Imagine that you could design the aircraft of the future – one suitable for short excursions into space.

TU Delft is home to one of the leading academic programmes in aerospace technology in all of Europe. The Faculty of Aerospace Engineering draws upon a long history of technical excellence, innovation and teaching performance, preparing graduates to contribute to this dynamic sector with technically imaginative and commercially viable solutions. In preparing engineers for a truly global sector, one of the goals of the programme is to train professionals to be resourceful problem solvers, who are capable of collaborating with colleagues across cultural divides.

In the MSc programme in Aerospace Engineering, you will have abundant opportunities for working on projects and internships across the globe, taking advantage of established relationships with Schiphol Airport, the European Space Agency, KLM, Airbus and other aerospace industries and research institutes. You will also have the option of working as a team member in international competitions in extra-curricular activities. Teams of TU Delft students recently produced the fastest human-powered submarine, as well as Nuna 8, the solar-powered car that won the 2015 edition of the World Solar Challenge.

At TU Delft, you will obtain hands-on experience whilst working in test and laboratory facilities that are unsurpassed in Europe.

Our facilities include low-speed and highspeed (up to Mach 11) wind tunnels, GPS measurement stations, the Structures and Materials Laboratory, the SIMONA research flight simulator, a Cessna Citation-II flying laboratory, a collection of large and small aircraft and spacecraft parts, the Delft Ground Station for satellite communications and a clean room for research and training on our own university satellites.

Programme
The complex multidisciplinary challenges in our society in general, and in Aerospace Engineering in particular, require outstanding engineers who understand and can relate to specialists from other disciplines. Industry refers to these people as “T-shaped professionals”: deep problem solvers in science, management who are capable of interacting with and understanding specialists from a wide range of disciplines and functional areas. T-shaped professionals have enhanced,
socalled 21st-century skills and are talented in solving problems, critical thinking, interpersonal skills and the ability to perform complex work. The “T-shape” framework is endorsed by the Industrial Board for Aerospace Engineering.

**MSc tracks**

**Aerospace Structures & Materials**
No structure is indestructible. How do you design something that you don’t want to fail while accepting that it eventually will? The MSc track in Aerospace Structures & Materials aims to equip students with the necessary knowledge and practical skills necessary to tackle this challenge in an industrial or research environment. Students will be exposed to a broad range of courses examining this entire process from the synthesis of material behavior and required structural function in the design combined with the compromises of manufacturability whilst continually assessing the impact of usage on the durability and longevity of the final structure.

**Flight Performance and Propulsion**
The MSc track in Flight Performance and Propulsion integrates the knowledge and expertise of various aeronautical - sub-disciplines into conceptual aircraft designs and subsystems that can meet the stringent requirements of the future. The objective of this track is to help you become a competent engineer and designer, with specific knowledge and competencies in contemporary methods in aircraft and propulsion system design.

**Aerodynamics and Wind Energy**
The MSc track in Aerodynamics and Wind Energy combines fundamental research in flow measurement and analysis with applications in transport and sustainable energy conversion. This track is interesting to students who wish to design new numerical discretisations, develop state-of-the-art experimental and data-processing methods, study the physics and control of complex flows, or apply these concepts in the design of aircraft, spacecraft, and wind-power systems.

**Control and Operations**
The MSc track in Control and Operations is focused on the through-life operations associated with aerospace industry. It addresses the avionics systems of individual aircraft, flight control and flight deck design, the environmental effects of aviation, i.e., noise and climate, airline operations and support, air traffic control and safety, airports and the operations associated with air transport as a whole.

**Space Flight**
his track focuses on astronautics and space applications. It covers a broad field, ranging from spacecraft engineering, space systems engineering, orbital mechanics, instrumentation, launchers and propulsion to mission analysis, planetary exploration and the scientific interpretation of satellite observation data. Within this track, you will be offered opportunities to participate in ongoing engineering and scientific projects within the participating chairs.

