Aerospace Vehicle Design - Avionic Systems Design option

MSc

With increasing traffic density of civil aircraft, and the need for increased military precision in conflicts around the world, safer aircraft operations require more sophisticated avionic systems. This specialist option of the MSc Aerospace Vehicle Design provides you with an understanding of avionic systems design, analysis, development, test and airframe integration. This course provides a taught engineering programme with a focus on the technical, business and management aspects of aircraft design in the civil and military aerospace sectors. The Avionic Systems Design option aims to provide an understanding of avionic systems design, analysis, development, test and airframe integration. This includes a detailed look at robust and fault-tolerant flight control, advanced 4D flight management and RNP navigation, self-separation and collision avoidance and advanced digital data communications systems, as well as pilot-friendly and intelligent cockpit displays and situation awareness. Aerospace Vehicle Design at Cranfield University was one of the original foundation courses of the College of Aeronautics. Graduates of this course are eligible to join the Cranfield College of Aeronautics Alumni Association (CCAAA), an active community which hold a number of networking and social events throughout the year.

Course structure

The Avionic Systems Design option consists of a taught component, a group design project and an individual research project.

Individual project

The individual research project aims to provide the training necessary for you to apply knowledge from the taught element to research. The project may be drawn from a range of topics related to the course, suggested by staff, the sponsoring organisation or related to your own interests.

Group project

The extensive group design project is a distinctive and unique feature of this course. This teamwork project takes place over six months, usually between October and March; and recreates a virtual industrial environment bringing together students with various experience levels and different nationalities into one integrated design team.

Future career

The course 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 multidiscipline design to position them for accelerated career progression. Graduates from this option have gone onto pursue careers such as avionics design engineers or avionics systems engineers. Many of our former graduates occupy very senior positions in their organisations, making valuable contributions to the international aerospace industry. Typical student destinations include BAE Systems, Airbus, Dassault and Rolls-Royce plc.

Example modules

Compulsory:

- Aerospace Software Engineering and ADA,
- Avionics Air Traffic Control,
- Aircraft Performance,
- Aircraft Stability and Control,
- Avionics Data Networking, Hardware Integration and Testing,
- Cockpit Environment,
- Control Systems,
- Design of Airframe Systems,
- Fault Tolerant Avionics Design,
- Flight Experience,
- Inertial and Satellite Navigation Systems,
- Integrated Navigation Systems,
- Modelling of Dynamic Systems,
- Radio Systems.

Elective

- Aerospace System Development and Life Cycle Model,
- Aircraft Aerodynamics,
- Aircraft Power Plant Installation,
- Computer Aided Design (CAD),
- Design for Manufacture and Operation,
- Initial Aircraft Design,
- Integrated Vehicle Health Management,
- Landing Gear Design,
- Reliability, Safety Assessment and Certification.

Duration:
MSc: Full-time - one year.

Start date:
October or March.

Location:
Cranfield Campus.

Entry requirements:
A first or second class UK Honours degree (or equivalent) in 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/courses/taught/avd-option-avionic-systems-design