

# MSc Ultra Precision Technologies & Applications

Full- & part-time

## Why this course

High technology products fundamentally depend on a range of ultra precision systems and processes. Next generation products for space, aerospace, energy production, displays, sensors and advanced medical devices demand ultra precision technologies in order to achieve their superior functionality.

This MSc programme has been designed to equip engineers and scientists with the key enabling technologies that permit next generation high technology products and processes to be realised.

Students will study aspects of ultra precision technologies including: the philosophy of determinism, fundamental precision design and metrology principles, critical computer-based design and application tools, detailed knowledge of ultra precision processes and their application. Strategic approaches to safeguard technology management, intellectual property and product innovation are reviewed.

## Key features

- Unique postgraduate training experience
- Led by internationally renowned experts in precision technologies
- Access to exceptional facilities
- Tailored to industry
- Funding available
- Full- and part-time routes available

## World-class programme and research facilities

The MSc in Ultra Precision is a truly world-class programme, led by Cranfield University, with support from the Opto-electronics Technology and Incubation Centre (OpTIC) in North Wales, the Optical Science Laboratory of University College London and the Institute of Manufacturing at the University of Cambridge. These universities are recognised as leaders in their field. The programme has been designed to equip individuals with an understanding of the underlying principles of important ultra precision technologies as well as provide exposure and understanding of their state-of-the-art applications.

## Career opportunities

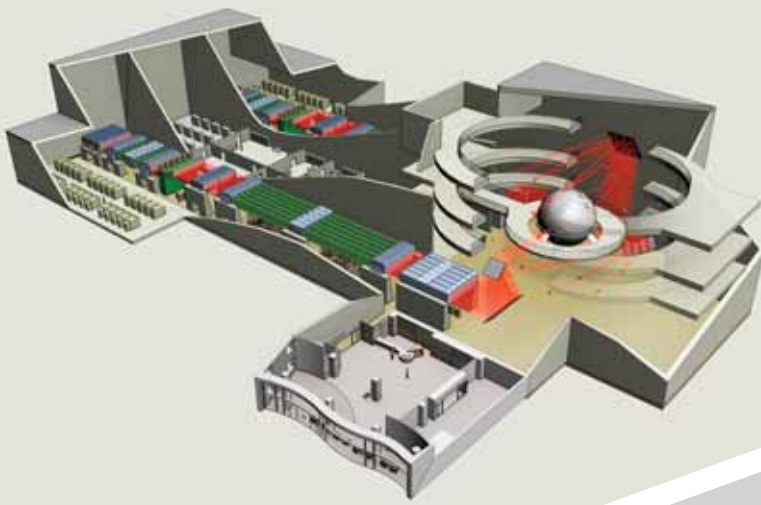
Successful students can progress to a wide range of careers involving ultra precision systems and processes, with responsibilities in research, development, design and management in a range of markets including optoelectronics and displays, medical devices, aerospace, space, defence and automotive.



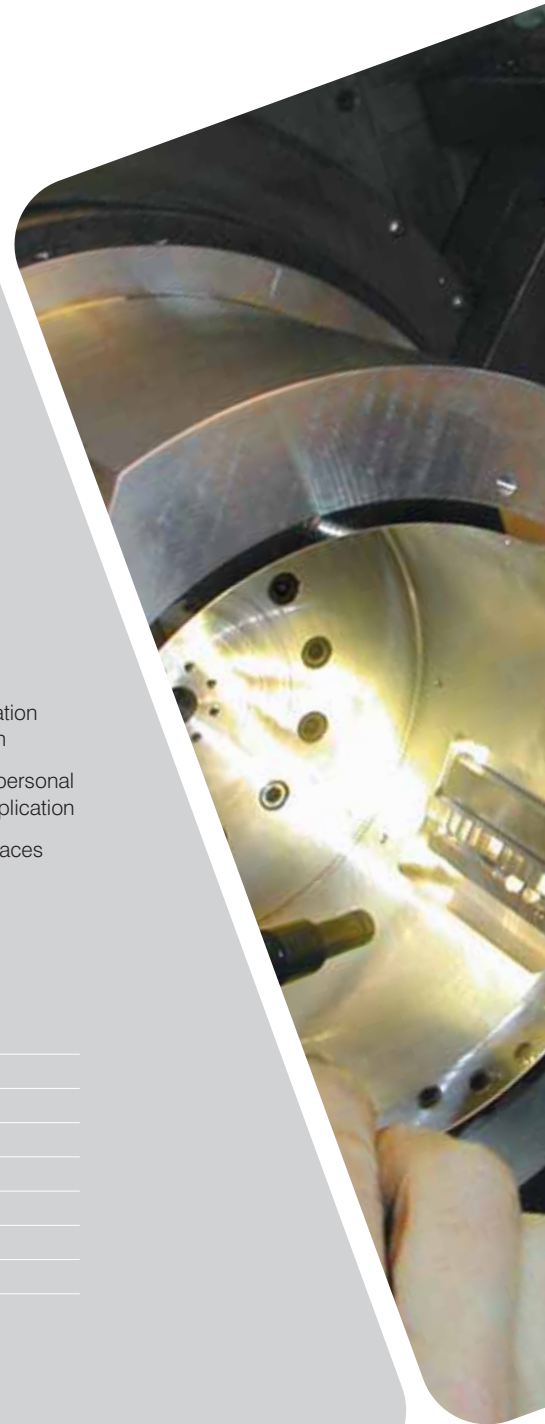
[www.cranfield.ac.uk/sas/ultraprecision](http://www.cranfield.ac.uk/sas/ultraprecision)

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## Modular MSc programme

The MSc in Ultra Precision Technologies and Applications comprises eight taught modules through which students gain an understanding of both fundamentals and state-of-the-art practices. This is followed by a group project during which students apply their learning as a team to an industrially-defined and continuously-monitored problem. Finally, the individual thesis project offers students the opportunity to research, develop and apply technologies in their chosen area, developing their depth of understanding and ability to provide ultra precision solutions.

## Modules

Subject	Provider
• Precision Engineering	Cranfield
• Metrology and Optical Testing	Cranfield
• Managing Innovation and new Product Development	Cranfield
• Computer-aided Engineering for Ultra Precision	Cranfield/OpTIC
• Optical Design and Fabrication	UCL/OpTIC
• Surface Engineering and Coatings	Cranfield
• Modern Optical Technologies	Cranfield/OpTIC
• Laser Micromachining and Surface Structuring	Cambridge

## Duration

The full-time MSc commences each October and is of 12 months' duration. Part-time students can commence study throughout the year and are expected to complete the course within three years.

## Structure

Taught modules	40%	Understanding "tomorrow's technologies"
Group project	20%	Effective application of ultra precision
Thesis	40%	Demonstrating personal learning and application

For part-time students, a dissertation replaces the group project.

## Contact

For further information please contact:

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

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