



# Advanced Lightweight and Composite Structures

MSc/ PgDip/ PgCert

There are no other courses that provide dedicated specialist training in the design and analysis of advanced lightweight and composite structures in aerospace, automotive, marine and renewable energy industries.

Delivered with a unique focus on industry challenges and concerns, this course will equip you with strong experimental, numerical and analytical skills in structural mechanics for both composite and metallic components. This will help you to practically apply this knowledge to solve real engineering problems.

## Course structure

This course is composed of compulsory taught modules (40%), Group project (20%) and Individual research project (40%). The course employs a wide range of teaching methods designed to create a demanding and varied learning environment including structured lecture programmes, tutorials, case studies, hands-on computing, individual projects, and guest lectures.

## Individual project

Individual research project topics can vary greatly, allowing you to develop your own areas of interest. It is common for our industrial partners to put forward real-life practical problems or areas of development as potential research topics. This section of the course takes place from April to August.

## Group project

The group project aims to address one of the greatest challenges graduates face, which is the lack of experience in dealing with the complexities of working within a design team. This part of the course takes place from March to May. It is student-led and consolidates the taught material which develops both technical and project management skills on an industrially relevant project.

## Future career

This course caters to providing graduates with the necessary skills to pursue a successful career as a structural engineer. Roles might include working on structural design or crash protection in the automotive or aerospace sectors, developing materials for defence applications, or to work in the field of numerical code development/consultancy. Other graduates have continued their education through PhD opportunities available within the Crashworthiness Group. Companies that have recruited graduates of this course include Airbus, Rolls-Royce, Jaguar Land Rover and Aston Martin.

## Example modules

The taught programme consists of compulsory modules.

### Compulsory:

- Advanced Composite Analysis and Impact,
- Advanced Simulation for Impact,
- Crashworthiness,
- Finite Element Methods,
- Introduction to Continuum Mechanics,
- Materials Characterisation and Failure Simulations,
- Structural Stability,
- Thin-walled Structures.

### Duration:

MSc: one year;  
PgDip: up to one year;  
PgCert: up to one year

### Start date:

October

### Location:

Cranfield Campus

### Entry requirements

A first or second class UK Honours degree or equivalent in mathematics, physics, computing or an engineering discipline.

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

### 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

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For further information please visit

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