Robotics MEng with a Year in Industry (Hons)

UCAS Code: H674 | **Duration: 5 years** | **Full-time** | **Hope Park** | **2024/2025**

Placement year opportunities available

Course Overview

Robotics is on the cusp of an exciting new era as robots become more intelligent and find applications in an ever more diverse range of industries including Consumer and Healthcare Robotics.

According to a recent report, Robotics is the fastest growing industry in the world and is poised to become the largest in the next decade. We are in the midst of an increase in the pace of technological change and the changes in the coming decade will be a magnitude of order greater than anything that has gone before. A shift is about to take place that will forever change society; our ability to manufacture novel robots and new intelligent systems will both change the way we interact with technology and will allow technology to interact with us and our world in a far more nuanced way.

Our Robotics degree reflects recent Software and Hardware technological advances and exposes you to new, much sought-after skills and up-to-date areas of research. The degree includes recent technological advances in areas such as Embedded Systems, Intelligent Systems and Mechatronics. You will experiment and interact with specialist software, hardware interfaces and systems, as well as exotic robots and fabrication facilities. You will be taught by academics whose research is rated as internationally excellent by the latest Research Excellence Framework in areas including Robotics and Intelligent Systems.

Entry Requirements

This course follows the standard University entry requirements. Please see the website for further information.

Fees and Additional Costs

The tuition fees for 2024/2025 are £9,250 for full-time undergraduate courses.

You will also need to consider the cost of your accommodation each year whilst you study at university.

Visit our accommodation webpages for further details about our Halls of Residence: **www.hope.ac.uk/halls**

Applicants will need access to a computer if course delivery is switched to online. The University has a laptop lending service if remote study is necessary.

LIVERPOOL HOPE UNIVERSITY
1844

CONTACT

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www.hope.ac.uk

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Year One

In the first year, you will develop the theoretical knowledge and practical skills that underpin Electronics and Computer Engineering. Topics studied include:

Engineering Principles

This provides the fundamental blocks for the curriculum and covers topics such as electromagnetism, circuit theory, engineering practice, mathematics, engineering programming.

Computing Principles & Professional Development

Professional Development prepares you for learning and study in an engineering discipline and also introduces the fundamental practices, values and expectations of an engineer. Computing principles introduces the fundamental aspects of computer systems and databases.

Year Two

In the second year, you will develop a broader understanding and knowledge of the theoretical and practical aspects of Robotics. You study:

Robotics platforms

You gain hands-on experience with real robots, learning how to program them and you will develop a robotics project.

Kinematic and mechanics

You study the motion of an object in 3D which leads to understanding the relationship between a robot's joint coordinates and its spatial layout in robotics kinematics.

Microcontrollers

Microcontrollers are everywhere and are fundamental to your course. Being able to program microcontrollers and interface them to sensors and actuators are critical skills.

Professional Skills

A range of topics are covered in this block, more generally equipping you for working in industry.

Control theory

Control systems are fundamental to the stable and reliable operation of electronic and electromechanical systems.

Applied electronics

In this block of study, you will learn about semiconductor devices and circuit applications, control systems, mechatronics and computer networks.

Year Three

You spend your third year on a year-long placement in industry.

Year Four

Your fourth year helps you develop a deeper understanding of the theoretical aspects of Robotics and be able to critically select appropriate tools and techniques to solve problems. Topics will depend on latest developments, but will include areas such as:

- Intelligent systems
- Machine learning hardware
- Electronics systems
- Spatial computing
- Robotics systems
- Robotics project

Year Five

In your final year you will be studying with a great degree of autonomy with a focus on preparation for industry. The Curriculum will be focused on applications of material that has been taught in prior years but now in a professional context; reflecting latest developments in Robotics and will include topics such as:

- Artificial intelligence
- Industrial robotics
- 3D vision
- Internet-of-Things

COURSE STRUCTURE

Teaching on this degree is structured into lectures, where all students are taught together, seminars of smaller groups of around 15-20 students, and tutorials which typically have no more than 10 students. Your third year is a compulsory year-long placement in industry.

During your first year of study, there are approximately 12 teaching hours each week, which reduces to approximately 10 teaching hours in your second, fourth and fifth years. On top of teaching hours, you are also expected to spend a number of hours studying independently each week, as well as studying in groups to prepare for any group assessments that you may have.

Work Placement Opportunities

This degree includes a compulsory year in industry placement, giving you the opportunity to gain real workplace skills highly sought after by employers.

ASSESSMENT AND FEEDBACK

You will have a number of assessments each year, including exams and coursework.

You will be given written feedback on your assessments, and you will have the opportunity to discuss this with your tutor in more detail.

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