



# Defence Simulation and Modelling

MSc/PgDip/PgCert

This course addresses the design, development, procurement, use and management of models and simulations for applications in experimentation, training, testing, analysis and assessment of military forces, systems and equipment. The application of modelling and simulation continues to enhance and transform both systems development and training. It allows representation of increasingly complex equipment, systems and scenarios for the purposes of decision support and helps to reduce wear on live equipment and on test and training areas. The course is suitable for both military and civilian personnel, including those from defence industry and government departments. On successful completion of the course you will be familiar with the technologies, methodologies, principles and terminology of modelling and simulation as used across defence, including the challenges and issues as well as the benefits. Through use of facilities such as the Simulation and Synthetic Environment Laboratory (SSEL), with its wide range of specialist applications, students will gain a broad understanding of modelling and simulation in areas such as training, acquisition, decision-support, analysis and experimentation.

## Course structure

Standard modules normally comprise a week of teaching, followed by a week of directed study/coursework. Advanced modules are two week mini-projects which includes a written report and oral presentation. MSc students must complete eight standard modules (two core and four advanced) and an individual thesis.

## Individual project

An individual research project is on an agreed topic that allows you to demonstrate your technical expertise, independent learning abilities and critical appraisal skills. Thesis topics will be related to problems of specific interest to students and sponsors of local industry wherever possible.

## Future career

This qualification will equip you for simulation-specific appointments within the armed forces or government, or in the defence related activities of commercial organisations.

## Example modules

### Compulsory

- Introductory Studies
- Foundations of Modelling and Simulation
- Networked and Distributed Simulation
- Discrete and Continuous Simulation
- War Gaming and Combat Modelling
- Computer Graphics
- Weapon System Performance Assessment
- Intelligent Systems
- Networked and Distributed Simulation Exercise
- Advanced Module 1
- Advanced Module 2
- Advanced Module 3
- Experimentation Analysis and Trials for Simulation
- MSc Research Project

### Duration:

Full time-students: 12 months.  
Maximum-part time registrations of: MSc five years, PgDip four years, PgCert three years

### Start date:

Full-time: September  
Part-time: September, January or by arrangement

### Location:

Shrivenham

### Entry requirements:

Normally a first or second class Honours degree or equivalent in science, engineering or mathematics. Alternatively, a lesser qualification together with appropriate work experience may be acceptable.

## Contact details

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For further information please visit

[www.cranfield.ac.uk/courses/taught/defence-simulation-and-modelling](http://www.cranfield.ac.uk/courses/taught/defence-simulation-and-modelling)