



Structural Design option - MSc in Aerospace Vehicle Design

www.cranfield.ac.uk/StructuralDesign



This specialist option of the MSc Aerospace Vehicle Design provides you with an understanding of aircraft structures, airworthiness requirements, design standards, stress analysis, fatigue and fracture (damage tolerance) and fundamentals of aerodynamics and loading. Also covered is the selection of suitable materials, both metallic and composite.

Who is it for?

Manufacturers of modern aircraft are demanding more lightweight and more durable structures. Structural integrity is a major consideration of today's aircraft fleet. For an aircraft to economically achieve its design specification and satisfy airworthiness regulations, a number of structural challenges must be overcome. This course trains engineers to meet these challenges, and prepares them for careers in civil and military aviation. It is suitable if you have a background in aeronautical or mechanical engineering, or relevant industrial experience.

Your career

This Aerospace Vehicle Design option in Structural Design is valued and respected by employers worldwide. The applied nature of this course ensures that our graduates are ready to be of immediate use to their future employer and has provided sufficient breadth of understanding of multi-discipline design to position them for accelerated career progression.

Graduates from this option have gone on to pursue engineering careers in disciplines such as structural design, stress analysis or systems design. Many of our graduates occupy very senior positions in their organisations, making valuable contributions to the international aerospace industry. Student destinations have included BAE Systems, Airbus, Dassault and Rolls-Royce.

Why this course?

We have been at the forefront of postgraduate education in aerospace engineering since 1946. Aerospace Vehicle Design at Cranfield University was one of the original foundation courses of the College of Aeronautics.

You will have the opportunity to fly during a Student Experience Flight in our National Flying Laboratory Centre's (NFLC) light aircraft. This flight experience will complement your MSc studies, focussing on the effects of controls, aircraft stability and angle of attack. During the flight, you will have the opportunity to take control of the aircraft. Each experience is two to three hours in duration and includes a pre-flight safety briefing outlining the details of the manoeuvres to be flown, a flight of approximately one hour and a post-flight debrief.

Overview

Start date

September

Duration

Full-time MSc: One year

Qualification

MSc

Study type

Full-time

Structure

Taught modules 10%, group project 50%, individual research project 40%

Campus

Cranfield campus

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 upper second-class (2:1) undergraduate degree with honours, as a minimum, or equivalent international qualification.

Ideally, applicants will have studied in an engineering discipline.

Find information about equivalent qualifications in your country on our International entry requirements page.

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

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.

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

This option comprises nine compulsory modules and 10 optional modules. You are also required to complete a group design project and an individual research project. Delivered via a combination of structured lectures, industry guest lectures, computer-based workshops and private study.

A unique feature of the course is that we have four external examiners: two from industry who assess the group design project and two from academia who assess the individual research project.

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.

Design and Analysis of Composite Structures

Loading Actions

Detail Stressing

Reliability, Safety Assessment and Certification

Design for Manufacture and Operation

Finite Element Analysis

Initial Aircraft Design

Structural Stability

Fatigue, Fracture Mechanics and Damage Tolerance

Elective modules

Select seven from the list below to take as attendance-only modules

Design of Airframe Systems

Aircraft Aerodynamics

Computer Aided Design

Aerospace System Development and Life Cycle Model

Aircraft Performance

Aircraft Stability and Control

Aeroelasticity

Landing Gear Design

Aircraft Power Plant Installation

Flight Test Experience

"I chose to study Aerospace Vehicle Design MSc at Cranfield University as it was a unique course that would give me the opportunity to specialise in the design of aircraft. A highlight from my MSc would have to be the group design project and meeting new friends from all around the world. It made the entire journey a breeze, with a lot of support and many late nights. Once I have finished my MSc I will be starting new job at Airbus."

Everard Leitao

current student, Aerospace Vehicle Design MSc

Accreditation

The Aerospace Vehicle Design MSc is accredited by Mechanical Engineers (IMechE) and the Royal Aeronautical Society (RAeS) on behalf of the Engineering Council as meeting the requirements for further learning for registration as a Chartered Engineer (CEng). Candidates must hold a CEng accredited BEng/BSc (Hons) undergraduate first degree to show that they have satisfied the educational base for CEng registration.



For more information contact our Admissions Team:
T: +44 (0)1234 758082

Visit campus for yourself and meet current students and our academics at our next Open Day:
www.cranfield.ac.uk/opensday

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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.