COMPUTER SYSTEMS ENGINEERING BEng/MEng

DEPARTMENT OF COMPUTER SCIENCE

WARWICK
THE UNIVERSITY OF WARWICK

OUR DEGREE

Computer Systems Engineering (CSE) is a fully-integrated degree taught hand-in-hand by the Department of Computer Science and School of Engineering. It provides a comprehensive grounding in the principles and practice of computer science, alongside the fundamental technology of digital electronic systems. You will learn about both computer hardware, such as digital hardware design and real-time systems, and computer software such as algorithms, programming and operating systems.

YEARS 1 AND 2

In the first two years, you will study core material in computer programming, data structures and algorithms as well as system modelling, electronic devices and circuits, and then go on to deepen your knowledge of computer architecture, digital electronics design, software engineering and, operating systems and networks. Alongside core material, you will choose from a carefully selected range of complementary options in computer science and engineering.

YEAR 3

In the third year, you will study a bespoke module on high-performance embedded systems design, and undertake an individual project which can be on a topic selected by you under the supervision of an academic from either department.

YEAR 4

If you choose to study the MEng you will study advanced material for a further fourth year where you will also undertake an interdisciplinary Engineering group project to help advance your research and development skills in a team environment.

PLACEMENTS AND STUDY ABROAD

All of our degrees provide the chance for you to take an intercalated year in industry or to study abroad at one of Warwick's partner institutions. This is typically taken between the second and third years of your degree and adds a year to your degree duration. Many of our students also find internships during the summer vacation periods and our department staff can help you with this.

PROJECTS

Your individual project may focus more on computer science, engineering or be an interesting combination of the two. With access to advanced computing resources in Computer Science and state-of-the-art electronic hardware development, and maker facilities in Engineering, you will have the scope to produce novel and exciting projects.

SOME EXAMPLES OF CSE PROJECT TITLES FROM RECENT YEARS INCLUDE:

- Modelling of Tumour Growth with Respect to the Use of Anti-Cancer Agents

- Optimising CRISPR Screening Data Analysis

- Flexible RISC-V Processor on FPGA

- Photo Generation Mobile Application Using AI

- Network Switch Design on FPGAs

- Real Time Camera Processing on FPGAs

- Comparison of Indoor Positioning Techniques, with Development of a Practical Comparison Tool

WHERE CAN A DEGREE IN COMPUTER SYSTEMS ENGINEERING TAKE ME?

As a Computer Systems Engineering graduate, you'll have a unique skill set that is applicable across range of careers.

You'll be trained in electronic engineering, digital and embedded systems design (low-power and small devices which work independently), data communications, and more traditional computer science skills like software engineering and enterprise computing. This makes you much sought-after in industry, and our graduates have pursued a range of jobs in, for example:

- Software design and engineering including databases programming, web-systems, graphics and data visualization, machine learning/AI and robotics, digital forensics and image analysis

- Electric and autonomous vehicles programming applications

- State-of-the-art computer design and development of small-form factor devices

- Working with networks of internet-of-things (IoT) sensors industrial control applications

Our recent graduates have landed prestigious jobs at the very best computer design companies while some of our current students are doing, or have just completed, internships at companies such as ARM, Intel and Airbus.

=4TH
IN THE UK FOR COMPUTING RESEARCH
(2021 RESEARCH EXCELLENCE FRAMEWORK, THE MOST RECENT GOVERNMENT RESEARCH ASSESSMENT)

99%
OF RESEARCH RATED WORLD-LEADING OR INTERNATIONALLY EXCELLENT
(2021 RESEARCH EXCELLENCE FRAMEWORK, THE MOST RECENT GOVERNMENT RESEARCH ASSESSMENT)

TYPICAL SALARY RANGE
£30,000 TO £47,000

15 MONTHS AFTER GRADUATING

(DERIVED FROM UNIVERSITY OF WARWICK'S FULL TIME DEPARTMENT OF COMPUTER SCIENCE GRADUATES DURING 2018-2020 IN DISCOVER UNI, SOURCE: GRADUATE OUTCOMES SURVEY)

COMPUTER SYSTEMS ENGINEERING

BEng Computer Systems Engineering
3 years | UCAS code: G406

MEng Computer Systems Engineering
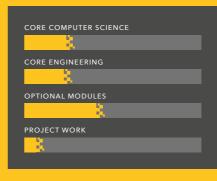4 years | UCAS code: G408

WHAT IS COMPUTER SYSTEMS ENGINEERING?

Computer systems are at the heart of most things that we use and these systems make us productive at work, control our transportation, and help us in our homes and hospitals. If you look, you can find computer systems everywhere and often they are communicating which each other!

Tiny, low-power and independent, these little (yet sometimes powerful) computers process our multimedia data in our smartphones, games consoles and TVs, allowing us to be entertained and stay in touch. They control our domestic devices and communicate with cloud-based systems hosted on the Internet. Outside the home, many 100s of inter-connected processors run the engine and safety systems in our cars; power smart-sensors in our electricity grid and water supply; monitor and control the running of our trains; keep aeroplanes in flight; and sit behind almost every medical device from heart-rate monitors to large and complex body scanners.

To design, build and program these complex and critical systems Computer Systems Engineers, who understand and are able to work across the intersection of both computer science and engineering, are needed. So if you're excited by the prospect of attaining the unique and highly sought-after skills at this intersection of technology, then our Computer Systems Engineering (CSE) degree is for you.

CORE COMPUTER SCIENCE

CORE ENGINEERING

OPTIONAL MODULES

PROJECT WORK

ENTRY REQUIREMENTS

A Level: A*AA to include A in Mathematics

IB: 38 to include 6,6,6 in three Higher Level subjects including 6 in Higher Level Mathematics ('Analysis and Approaches' only).

HOW TO APPLY

Everything you need to know about applying to Warwick is on our web pages. There is up-to-date information about:

• How to apply
• Writing your personal statement
• Key dates and deadlines
• How we process your application
• After you've applied

If you are made and accept an offer, and meet any outstanding conditions, we will confirm your place and look forward to warmly welcoming you at the start of your life here at Warwick.

warwick.ac.uk/study/undergraduate/apply

STUDENT FEES AND FUNDING

We want to ensure that, wherever possible, financial circumstances do not become a barrier to studying at Warwick. We provide extra financial support for qualifying students from lower income families.

warwick.ac.uk/studentfunding

OVERSEAS APPLICANTS

At Warwick, we welcome applications from across the globe, and have dedicated teams available to advise and support, as well as a global network of Agents and Representatives

warwick.ac.uk/io

DISCOVER MORE

If you have questions about living and studying at Warwick, speak to our current students to get answers on:

• Campus life
• Accommodation
• Study support, wellbeing and more

warwick.ac.uk/study/unibuddy

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