



Advanced Air Mobility Systems MSc

www.cranfield.ac.uk/AdvAirMobility



The emergence of transformative automated and autonomous technology in both crewed and uncrewed air traffic management systems, including new, sustainable and intelligent aerial platforms, to transport people and goods, represents the next cornerstone in the aerospace industry's on-going evolution.

This is driven by market and industry trends such as the digitalisation of Air Traffic Management (ATM), the explosion of Uncrewed Aerial Systems (UAS) applications in recent years and their integration into crewed aviation airspace. This is creating a significant demand for talented graduates who can help unlock the full potential of Advanced Air Mobility (AAM) applications.

The Advanced Air Mobility Systems MSc is designed to equip you with the skills required to pursue a successful career in transforming the aviation industry, applying the knowledge learned to introduce new automated and autonomous solutions, to enable a safe, orderly and expeditious integrated airspace, where uncrewed aerial systems operate alongside crewed aircraft.

Who is it for?

This course provides engineering, physics, computing or mathematics graduates with advanced skills which can be applied to aviation, drone, security, defence and aerospace industries. We also welcome students with industry experience and offer the course on a part-time basis for those looking to work whilst continuing in employment.

Your career

The industry-led education that you will receive on this MSc will place you among the most desirable candidates for recruitment into global enterprises through to smaller innovative start-ups looking for the brightest talent. Industrial contact may take place even from the individual research project that enables familiarisation with our industry advisory board.

Graduates from the MSc have gone into roles including:

- Autonomous Systems Engineer,
- Design engineer,
- Research Assistant in Advanced Air Mobility,
- Applied Vision Control (KTP Associate).

As a graduate from this course, you will be equipped with the advanced skills which could be applied to the aviation, air traffic, air transport, security, defence and aerospace industries. This approach offers you a wide range of career choices in industry, and some decide to continue their education through PhD studies available within Cranfield University or elsewhere.

Overview

Start date

October

Duration

Full-time one year; part-time up to three years

Qualification

MSc

Study type

Full-time / Part-time

Structure

Taught modules 40%, group project 20% (or dissertation for part-time students), individual 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 lower second-class (2:2) undergraduate degree with honours, as a minimum, or equivalent international qualification.

Ideally, applicants will have studied engineering, engineering science, physics, applied mathematics, or other appropriate applied science subjects.

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

The MSc course consists of three weighted components, taught modules, an individual research project and a group project. The taught course element includes eight taught compulsory modules, generally delivered from October to March. The eight modules cover the fundamentals of Air Traffic Management (ATM) and communications systems and progresses to the core subjects of AI for autonomous systems and Uncrewed Traffic Management (UTM).

The taught part of the course is followed by a group design project (GDP) and individual research projects (IRPs). The GDP enables students to work as part of a team, develop project planning and management skills and communications abilities, to design, implement, validate and test an advanced air mobility system component, applying the knowledge acquired in the taught modules and integrate the various methods learned.

Students are also supported in their learning and personal development through participation in: industry seminars, group poster sessions, group discussions, group presentations, video demonstrations, case studies, laboratory experiments, coursework and project work. Students will receive hands-on experience accessing equipment and facilities within our Digital Aviation research and Technology Centre and Aerospace Integration Research Centre.

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.

Introduction to Advanced Air Mobility

Statistical Learning Methods

Air Traffic Management Systems

Aerial Communications Systems

Uncrewed Traffic Management

Data Analytics and Visualisation

Artificial Intelligence for Autonomous Systems

Guidance and Navigation for Autonomous Systems

"In the UK, and wider in the EU, we perceive a shortage of qualified people trained in Advanced Air Mobility (AAM), specifically in autonomy and automation in ATM, UTM and UAM. In particular, we would need not only engineers but also software and application developers with a deep understanding of the AAM subject areas described above, tailoring them to tackle ambitious industrial problems of enabling ubiquitous UAS operations and their seamless integration into conventional manned aviation."

Malin Svahn

Director UK Innovation Hub, Saab Technologies UK Ltd

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/openday

January 2025

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.