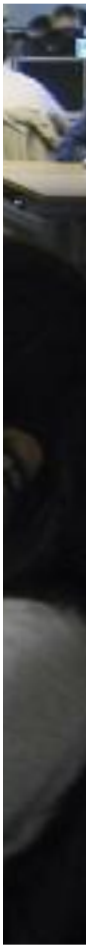
University of Southampton

NEW FROM 2009

MEng Computer Science with Mobile and Secure Systems



This new four-year degree, based on our world-leading Master of Engineering in Computer Science, will provide you with a complete education in all practical and theoretical elements of computer science required for a challenging career in the IT industry, and enable you to specialize in two of the most exciting areas of emerging technology.

Developed with input from ARM, BT, IBM, NXP, Oracle and Zarlink, the programme prepares you for a wide range of careers across high-tech business and industry.

In this new programme we take a broad view of **mobile systems.** The course encompasses handheld devices, mobile robots, telemedicine and mobile software agents. All are enabled by a mix of low-power, system-on-chip, power harvesting and wireless technologies.

Your experience of **secure systems** will similarly be broad; it will range over penetration testing of network servers, threats such as viruses, spyware and rootkits and consumer technologies including RFID, Oyster and chip and PIN. Coverage of both the underlying theory coupled with hands-on experience will let you develop real expertise.

Year 1

Your first year covers core skills in programming (in Java and C++), and the mathematics underlying computer science. A special feature of the **Computer Science with Mobile and Secure Systems** course is the dedicated additional laboratory module in the second half of the year. Here you will program your own multi-user hand-held games using a MEMS controller (like the Nintendo Wii) and develop robot systems based on the iRobot and servo-controlled robot arms.

MEng COMPUTER SCIENCE WITH MOBILE AND SECURE SYSTEMS

Year 2

In your second year, you will further develop your core computer science skills with modules in operating systems, software analysis and design, database systems, communications and networks, and distributed computing.

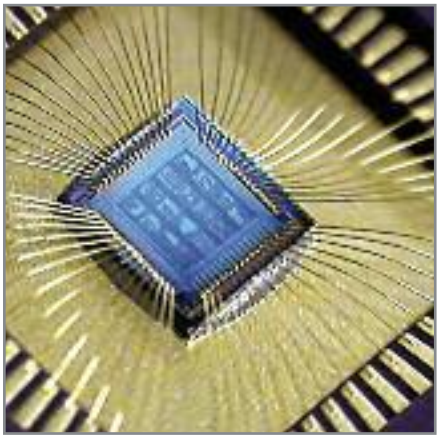
There is another specialist laboratory dedicated to mobile and secure systems students. This concentrates on security, with experiments in a dedicated (and isolated) penetration testing laboratory and further investigations of the technology behind such consumer security systems as chip and PIN and ePassports.

Year 3

Your Individual Project runs throughout your third year. You are directly supervised by one of our leading researchers as you investigate, design and build a novel secure or mobile system. In the third year, you also have access to a wide range of options, including:

- Advanced Computer Architecture
- Advanced Computer Networks
- Advanced Databases
- Computational Modelling
- Computer Vision
- Critical Systems
- E-Business Techniques
- eLearning & Learning Technology
- Hypertext and Web Technologies
- Industrial Law
- Intelligent Algorithms
- The IT Profession
- Knowledge Technologies
- Languages for Engineers (French, German, Spanish, Mandarin Chinese, Arabic, Portuguese and Italian)
- Large-Scale Distributed Systems
- Machine Learning
- Multimedia Systems
- New Venture Development
- Operational Research
- Principles of Computer Graphics
- Quality Assurance and Project Management
- Scripting Languages
- Security and Information Technology

You will also take compulsory modules in Management and in Real-time Computing and Embedded Systems, and a special module in Mobile and Secure Systems which covers advanced security technology.



Year 4

In your final year, your key activity is the Group Design Project in which, over nine weeks, you will be part of a team of four students working with an industrial customer to design and build a useful mobile or security product. You will also have access to a variety of advanced modules, including:

- Advanced Multimedia
- Advanced Machine Learning
- Assistive Technologies and Universal Design
- Applications of Security in Information Technology
- Advanced Computer Graphics
- Biologically Inspired Robotics
- Computer Networks
- Computer Vision
- Cryptography and Data Compression
- Distributed Computing Systems
- E-Business Strategy
- Engineering Statistics
- Evolution of Complexity
- Formal Design of Systems
- Foundations of Web Science
- From Aspect-Oriented Programming to Program Generation
- Intelligent Agents
- Internet Law
- Numerical Methods
- Semantic Web Technologies
- Technologies for E-Commerce
- Technology Enhanced Learning
- Types and Programming Languages
- Web Services
- Web Services Group Project

In addition, you will conduct an Individual Research Review, in which you will carry out a critical evaluation of the current research in an advanced area of the discipline.