**Career prospects**
Graduates with an MSc in Aerospace Engineering have outstanding career opportunities; 98% find full-time work within six months. Of these graduates, 40% take up positions in firms in the aeronautics and astronautics sector, such as:

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**Curriculum Aerospace Engineering**
The generic outline of the tracks in MSc Aerospace Engineering is shown below. A track is a general field of Aerospace Engineering (discipline) and a profile is a refined direction within that field of expertise (subdiscipline). The MSc has a common outline for all tracks: each comprises core, profile and elective courses, a literature study, an internship and the MSc thesis, all with a fixed study load.

<table>
<thead>
<tr>
<th>First year</th>
<th>Second year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core Courses</strong> (±15 EC)</td>
<td>18 EC</td>
</tr>
<tr>
<td>Incl. Ethics for Aerospace Engineering (3 EC)</td>
<td>Internship</td>
</tr>
<tr>
<td><strong>Profile Courses</strong> (±17 EC)</td>
<td>60 EC</td>
</tr>
<tr>
<td>No choice</td>
<td>42 EC</td>
</tr>
<tr>
<td><strong>Literature Study</strong> (12 EC)</td>
<td>MSc Thesis project</td>
</tr>
<tr>
<td><strong>Research methodologies</strong> (2 EC)</td>
<td></td>
</tr>
<tr>
<td><strong>Elective Courses</strong> (20 or 14 EC)</td>
<td></td>
</tr>
<tr>
<td>Choice of courses in consultation with Profile Coordinator</td>
<td></td>
</tr>
</tbody>
</table>

1 EC = 28 hours of study, according to the European Credit Transfer System (ECTS)
One academic year = 60 EC
Total number of credits in the MSc programme = 120 ECTS
For more information on all courses, please visit: [www.studyguide.tudelft.nl](http://www.studyguide.tudelft.nl)
Just like my fellow MSc students my interest for technology was triggered by passion and only augmented throughout my BSc years. During this intensive three-year programme the Faculty of Aerospace Engineering at Delft University of Technology helped me develop on much more domains than engineering only. International exchanges and student projects therefore helped me in orienting towards a specific master profile. I wanted to launch myself in an ambitious study that required high-end technologies and challenging working environments, while being part of a one-of-a-kind community. The Space Flight MSc. was able to fulfil all these requirements and much more. Since I was interested in discovering the unknown I opted for the Space Exploration profile of this Master track. It offered me more insights in what is out “there”, combined with the usage of modern software packages that helped me narrow down the gap between theory and reality. Following any Master programme at our faculty is made even more interesting due to possibility of picking extra courses in which you want to deepen yourself. Since I’m very interested in the implementation of satellite dynamics into the actual spacecraft flight computer I opted for courses such as satellite data processing and satellite attitude determination and control, which helped me to become a “master” in this field. I’m currently finishing my courses which will prepare myself for the internship and thesis next year. Here I hope to get a better feel of what is the actual difference between textbook material and real-life engineering challenges. These two years full of experiences should provide me with all the tools in my toolbox that will ensure the next giant leap towards the space industry. A big step I’m looking forward to take.

Facilities
Practical exercises form an essential part of testing and verifying theories. The faculty has a complete range of high-tech facilities at the disposal of students and researchers.

Cessna Citation II jet aircraft The Cessna is used as a flying laboratory and it is equipped to perform both student practicals and in-depth scientific research in the European airspace.

SIMONA The flight simulator SIMONA (International Research Institute for Simulation, Motion and Navigation) is used to study man-machine interactions. It can simulate the motion of airplanes, helicopters, heavy and light vehicles, as well as spaceplanes.

Wind tunnels Eight high-speed and low-speed wind tunnels are used to verify aerodynamic theory and observe physical phenomena. Experiments can be performed at speeds ranging from subsonic (10-120 m/s) to hypersonic (up to Mach 11).

