



Aerospace Dynamics

MSc/ PgCert

This course provides both fundamental and applied knowledge to understand airflows, vehicle dynamics and control and methods for computational modelling. It will provide you with practical experience in the measurement, analysis, modelling and simulation of airflows and aerial vehicles. You have the choice of two specialist options which you chose once you commence your studies: Flight Dynamics or Aerodynamics.

Graduates of this course are eligible to join the Cranfield College of Aeronautics Alumni Association (CCAAA), an active community which holds a number of networking and social events throughout the year.

Course structure

There are three elements to this course - a taught component, a group flight test and an individual research project.

Individual project

The individual research project allows you to delve deeper into an area of specific interest. It is very common for industrial partners to put forward real world problems or areas of development as potential research project topics. The individual research project component takes place between April and August.

Group project

All students undertake the Group Flight Test Report during October to December. This involves a series of flight tests in the National Flying Laboratory Centre Jetstream which are undertaken, reported and presented as a group exercise.

Future career

A wide range of career paths within aerospace and the military seek graduates with these skills. Increasingly, these are in demand in other areas including automotive, environmental, energy and medicine. Recent graduates have found positions in the aerospace, automotive and related sectors. Employers include; Airbus; BAE Systems; Onera; QinetiQ; Rolls-Royce plc; Snecma; Thales; Selex ES; MBDA; Jaguar Land Rover; Tata; and Triumph Motorcycles.

Example modules

The taught programme consists of compulsory and elective modules.

Compulsory:

- Flight Experimental Methods (Group Flight Test Report)
- Individual Research Project.

Elective:

- Aerospace Navigation and Sensors,
- Air Vehicle Modelling and Simulation,
- CFD for Aerospace,
- Compressible Flows,
- Control Systems,
- Experimental Aerodynamics,
- Flight Dynamics Principles,
- Flying Qualities and Flight Control,
- Fundamentals of Aircraft System Identification,
- Fundamentals of Rotorcraft Performance, Stability and Control,
- Introduction to CFD,
- Introduction to Transonic Flow,
- Launch and Re-Entry Aerodynamics,
- Modelling of Dynamic Systems,
- Multivariable Control for Aerospace Applications,
- Technology for Sustainable Aviation,
- Viscous Flow,
- Wing Design.

Duration:

MSc: Full-time - one year, part-time - up to three years.

Start date:

October.

Location:

Cranfield Campus.

Entry requirements:

A first or second class UK Honours degree in a relevant subject or an equivalent international qualification or relevant work experience.

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/aerodynamics