel: +44 (0)23 8059 5236

www.nightline.susu.org

Researcher Development and Graduate Centre

The Researcher Development and Graduate Centre works alongside the academic disciplines to enable you to develop your skills as a postgraduate researcher.

The Centre delivers a range of skills training, personal development, networking and placement opportunities.

www.southampton.ac.uk/gradschools

Student Services Centre

Situated at the heart of the Highfield Campus, the Centre's friendly and dedicated team offers

support and advice, helping you with any queries on student-related subjects, such as fees, accommodation and financial assistance.

Tel: +44 (0)23 8059 5959

Email: ssc@southampton.ac.uk

www.southampton.ac.uk/ssc

The Advice Centre

SUSU's Advice Centre offers free, confidential and impartial advice on matters including student finance, debt management and budgeting, advice on your course, housing and consumer rights.

Tel: +44 (0)23 8059 2085

Email: advice@susu.org

www.susu.org/advicecentre

Visa guidance

The visa guidance team provides advice on immigration issues.

Tel: +44 (0)23 8059 9599

Email: visa@southampton.ac.uk

International postgraduates

Southampton has a thriving and diverse international community of postgraduate students. Each year we welcome over 7,000 EU and international students from more than 130 countries.

Living and studying in a different country has its own unique challenges. We make student entry straightforward, offer attractive scholarships to eligible applicants, help you settle into your new life and advise you on all aspects of living in the UK. Our network of services and advisors ensure that your studies and life at Southampton are as productive and stress-free as possible.

International Office

Staff from our International Office attend educational exhibitions around the world, as well as making numerous visits overseas and to colleges in the UK.

If you are unable to visit us in Southampton, make sure you book an appointment to meet us at one of the exhibitions or join us on a virtual open day. You will find a quick introduction to the University on our website, which is available in other languages. You can also view web pages dedicated to 50 specific countries.

To join us on a virtual open day, visit www.southampton.ac.uk/virtualopenday

Welcome Programme

Each September, we arrange our Welcome Programme, which helps you settle into life here. The programme includes general events to introduce you to our facilities, subject-specific events to begin your academic induction and a range of social and cultural activities.

You will meet other postgraduate students and explore the University and the city, so that you know where to worship, relax and shop. You will also meet current international students who will be able to give you good advice.

Meet and Greet

Our free Meet and Greet service from London Heathrow and Gatwick airports will get you to the University in time for the Welcome Programme. You can register for both the service and the Programme from July 2015 on our website.

English language requirements

If English is not your first language, you will need to demonstrate that you have sufficient knowledge of the English language to be able to benefit from all academic activities at the University. For details about English language requirements for our courses visit our website.

If you need to improve your English language skills before enrolling on your chosen programme of study, you can apply for one of our pre-session English language courses.

Our Centre for Language Study offers a variety of courses and support for our international postgraduate community. We run year-round intensive and summer pre-session English language courses, as well as online courses. English language support courses are provided free of charge throughout the year for postgraduates.

For more information, visit www.southampton.ac.uk/international/english

Pre-Masters

Our pre-Masters programme is designed to equip you with the academic and English language skills you will need to get the most from a taught Masters degree. For more information, visit www.southampton.ac.uk/pre-masters

Visas

Before you join us, find out about the UK's immigration procedures. You will need to do this well in advance of your arrival in the UK. Our website provides information on student visas, police registration, working in the UK and has links to other useful websites.

“At ECS, you benefit from close contact with renowned researchers and there are also lots of placement opportunities for students – such as those through the ECS-ARM partnership. I've really enjoyed working in an environment where research is going on into products that are so advanced they won't be seen publicly for another five years.”

Renato Porto
MSc System on Chip, 2014



Find out more
www.southampton.ac.uk/international

Ideal location

Southampton has excellent transport links with the rest of the UK and internationally, by road, rail, sea and air.

By bus

We run the award winning unilink bus service that connects our Southampton campuses with all the major transport links in the city. Our U1 bus service collects you from outside the Southampton Airport terminal, providing a direct connection to our Highfield Campus. You can buy tickets at the unilink office or you can buy tickets on the bus.

Downloadable for iPhone, the SotonBus App allows you to view bus and route information from all major bus operators in the Southampton area. With GPS positioning, you can find your nearest bus stop, plan routes and save frequently used bus stops for easy access.

By coach

National Express runs the Service SH032 to London Victoria Coach Station via Heathrow through Highfield Campus. For timetable information, visit www.nationalexpress.com

By rail

Southampton and Winchester are well served by mainline railway stations – Southampton Central, Southampton Airport Parkway and Winchester. Fast trains from London and Bournemouth/Weymouth stop at all three stations, and the typical journey times to London Waterloo from Southampton Central and Winchester are an hour and 20 minutes and an hour, respectively. Winchester School of Art is a 15 minute walk from Winchester train station. The unilink frequent bus service (U1), connects into the Southampton Airport Parkway and Southampton Central train services, via the University.

By road

Our Southampton and Winchester campuses are well connected to the national road network. The M3 links Southampton and Winchester directly to London. For Southampton campuses, exit the M3 at junction 14 and follow signs for Southampton (A33). Follow the A33 into Bassett Avenue and follow signs to University campuses.

For Winchester School of Art, exit the M3 at junction nine or 10 and follow signs to the campus.

The M27 is one of the major road links along the south coast of England and passes Southampton to the north. For the University, leave the M27 at junction five (Southampton Airport) and follow signs to University campuses.

Satellite navigation

When travelling by car, please use the following postcodes in satellite navigation devices:

- For Southampton Highfield Campus, use SO17 1BJ
- For Avenue Campus, use SO17 1BF
- For the National Oceanography Centre Southampton, use SO14 3ZH
- For Southampton General Hospital, use SO16 6YD
- For Winchester School of Art, use SO23 8DL

By air

Southampton Airport is about 20 minutes from the Southampton campuses by bus or taxi. There is a full UK domestic service, as well as flights to mainland Europe and the Channel Islands.



Find out more
www.southampton.ac.uk/cityandregion

How to find us

Southampton is a thriving modern city, steeped in history and culture. Just over an hour south of London, Southampton has excellent transport links with the rest of the UK.

University of Southampton

University Road, Southampton SO17 1BJ UK Tel: +44 (0)23 8059 5000



Terms and conditions

Relevant web links are shown throughout the Electronics and Computer Science postgraduate prospectus. Please also consult www.southampton.ac.uk/ecs online for further details and/or any changes which have appeared since first publication of this prospectus or phone +44 (0)23 8059 2630 for more information.

Disclaimer

The University of Southampton will use all reasonable efforts to deliver advertised programmes and other services and facilities in accordance with the descriptions set out in its prospectuses, student handbooks, welcome guides and website. It will provide students with the tuition, learning support, services and facilities so described with reasonable care and skill.

The University, therefore, reserves the right if it considers it to be necessary to alter the timetable, location, content or method of delivery of events provided such alterations are reasonable.

Financial or other losses

The University will not be held liable for any direct or indirect financial or other losses or damage arising from changes made to the event timetable, location, content or method of delivery of various services and facilities set out herein.

Force majeure

The University will not be held liable for any loss, damage or expense resulting from any delay, variation or failure in the provision of services and facilities set out herein, arising from circumstances beyond the University's reasonable control, including (but not limited to) war or threat of war, riot, civil strife, terrorist activity, industrial dispute, natural or nuclear disaster, adverse weather conditions, interruption in power supplies or other services for any reason, fire, boycott and telecommunications failure.

In the event that such circumstances beyond the reasonable control of the University arise, it will use all reasonable endeavours to minimise disruption as far as it is practical to do so.

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