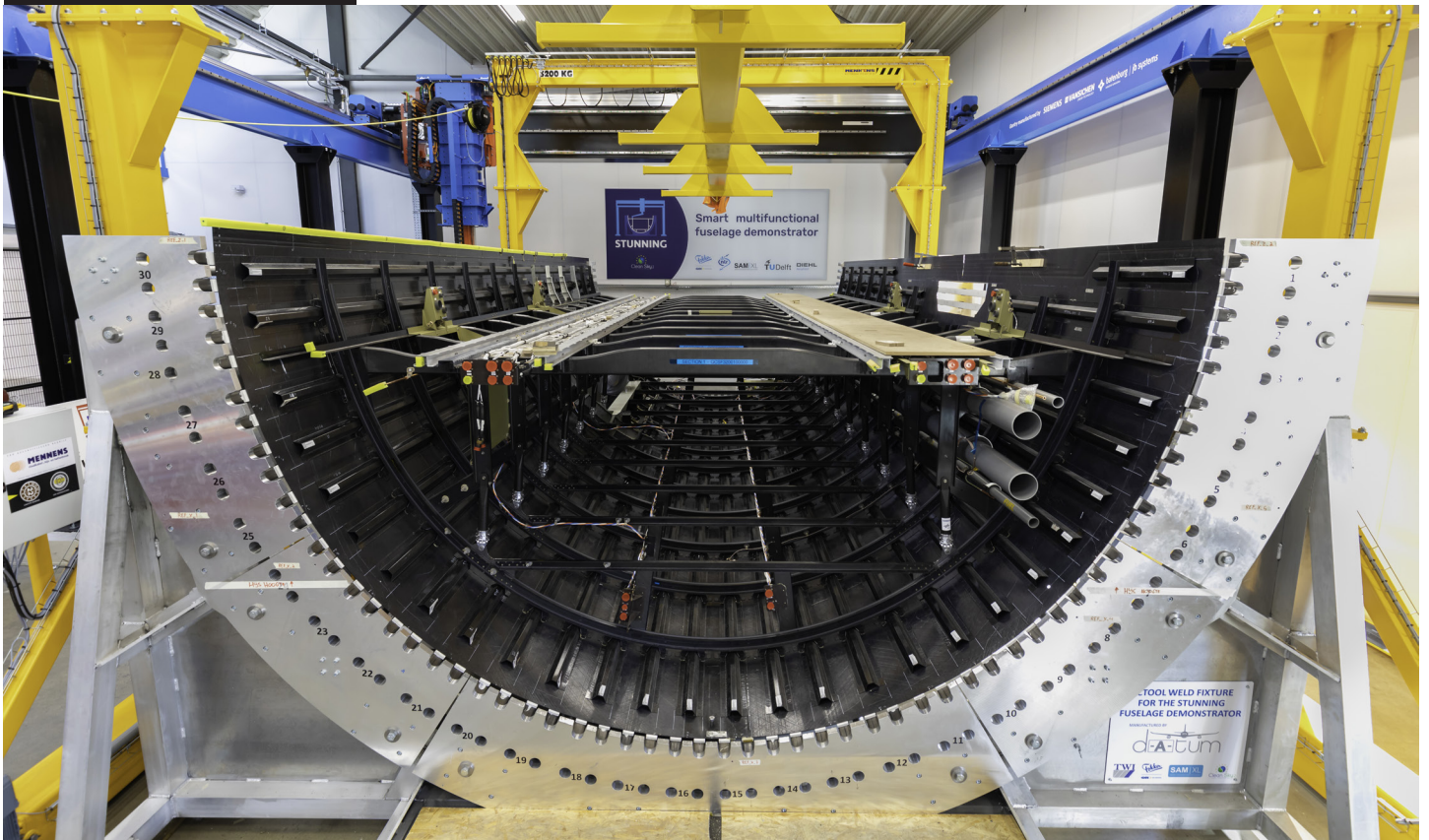


# Master Aerospace Engineering Aerospace Structures and Materials (ASM)

## MSc Programme



No structure is indestructible. Time, environment, repeated use, and misuse all take their toll on everyday structures, bringing them closer to failure. This is no comforting thought when walking onto an airplane, but it is a reality that structural designers must face:

“How do you design something that you do not want to fail while accepting it eventually will?”  
The answer is: very carefully.

