

Master Aerospace Engineering Control and Operations (C&O)

MSc Programme



Our programme provides a fundamental background in modern flight control, human machine systems, air traffic management systems, noise and climate effects, safety and air transport operations research.

Degree	Master of Science
Starts	September
Type	Full-time
Credits	120 ECTS, 24 months
Language	English
Application deadline	
- Dutch degree	May 1 st
- Non-Dutch degree	
• EU/EFTA	April 1 st
• Non-EU/EFTA	January 15 th
Scholarships	tudelft.nl/scholarships

Control and Operations is focused on the through-life operations associated with aerospace industry. It studies airports, the avionics systems of individual aircraft, flight control and flight deck design, airline operations and support (maintenance), air traffic control and air traffic management, as well as operations and noise and emissions associated with air transport as a whole.

By selecting one of the three C&O profiles, the student chooses an educational programme that contains a particular balance of these elements. Theory and practice are combined in exciting and challenging fields of study for talented and

ambitious students. You will build experience through courses, practicals, a directed internship and a supervised final research project. The C&O profiles incorporate a research project that builds on the learning gained from the taught modules. C&O research projects focus on academic quality, the contribution to the body of knowledge in the field and feature high societal and industrial impact.

Profiles

Students can graduate within one of three thematic profiles, which determines the courses followed in the first year of the MSc.

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FIRST YEAR	SECOND YEAR
CORE COURSES (≥ 18 EC)	LITERATURE STUDY (12 EC)
PROFILE COURSES (≥ 13 EC)	RESEARCH METHODOLOGIES (2 EC)
ELECTIVE COURSES (± 15 EC)	MASTER THESIS PROJECT (42 EC)
INTERNSHIP (18 EC)	

Control and Simulation (C&S)

The Control and Simulation section strives to improve the safety of aerospace operations through the design and experimental evaluation of automatic flight control systems, human-machine systems, sense & avoid and air traffic management systems. By modelling the dynamic behaviour of flying vehicles, C&S explores the entire scope of control options, ranging from manual towards fully autonomous control. The C&S section houses the Micro-Air Vehicle laboratory, the research flight simulator SIMONA and the Cessna Citation laboratory aircraft. In these laboratories many of the theoretical innovations are experimentally tested in real or simulated flight

Aircraft Noise and Climate Effects (ANCE)

The section Aircraft Noise and Climate Effects (ANCE) studies the environmental impact of aviation through developing accurate models for the prediction of aircraft noise, emissions and climate effects. Aircraft noise continues to be a very serious source of disturbance to the public. Current contribution of aircraft emissions to global warming is estimated to lie in between 1.5 and 5.5%, but is predicted to increase significantly. In addition, the level of scientific understanding of the climate effects of aviation is low. The vision of ANCE is that for the growth of aviation (5% per year) to be sustainable with a decreasing impact on the environment, more accurate modelling of the impact due to noise and emissions is required. Interesting about ANCE is that its profile courses are limited, providing you more freedom to explore other track topics and electives, while being fully equipped to respond to future needs to make aircraft operations more environmentally friendly.

Air Transport Operations (ATO)

The section Air Transport and Operations (ATO) studies the efficiency, safety and resilience of aerospace operations through mathematical models and simulations that analyse, explain, predict and optimise the performance of air transport operations and processes. These include, amongst others: aircraft maintenance schedules, network and fleet planning, airport and airline operations and safety and risk analysis of large scale air traffic operations.

Career Prospects

The job perspectives for C&O students continue to be extremely bright, and many students have several job offers before they graduate. The versatile character of the MSc track leads to high-quality graduates with a great variety of where they start their societal career. Examples are large multinational industries (Boeing, Airbus/EADS, Eurocopter, BMW, Mercedes, Shell, ASML, AirFrance/KLM), established research laboratories (NLR, DLR, Eurocontrol, Max Planck, NASA), and consultancy and finance (McKinsey, Bain, BCG, ING, Deutsche Bank). A considerable number of students go and work directly in air transport, entering air traffic control, or even become pilots. Finally, a significant number of our students enter academic life and become a PhD student at high-ranking universities such as MIT and Georgia Tech.



21st
QS World Ranking (faculty)



1.263
MSc students



43%
international MSc students



100%
English-language programme

Career Perspective



79%
job within 3 months



40%
job in Aerospace sector



60%
job in other sectors such as
Engineering, Management,
Consultancy, etc.