

Master Aerospace Engineering Space

MSc Programme



The Space MSc track is offered to graduates that are looking for an academic programme that prepares them well for an exciting career in the international space sector. The master curriculum covers the full life cycle of space missions, from conceptual design to implementation and utilisation. This track focuses on space engineering and space exploration.

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

The Space MSc track is offered to graduates that are looking for an academic programme that prepares them well for an exciting career in the international space sector. The master curriculum covers the full life cycle of space missions, from conceptual design to implementation and utilisation. This track focuses on space engineering, spaceflight dynamics and planetary exploration.

Astronautics is quite different from aeronautics because each space mission is uniquely designed to perform a specific task related to its operational or scientific objectives. This requires an “end-to-end” approach where the objectives drive the design of the mission and data processing is an integral part of the mission.

Within this track, you are offered opportunities to participate in ongoing engineering and scientific projects. You will develop skills to carry out an engineering or research project independently and individually. This will be achieved by a highly focused MSc thesis project under supervision of a staff member. In addition, you will acquire broad knowledge in the field of space and its applications. These objectives will make you a well-rounded aerospace engineer with generally applicable engineering and research skills and with a clear focus area.

Profiles

The track consists of three profiles: Space Engineering, Spaceflight Dynamics and Planetary Exploration. Each profile has a

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FIRST YEAR	SECOND YEAR
ETHICS COURSE	INTERNSHIP OR J.I.PROJECT
CORE + PROFILE COURSES	MASTER THESIS PROJECT
PROFILE ELECTIVES	
FLEX ELECTIVES	

different focus, but they are also interrelated. On the one hand you will become an all-round space professional, but on the other hand you will acquire generic skills that enable you to pursue a career in a broad spectrum of industrial and research environments.

Space Engineering

Space Engineering is the field of engineering concerned with the end-to-end engineering of space systems and system components. Areas of interest include the engineering of advanced/innovative space missions, space vehicles and instruments, sensors, actuators, mechanisms, and thrusters. Applying state-of-the-art technologies and providing innovative solutions is daily business. In this profile you will learn how to engineer complex space systems on their constituting elements, subsystems, instruments and components using a systematic approach. You will gain expertise on every phase of a spacecraft system's development including design, integration, verification/ testing and operations. You will also learn about management aspects of engineering including scheduling and planning, and about working in multi-disciplinary design teams to formulate spacecraft system solutions using a concurrent engineering approach. The knowledge that you will gain can also be applied to other complex technical systems.

Spaceflight Dynamics

This profile addresses many aspects of satellite missions: from concept to application, and from launch to end-of-life. It aims at delivering skilled space mission engineers and scientists. You will learn about techniques and methods to track, predict, optimize and very precisely compute satellite trajectories, both for spacecraft around and beyond Earth and for launch and (re-)entry vehicles. Space debris is another main research element. You will also learn about methods

and tools to exploit satellites for a wide range of scientific and societally relevant issues and applications, including monitoring all kinds of aspects that are related to Earth's climate such as sea level and the ice caps. This profile is generally theoretical nature.

Planetary Exploration

The Planetary Exploration profile is focussed on objects in the Solar System and beyond: planets, moons and asteroids. The emphasis is on science, and its role in driving new space missions and in generating new knowledge from measurements of past and current space missions. Topics that are investigated in this profile are the structure, environment, and dynamics of the objects mentioned here. Your studies can include computer simulations based on analytical or numerical models but also on a variety of observations: in-situ, remote, and from deep space tracking. Therefore, instrumentation is a key element in this profile. As with the Spaceflight Dynamics profile, this profile has a strong theoretical component.

Career Prospects

The increasing dependence of business on systems engineering technologies continues to increase the demand for highly qualified aerospace engineers.

Therefore, the prospects of finding a job with an MSc degree in aerospace engineering and a specialization "Space" are typically very good. Many of our graduates find work in leading (aero)space industries and institutes (Dutch and international), such as ADSN, NLR, TNO, SRON, ISIS, ESA, NASA and many others. Other graduates remain in the academic world by doing a PhD, start their own company, or find employment in other sectors (technical consulting companies, energy companies, banking, etcetera).



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.