<b>Degree</b>	Master of Science
<b>Starts</b>	September
<b>Type</b>	Full-time
<b>Credits</b>	120 ECTS, 24 months
<b>Language</b>	English
<b>Application deadline</b>	
- Dutch degree	May 1 <sup>st</sup>
- Non-Dutch degree	
• EU/EFTA	April 1 <sup>st</sup>
• Non-EU/EFTA	January 15 <sup>th</sup>
<b>Scholarships</b>	<a href="http://tudelft.nl/scholarships">tudelft.nl/scholarships</a>

The challenges structural engineers are faced with are as follows: First, they must understand the raw materials and the level of engineering already applied in their creation. Second, they need to synthesize material behaviour and required structural function into a working design. Third, compromises in the working design need to be made to address manufacturability. Finally, all of this must be completed while continually assessing the impact of usage on the durability and longevity of the final structure.

The Aerospace Structures and Materials (ASM) MSc track aims to equip students with the necessary knowledge and practical skills necessary to tackle this challenge in an industrial

or research environment. From an educational standpoint, students will be exposed to a broad range of courses examining this entire process in the context of the design, manufacturing, and analysis of a composite aircraft wing. This will provide the foundation for subsequent specialisation in one of four thematic profiles.

### Profiles

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

# Master Aerospace Engineering Aerospace Structures and Materials (ASM)

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

## Materials and Manufacturing

This profile is for students who are interested in developing new high-performing materials from micro to macro level and advanced manufacturing technologies for aerospace applications, ranging from designing materials at a microscopic level to applying novel manufacturing methods for the creation of complex structures with enhanced durability and functionality.

## Design and Safety of Structures

This profile is for students who plan to become structural designers or stress engineers, or who are interested in creating innovative and robust lightweight structures that combine accurate computational methods to predict stresses and advanced design techniques and optimization methods to outperform the existing aerospace structures.

## Structures for Space

This profile is for students who want to join the rapidly growing space sector as a structural engineer in the design, analysis and verification of the next generation of spacecraft and launcher structures.

Each thematic profile is closely related to the research themes within the department and is supervised by experts in their field. You can select the theme of their choice during the first period of your MSc programme.

## Thesis Projects

Thesis projects can be carried out with any of the research groups within the ASM department, regardless of the thematic profile selected by the student. Additionally, numerous opportunities exist to carry out research within industry under the close supervision of an ASM staff member. After completing the MSc track Aerospace Structures & Materials you will be able to:

- Develop design requirements for materials and structures.
- Design a lightweight structure and explain the reasoning and physics behind the design.
- Design a material suitable for aerospace application and explain the reasoning and physics behind the design.
- Analyse a structural design using Finite Element Methods.
- Explain the manufacturing processes and their applications.
- Select suitable manufacturing processes.
- Manufacture a prototype.
- Explain and predict how a design will perform over its lifetime and explain how the performance can be monitored.

The ASM Track is committed to making the MSc experience a memorable one. In addition to offering a world-class education many opportunities exist for students to expand their horizons through industry involvement, visits and guest lectures. Our students have organized themselves into their own ASM student society, 'Enlightness' which organizes lunch lectures, company visits, drinks and the annual ASM career event.

## Career Prospects

Graduates from the ASM track are in high demand. Many find jobs even before they graduate go on to work both within the field of Aerospace as well as further afield. Many go on to work at Airbus and their many suppliers and contractors, but also in the automotive industry at Mercedes, BMW and McLaren. Other students have become inspired by their work and start their own company or use their gained intellectual ability in other fields such as consultancy and finance. Finally, many choose to stay within the world of science and pursue a PhD degree either at TU Delft or as far a field as the United Kingdom or the USA.



21<sup>st</sup>  
QS World Ranking (faculty)



1.371  
MSc students



51%  
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.