

Robotics BEng (Hons)

UCAS Code: H671 | Duration: 3 years | Full-time | Hope Park | 2026/2027

Placement year opportunities available



Course Overview

Robotics is entering an exciting new era, with intelligent robots transforming industries from consumer technology to healthcare. As one of the fastest-growing industries in the world, Robotics is poised to become one of the largest sectors of the coming decade, reshaping the way society interacts with technology and how technology interacts with us.

Our Robotics degree reflects the latest software and hardware advances, equipping you with highly sought-after skills and exposure to cutting-edge research. This Robotics course covers areas such as Embedded Systems, Machine Learning, and Mechatronics, giving you both theoretical understanding and hands-on experience.

You will work with specialist software, hardware interfaces, commercial robots and fabrication facilities, developing practical expertise alongside academic knowledge. Taught by research-active academics with internationally recognised expertise in Robotics and Intelligent Systems, this degree prepares you for a future at the forefront of technological innovation.

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 2026/2027 are £9,535 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.



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Robotics BEng (Hons) Curriculum

Year One

In the first year, you will develop the theoretical knowledge and practical skills that underpin Robotics.

Introduction to Programming

This module explores the foundational concepts of programming and data structures, focusing on Java and Python, and examines how skills in structured coding, object-oriented programming, and core algorithms support the design of efficient, maintainable solutions to computational problems.

Introduction to Artificial Intelligence

In this course, we will explore the field of Artificial Intelligence (AI), starting with foundational concepts and progressing through its diverse applications and implications.

Data Fundamentals

This module introduces the concept of data and its collection, processing, analysis, and interpretation, while exploring storage systems such as relational databases and the end-to-end lifecycle of data in real-world contexts.

Fundamentals of Computational Science

This module introduces the foundations of computer science by weaving together mathematics, C programming, cryptography and scientific computing.

Year Two

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

Robotics Platforms

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

Robot Operating System (ROS)

ROS is the industry standard software architecture for the control of robots and you will gain practical hands on experience.

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

Being able to program microcontrollers and interface them to sensors and actuators are critical skills.

Control theory

Dive into the world of computer network infrastructure and protocols. From understanding the roles of clients and servers to exploring physical media and the various types of networks.

Computer vision

Learn the foundational techniques and algorithms that enable computers to process, analyse, and make decisions based on visual data, bridging the gap between human and machine perception.

Professional Skills

From communication to problem-solving, you'll be prepared to navigate the challenges of industry.

Applied electronics

You will learn about electronic semiconductor devices and application circuits, sensors and signal conditioning, signal conversion and sequential logic.

Year Three

Your third 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 include the following:

Machine learning

You will learn the principles of intelligent systems and their application to computer science and the types of algorithms and programming languages used to solve real-world problems.

Engineering and Manufacturing Principles

You will explore the engineering and manufacturing principles essential for designing, developing and producing robotic systems.

Electronics systems

This course will prepare you to be able to develop and programme electronics based systems using appropriate tools and language studying topics such as

systems, amplifiers, further power electronics and systems design

Internet of Things (IoT)

This module introduces you to the interconnected world of IoT.

Robotics systems

You will study advanced sensors and actuators and human-robot interaction.

Embedded systems

This topic will prepare you to be able to develop and programme embedded systems using appropriate tools and languages.

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.

During your first year of study, there are approximately 12 teaching hours each week, which reduces to approximately 10 teaching hours in your second and third 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.

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.