MEng/BEng (Honours)

COMPUTER and ELECTRONIC SYSTEMS

University of Strathclyde Engineering
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MEng
COMPUTER and ELECTRONIC SYSTEMS with INTERNATIONAL STUDY

What do 3D-TV, digital cameras, smartphones, the iPad and sports instant replay have in common? They are all examples of technology which have been developed combining skills from both Computer Science and Electronic Engineering.

These disciplines have become increasingly intertwined in recent years, so there is an acute need for engineers with the ability to create and embed intelligence into the products and systems of the future.

Engineers with operational and technical expertise in both electronics and software engineering are needed to design the next generation of computer apps, interactive vehicle robotic agents that monitor driver information and respond accordingly, or internet security systems.

These professionally-accredited degrees are designed to produce such highly skilled engineers and offer excellent international career prospects.

Course Structure
The degrees are run jointly by the Departments of Computer & Information Sciences (CIS) and Electronic & Electrical Engineering (EEE).

EEE is internationally renowned for its teaching and research quality, and has an excellent reputation for student satisfaction and graduate employment rates. It is considered one of the premier providers of electronic and electrical engineering education in the UK and its teaching is underpinned by world-class industrially relevant research.

It has extensive industrial and academic collaborations, and a range of opportunities exist for work placements and student exchange in the UK and overseas. Previous graduates have studied and worked in the Americas, Far East and Australasia.

CIS is engaged in world-class research and has a broad teaching portfolio specialising in all aspects of computer and information sciences, artificial intelligence and software engineering. Consistently ranked as one of the top five departments for its discipline in Scotland, it offers a very high quality learning environment for its students, with a wide variety of national and international collaborations.

Fundamental principles and concepts are established in Year 1 through electronic engineering, maths and computer science classes. Years 2 & 3 build on this base, while introducing you to programming languages and techniques; computer communications; and hardware and software engineering systems.
In Years 4 and 5 you customise your degree by choosing specialist topics to match your personal career aspirations. Topics include multimedia information, embedded systems, AI techniques, e-commerce and computer security.

MEng students may spend Year 4 studying abroad and overseas study opportunities are available within Europe, the USA, Canada, Australia and SE Asia. Students who spend Year 4 abroad are awarded the MEng with International Study.

Transfer from the BEng to MEng is possible after any year.

Triple accreditation from the Institution of Engineering & Technology, Science Council and the British Computer Society (BCS) ensures graduates have the technical expertise and skills to compete and capitalise upon job opportunities in engineering, science and IT. You will also gain ‘chartered’ (CEng) status in any or all of these three disciplines after relevant industrial experience. The employability of our graduates is one of the highest of all disciplines.

Course Syllabus
The syllabus is designed to target the industrial sectors that have a high demand for graduates expert in both electronic engineering and computing science. Examples include computer communications and the Internet, combined hardware and software development industries, and signal & image processing (computer imagery).

Year 1 – Core Engineering & Science Skills
In first year you will learn the essential skills and disciplines required to provide a strong foundation for future learning in electronic engineering, maths and computing science. You will study subjects such as the principles of electronic circuits, software engineering, relevant mathematics and business skills. These skills will be reinforced by practical laboratory sessions which will help to develop your ability to translate concepts into reality.

Year 2 – Core Engineering & Technology Skills
In second year you will build on the strong foundations of the first year and further broaden your knowledge through the introduction to a range of programming techniques and languages, and computer communications. More analysis of both hardware and software systems will be undertaken to enable you to see the bigger picture. Small scale projects will be introduced to allow you to hone the skills and techniques you have cultivated in the first two years of the course.

Year 3 – Specialist Engineering Skills
In third year you will be given the opportunity to choose from a range of specialist modules. You will also study a carefully designed core curriculum which will cover aspects of computer communications and interfacing hardware and software systems.

Years 4 & 5 – Engineering for your Professional Future:
In Year 4 & 5 you will have the opportunity to control your degree’s focus by choosing from a range of challenging and rewarding classes.
Year 4 (BEng (Honours) & MEng)
In Year 4 you will undertake an individual project, which will help you gain valuable technical and project management skills. The range of career paths open to you is reflected in the classes available in this year. Options include:

- Software Architecture & Design
- Artificial Intelligence Techniques
- Communication Networks
- Digital Signal Processing
- Distributed Systems
- Embedded Systems
- Information Transmission and Security
- Robotics

Those on the International Study stream spend Year 4 studying at a partner university overseas.

Year 5 (MEng only)
In Year 5 you will have the opportunity to develop your teamworking skills through a multidisciplinary group project. This project will have a strong industrial influence and provide you with the opportunity to utilise both your hardware and software skills by developing a fully functioning system. In addition to the project, you will select from a range of advanced computing and electronic application areas. Options include:

- Computer Security
- Distributed Information Management
- Advanced Software Engineering
- Communication Network Design
- Mobile Wireless Networks
- Image & Video Processing
- Mobile Software & Applications
- E-commerce

“...My course proved very relevant to the modern world, with industry engagement and opportunities to get involved in real projects. I worked on the London underground as part of my IET Power Academy scholarship, travelled to The Gambia for the Department’s sustainable energy project, and was part of the University’s Formula Student team. All of these experiences helped me land my dream job – working in Formula One with Infiniti Red Bull Racing.

Daniel Chakraverty
MEng Computer & Electronic Systems
Teaching and Assessment
A blend of student-centric methods, including interactive lectures, small group problem-solving tutorials, practical laboratories as well as industrial visits and seminars by professional engineers are used throughout all years of study.

The programmes ensure you develop not only technical engineering and computing expertise, but also, and equally importantly, communication, project management, leadership and entrepreneurial skills.

There is a wide range of assessment methods, including assignments, examinations and, individual and group-based projects. Both class delivery and assessment make use of web-based and multimedia facilities.

The course typically consists of around 10 lectures, five tutorial/problem-solving classes and three practical classes per week. Students also undertake around 20 hours of self-study.

Scholarships and Work Placements
The Department of Electronic & Electrical Engineering runs one of the UK’s largest industry-supported Scholarships Programme, providing annual bursaries of up to £5000, as well as help with books, software and paid summer internships with a range of well known, international organisations such as Rolls-Royce, ScottishPower and AMEC.

We are the only Department in Scotland in the IET Power Academy and have been hand-picked by several leading global engineering organisations, such as BP and Siemens, to participate in their scholarship schemes. The Programme, which is open to computer and electronic systems students, includes:

- S6 Bursaries – open to eligible S6 Scottish applicants
- Royal College Awards – a bursary for international applicants
- FM Bruce Scholarships
- AMEC Electrical Engineering Scholarship
- Lloyd’s Register Foundation Scholarship
- BP Scholarships
- IET Power Academy
- Engineering Excellence Scholarships with MacTaggart Scott, ScottishPower and Wood Group
Careers
The triple accreditation of this course ensures that its graduates have the technical expertise and skills to compete for jobs on an equal professional standing with computer scientists and electronic engineers. The degrees provide the education required for highly rewarding, well paid and exciting careers in a diverse range of sectors such as:

- mobile communications
- software engineering
- electronic design
- consumer electronics and multimedia entertainment
- automotive and aerospace industries
- internet security
- information technology

The employability of CES graduates is one of the highest of all disciplines. They have taken up posts as systems analysts and software designers with employers such as BP, Amazon, Cisco and Microsoft.

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Find out more ...
visit the University website at www.strath.ac.uk