



Advanced Lightweight and Composite Structures MSc

www.cranfield.ac.uk/LWCompStructures

With strong industrial engagement, this course provides you with the opportunity to address some of the most pressing sustainability challenges, by equipping you with advanced skills in the design of lightweight and composite structures.

You will develop expertise in analytical, experimental and numerical techniques to create structures that reduce fuel consumption and carbon emissions. By applying these skills across key industries such as aerospace, automotive, motorsport, marine, and renewable energy, you will play a vital role in shaping a sustainable future and advancing technologies that help achieve net zero goals.

Who is it for?

The Advanced Lightweight and Composite Structures MSc is suitable for graduates with engineering, science, applied science or related degrees, who are keen to pursue careers as design engineers, stress engineers, research and development engineers, numerical code developers, consultants and academic researchers.

Our students typically hold first degrees or equivalent in mathematics, physics, computing or an engineering discipline. We also welcome applications from candidates from other disciplines and mature applicants with alternative qualifications.

Your career

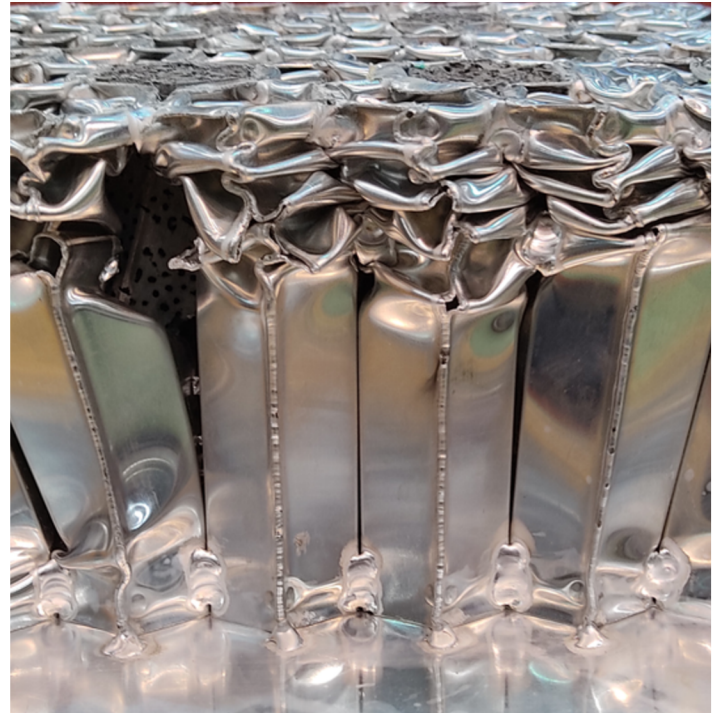
Industry-driven research makes our graduates some of the most desirable in the world for recruitment by companies competing in the structural engineering sector, which forms a large worldwide industry. Students who enrol on the Advanced Lightweight and Composite Structures MSc come from a variety of backgrounds. Many have specific careers in mind, such as working in automotive or aerospace disciplines (structural design or crash protection), materials development for defence applications, or working in the field of numerical code developments/consultancy. Others decide to continue their education through PhD studies available within the University.

Jobs that our students have gone into include:

- Wing Structure Repair Engineer.
- Mechanical Integrity Engineer.
- Composite Design Engineer.
- Project Engineer.
- Junior Structures Analyst.
- Structures Analysis Engineer.
- Research Fellow.

Companies that have recruited graduates of this course include:

- Airbus.
- Rolls-Royce Plc.
- Jaguar Land Rover.
- Scuderia Ferrari F1.
- McLaren.
- Red Bull Racing and Red Bull Technology.
- PLD Space.



Overview

Start date

October

Duration

One year

Qualification

MSc

Delivery

Taught modules 80 credits, group project 40 credits, individual research project 60 credits

Study type

Full-time

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 first or second class undergraduate degree with honours, as a minimum, or equivalent international qualification.
- Ideally applicants will have studied in mathematics, physics, computing or an engineering subject.
- Find information about equivalent qualifications in your country on our [International entry requirements page](#).

Fees

Please see 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

You will complete eight compulsory modules.

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.

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:

- **Advanced Composite Analysis and Impact.**
- **Thin-walled Structures.**
- **Finite Element Methods.**
- **Materials Characterisation and Failure Simulations.**
- **Structural Stability.**
- **Advanced Simulation for Impact.**
- **Crashworthiness.**
- **Design and Analysis of Composite Structures.**

"Attending a MSc in ALCS provided me with the essential, advanced and state-of-the-art thorough background of Composite Materials and Lightweight Structures, including the related software, while the projects of the course equipped me with highly competitive problem solving skills."

Pinelopi Mageira

PhD student, Technical University of Denmark, (Advanced Lightweight and Composite Structures MSc 2023)

Accreditation

This MSc award has been accredited by the Institute of Mechanical Engineers and Royal Aeronautical Society (RAeS) on behalf of the Engineering Council under licence from the UK regulator, the Engineering Council as meeting the requirements for Further Learning for registration as a Chartered Engineer. Please note that accreditation applies to the MSc award, PgDip and PgCert (if offered) do not meet in full the further learning requirements for registration as a Chartered Engineer. The accredited MSc will meet, in part, the exemplifying academic benchmark requirements for registration as a Chartered Engineer. Accredited MSc graduates who also have a BEng (Hons) accredited for CEng will be able to show that they have satisfied the educational base for CEng registration.



**Institution of
MECHANICAL
ENGINEERS**

ATAS clearance

This course requires Academic Technology Approval Scheme (ATAS) clearance.

ATAS is run by the UK Government's Foreign, Commonwealth and Development Office (FCDO) and applies to international students, except exempt nationalities, who need a visa to study in the UK. Further information can be found in our [Application guide](#).

For more information contact Admissions:

T: +01234 758082

[Enquiry form](#).

Visit campus for yourself and meet current students and our academics at our next Open Day:

www.cranfield.ac.uk/openday

August 2026

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.