Structures and Materials Laboratory This laboratory contains a variety of testing equipment, including fatigue-testing machines, low-speed and high-speed impact testers, production equipment (e.g. a filament-winding machine) and a chemistry/physics section equipped with microscopes and an autoclave. The laboratory is used for several kinds of materials research, including experiments with lightweight structures.

Hangar The faculty hangar contains a collection of aircraft and spacecraft parts, including cockpits, wings, advanced sensors and rocket components. It also houses an F16, a helicopter, and a test model of ENVISAT, the largest European satellite to date. In this facility, students gain a greater understanding of design and performance considerations, with the ultimate goal of generating innovative ideas and solutions.
Clean Room
The clean room has a variety of equipment for integration and testing of our university Delfi nanosatellites. With its low level of environmental pollutants, our clean room conforms to ISO Class 5: 100,000 particles per m³. Particles, temperature and humidity are monitored and regulated continuously (the measurements are saved). Pressure is monitored during operations of the low-thrust rocket test stand. The first Dutch satellites built by students, Delfi C3 and Delfi n3Xt, were created here.

Micro Air Vehicle laboratory (MAV-Lab)
The development of MAVs requires knowledge from many areas, including electronics, mechanics, aerodynamics, navigation and control. At TU Delft, this knowledge has been combined in the Micro Air Vehicle laboratory: the MAV-lab.

Additional facilities
The faculty also has a unique satellite database and a kite-testing laboratory for experiments involving innovative ideas in sustainable aerospace engineering and technology.

Admission requirements and application procedures
BSc degree from a Dutch university
In most cases, if you hold a BSc degree and the Master’s degree programme is closely related to your Bachelor’s degree programme, you will be admitted directly into the programme. Any shortcomings in knowledge of relevant areas resulting from differences in BSc programmes are dealt with in the elective space. The courses to be taken are selected by the MSc track co-ordinator, the profile adviser or the supervisor of a particular theme, in conjunction with the student. Responsibility for final approval of the individual programme rests with the MSc track co-ordinator.

As far as possible, the track and profile programmes have been tailored to facilitate two entry moments without requiring a course to be taught twice, i.e. 1 September and 1 February. To explore the Master’s degree programmes for which you will be qualified upon completion of your Bachelor’s degree from a Dutch university, go to www.doorstroommatrix.nl

The application procedure is conducted through Studielink: tudelft.studielink.nl

Degree from a Dutch university of applied sciences (Dutch HBO)
A Bachelor’s degree from a university of applied sciences does not qualify you for direct admission to the MSc Aerospace Engineering. In order to start a Master’s degree programme, you must first complete a supplementary programme in order to bring your knowledge to the required level. You can do this by completing a bridging programme of approximately 50 EC after receiving your degree in applied sciences. This programme lasts one year. On www.doorstroommatrix.nl you can see if you qualify for admission to the bridging programme with your degree in applied sciences. Entrance requirements for mathematics and English apply to all participants of the bridging programme. For additional details, see www.hbodoorstroom.tudelft.nl

International degree
To be considered for admission to any MSc Programme, you must meet the general admission requirements of TU Delft.

1. A BSc degree (or proof that you have nearly completed a BSc programme) in a field closely related to the MSc programme
2. A BSc Cumulative Grade Point Average (CGPA) of at least 75% of the scale maximum
3. Proof of English language proficiency. A TOEFL score of at least 90 (internet-based test) OR An overall Band score of at least 6.5 on the IELTS (academic version)
4. Check further required tests at www.admissions.tudelft.nl

The application period for international students starts in September and closes at April 1. To start an MSc application, complete the online application and pay the non-refundable application fee of € 100. Then send hard copies of the application documents to the TU Delft International Office. Please note that you should apply early if you wish to apply for a scholarship as well. For additional information about the application procedure, go to admissions.tudelft.nl

The application process is conducted through Studielink: tudelft.studielink.nl
For all details, complete requirements, deadlines and contact information, please visit the webpage: www.ae.msc.tudelft.nl

For further information
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