



# Robotics MSc

[www.cranfield.ac.uk/Robotics](http://www.cranfield.ac.uk/Robotics)



**Robots are becoming ubiquitous in industrial environments as well as in everyday life. Industries including automotive, oil and gas, aerospace and energy have significant future growth in the service robot domain.**

The course provides insight into multiple application domains for intelligent and autonomous robot systems including industry, hazardous environments, health care, domestic/assistive robotics and autonomous vehicles. Unique in its focus on human aspects and supported by practical applications, this course will enhance your employment prospects by providing you with relevant theoretical knowledge and practical skills to meet rising global demand for professionals in this field.

## Who is it for?

The course is suitable for those with essential engineering mathematics knowledge and basic computer programming skills who are looking to broaden their understanding of robotics uses, applications and science.

Our students come from backgrounds in aeronautics/aerospace engineering, mechanical engineering, electrical/electronic engineering, pure mathematics, computer science, software engineering, mechatronic engineering, information technology.

## Your career

This MSc is designed to equip you with the skills required to pursue a successful career working in the UK and overseas. The International Federation of Robotics' Executive Summary report shows that the deployment of industrial robots has constantly increased in the last decade and it is predicted that global robot installations will continue to increase over the coming years. The British Automation and Robot Association has highlighted that robotics is one of the key technologies needed to ensure competitiveness in the manufacturing sector and, according to the US Bureau of Labor Statistics (BLS), the mechanical engineering field, which includes robotics engineers, is projected to experience continued employment growth.

Typical jobs that our graduates go into include:

- Robotics Engineer,
- Mechanical Project Engineer,
- Embedded Software Engineer,
- Software Engineer,
- Automation Engineer,
- Test Engineer,
- Electrical Engineer,
- Consultant

## Overview

### Start date

October

### Duration

One year full-time, two-three years part-time

### Qualification

MSc

### Study type

Full-time / Part-time

### Structure

Taught modules 40%, group project 20%, individual research project 40%

### Campus

Cranfield campus

### Entry requirements

We welcome applications from talented individuals of all backgrounds and each application is considered on its individual merit. Usually applicants must hold:

A UK lower second-class (2:2) undergraduate degree with honours, as a minimum, or equivalent international qualification.

Ideally, applicants will have studied in aeronautics/aerospace engineering, mechanical engineering, electrical/electronic engineering, pure mathematics, computer science, software engineering, mechatronic engineering, or information technology disciplines.

Applicants who do not fulfil the standard entry requirements can apply for the Pre-master's course, successful completion of which will qualify them for entry to this course for a second year of study.

## Fees

Please see [www.cranfield.ac.uk/fees](http://www.cranfield.ac.uk/fees) for detailed information about fee status, full-time and part-time fees as well as deposit requirements and bursary and scholarship information.

## Course details

This course consists of eight one-week assessed modules, a group project and an individual research project. Students are also supported in their learning and personal development through industry seminars, a group poster session, group discussions, group presentations, video demonstrations, case studies, laboratory experiments, coursework and project work. Students will receive hands-on experience with our range of conventional and collaborative robots located in the Aerospace Integration Research Centre - supporting practice workshops, student group projects and individual projects. You will participate in a study tour carried out at ABB Robotics in Milton Keynes where you will spend up to a week at our industrial partner ABB Robotics' training centre, receiving practical robot training.

The new Robotics MSc will use standard teaching and assessment methods as well as technology enhanced teaching (TET) methods such as a Virtual Learning Environment (VLE) to support different learning styles. Theories and fundamental of robotics will be taught in both lecture and workshop formats where videos and technology demonstrators will be used as teaching aids. For example, a collaborative robot will be used in the teaching of human-robot interaction and virtual reality technology will be used in teaching digital robotics. Lecture videos will be available on the VLE to provide an interactive learning experience. Students will receive hands-on experience on programming industrial robots, initially in a robot simulation lab, which follows a practical robot-programming workshop using real industrial robot supported by ABB Robotics. The use of robotics technology will enable students to see robot engineering phenomena first-hand where they can test engineering principles and theories with real devices.

### Modules

Keeping our courses up-to-date and current requires constant innovation and change. The modules we offer reflect the needs of business and industry and the research interests of our staff. As a result, they may change or be withdrawn due to research developments, legislation changes or for a variety of other reasons. Changes may also be designed to improve the student learning experience or to respond to feedback from students, external examiners, accreditation bodies and industrial advisory panels.

To give you a taster, we have listed below the compulsory and elective (where applicable) modules which are currently affiliated with this course. All modules are indicative only, and may be subject to change for your year of entry

#### Compulsory modules

All the modules in the following list need to be taken as part of this course.

##### Fundamentals of Robotics

##### Robotics Control

##### Artificial Intelligence and Machine Learning for Robotics

##### Programming Methods for Robotics

##### Psychology, Ethics and Standards

##### Human-Robot Interaction

##### Machine Vision for Robotics

##### Autonomy in Robotic Systems

"My previous experience and my passion for robots enabled me to hunt for a university that provides a master's degree which is research-intensive and industry-orientated in the field of robotics. I found Cranfield University, which is renowned for its intensive research. I was very excited to begin my journey to study an MSc in Robotics at Cranfield."

**Manideep Tamma**

current student, Robotics MSc

## Accreditation

The Robotics MSc is accredited by the Institution of Mechanical Engineers (IMechE) on behalf of the Engineering Council as meeting the requirements for further learning for registration as a Chartered Engineer (CEng). Candidates must hold a CEng accredited BEng/BSc (Hons) undergraduate first degree to show that they have satisfied the educational base for CEng registration.



For more information contact our Admissions Team:  
**T: +44 (0)1234 758082**

Visit campus for yourself and meet current students and our academics at our next Open Day:  
**[www.cranfield.ac.uk/opensday](http://www.cranfield.ac.uk/opensday)**

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Every effort is made to ensure that the information provided here is correct at the time it is published. Please check our website for the latest information.