



# Explosives Ordnance Engineering

**MSc/PgDip/PgCert** This course is subject to University Approval.

The course offers advanced academic background necessary for students to contribute effectively to technically demanding projects in the field of Explosives and Explosives Ordnance Engineering (EOE). It has been designed specifically to provide an opportunity to a wide range of attendees, which include military officers, defence industry staff, government servants and civilian students to provide knowledge and transferable skills that will enhance employment potential in this field, problem solving, self-direction and informed communication skills. Students are introduced to up-to-date and current research, which enables them to obtain a critical awareness to problem solving and capability to evaluate both military and commercial best practice in the field of EOE.

## Course structure

The taught phase for each 10-credit module is usually completed within one week, and there is structured teaching to allow time for more independent learning and reflection for full-time students. The main exception is the Future Developments module which runs from October to March/April (part-time students must have completed at least half of the taught phase before they enrol for this module). Industrial visits are scheduled throughout the course to support student learning.

## Individual project

The aim of the project phase is to give the students an opportunity to apply the skills, knowledge and understanding acquired on the taught phase of the course to a practical problem in EOE. A list of available project titles is produced in the first few months. Suggestions for projects may come from a variety of sources, for example an individual student's sponsor, a member of staff, or the wider EOE community.

## Group project

To integrate module learning into an overall critical evaluation of new trends in EOE the students undertake a group project, which considers current 'Hot Topics in EOE', for example, nanotechnology, insensitive munitions, analysis and detection and environmental initiatives. The group project involves the students working together to research these hot topics and to critically appraise the facts, principles, concepts, and theories relating to a specific area of EOE. They do this as a group and then individually prepare elements of a presentation that they feedback in groups to their peers in an open forum. The presentation is then graded from an individual and group perspective.

## Future career

Many of the students are linked to military employment and as such are sponsored through this route. Therefore the majority of the students continue to work for them on completion of the course. However, the course has the potential to take you on to enhanced career opportunities often at a more senior level across a range of roles corresponding with your experience.

## Accreditation

The MSc of this course is accredited by the Institution of Mechanical Engineers (IMechE) and the Institution of Engineering and Technology (IET).

## Example modules

Modules form only part of the course, with the project(s) and these making up the balance. Please see the course structure for details.

The list below shows the modules offered in the 2019-20 academic year, to give you an idea of course content. To keep our courses relevant and up-to-date, modules are subject to change – please see the webpage for the latest information.

### Compulsory:

- Future Development: Scanning the Horizon in EOE,
- Introduction to Explosives Engineering,
- Munitions and Target Response.

### Elective (select 60 credits):

- Addressing EOE Capability Gaps: Group Project (20 credits),
- Commercial Explosives (10 credits),
- Counter Improvised Explosive Devices Capability (10 credits),
- Delivery Systems (10 credits),
- Design for Vulnerability (10 credits),
- Explosives and the Environment (10 credits),
- Gun Propellants (10 credits),
- Manufacture and Material Properties of Explosives (10 credits),
- Pyrotechnics (10 credits),
- Rocket Motors and Propellants (10 credits),
- Safety Assurance in EOE (10 credits),
- Testing and Evaluation of Explosives (10 credits).

### Duration:

Full-time: MSc, PgDip, PgCert – one year. Part-time: PgCert – three years, PgDip – four years and MSc five years.

### Start date:

September.

### Location:

Shrivenham.

### Entry requirements:

Degree in science or science related subject or exceptionally with at least 10 years relevant experience. If you are entering the Masters programme through the experiential route, then up to three successful completions of EOE modules can be used as part of the case to provide supporting evidence of academic ability for entry onto the EOE. IELTS score of 7.0 required by students for whom English is not a first language.

### ATAS Certificate:

Students requiring a visa to study in the UK may need to apply for an ATAS certificate to study this course.

## Contact details

T: +44 (0)1793 785220

E: [cdsadmissionsoffice@cranfield.ac.uk](mailto:cdsadmissionsoffice@cranfield.ac.uk)

For further information please visit

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