

# Marine Technology

## MSc Programme



Large cargo ships travel the oceans every day, connecting people from all over the world. But 400m long cargo vessels enduring rough seas are not the only engineering feat out at sea. Designing novel ships that install very large offshore wind turbines is a huge challenge as well; and that's just one example. Marine Technology uniquely studies (technical) aspects of vessels; giving future engineers the scientific knowledge and skills to handle challenges in the design, construction and operation of ships.

<b>Degree</b>	Master of Science in Marine Technology
<b>Starts</b>	September
<b>Credits</b>	120 ECTS, 24 months
<b>Language</b>	English
<b>Application deadline</b>	April 1st: international students July 1st: Dutch degree
<b>Tuition fee</b>	€ 18.750 (non EU) € 2.083 (EU)
<b>Scholarships</b>	<a href="https://www.tudelft.nl/scholarships">scholarships.tudelft.nl</a>

### Programme

Marine Technology students develop the scientific skills to perform in-depth ship-related research and/or integrate different relevant knowledge domains into a successful ship design. The programme provides a solid base for working in the maritime industry as well as in maritime research institutes or the university. Graduates improve not only the ships (and other maritime crafts), but also the processes used to design, build or operate these vessels. They either work as maritime expert or as integrator in mixed, multidisciplinary teams. The required attitude and knowledge are developed in a challenging and personally tailored master

programme. Next to this the master has an international orientation, voiced by good possibilities to do a part of the second year abroad. A worthwhile experience in this time of globalisation. An active study association (S.G. William Froude) provides amongst others lunch lectures, excursions to industry and feedback opportunities with respect to educational matters.

### Focus areas

The Master's programme Marine Technology offers five specialisations: Maritime Operations and Management, Ship Design, Marine Engineering, Ship Hydromechanics and Ship

First Year				Second Year	
5 ECTS	Motions & Loading of Structures in Waves	25 ECTS	Star-electives (specialisation)	15 ECTS	Free electives / Individual Research Assignment /abroad
5 ECTS	Fundamentals of Marine Engineering	7 ECTS	Free electives	10 ECTS	Literature Study
5 ECTS	Torsion and Shear in Marine Structures	3 ECTS	Ethics course (select one)	35 ECTS	Master Thesis
5 ECTS	Design of Complex Specials		Student Colloquia		
5 ECTS	Maritime Finance, Business and Law				

and Offshore Structures. A student can graduate within or "in between" these different research groups, as some questions require a mono-disciplinary approach and some a more multi-disciplinary approach. Each group consists of several faculty members, who all have their own in-depth speciality. Thus there are a lot of (maritime) topics to choose from and you are able to combine in-depth study of technical subjects with logistics, technical marketing, management, safety and/or sustainability. Each research discipline has its own focus; at the same time the boundaries between the subjects of each group are not always clear and there is good synergy between the groups. In many cases faculty members from two groups will work together on a research project, each bringing their own unique knowledge to the table. Students are challenged to use the master courses to find out which maritime topics truly interests and motivates them, enabling the creation of their own specialisation and thesis project around these topics.

## Research facilities

The Marine Technology section has an extensive research profile, both national and international, which is exemplified by the numerous PhD students that are working at the section and at external companies. The section has amongst others two towing tanks, two flume tanks, a large hexapod for multi-axial load testing, a cavitation tunnel and an extensive virtual laboratory of advanced simulation tools that are often used or improved in MSc thesis projects carried out by our students.

## Graduation projects

A number of examples of maritime graduation projects are:

- Numerical Simulations of a Novel Offshore Floating Solar System

- Alternative fuels on board of carbon-neutral cruise vessels
  - Probabilistic Lifetime Predictions Using Total Stress Concept, Remote Monitoring and Global Wave Forecast Models
  - Propulsion System Control of Ships Sailing in Waves
  - Modelling Wrinkling Behaviour of Large Floating Thin Offshore Structures
  - New ships, new rules: Assessment of the Required Subdivision Index for Unmanned Ships based on Equivalent Safety
  - Roll Damping Prediction Method: To determine linear and non-linear roll damping coefficients based on multiple 2D CFD simulations
  - Factors affecting container transshipment volumes at ports: A data driven holistic modelling approach
- Numerous other examples of maritime graduation reports can be found online in either the education repository or in the research repository: maritime archive. Please visit [repository.tudelft.nl](http://repository.tudelft.nl).

## Career prospects

Driven for a large part by the success of the (Dutch) maritime industry, job prospects for graduates are excellent. Former MT students work at shipyards, like Damen and IHC Merwede, ship-owners or at the Dutch Ministry of Defence (Royal Dutch Navy). Working for marine contractors, like SBM, Bluewater, Heerema, Boskalis, van Oord and Allseas, is also an often chosen option. MT graduates find outstanding opportunities with firms in other (maritime) fields as well, including (heavy) cargo transport and salvage firms, design and engineering companies, research institutes like MARIN and TNO, banks and classification societies. Others continue at TU Delft with a PhD research, or they pursue a PhD while working for a company in industry.



**50-70**  
students per year



**5<sup>th</sup>**  
Marine/Ocean Engineering  
programme in ARWU ranking



**20%**  
international students

## Career perspective



**90%**  
has a job immediately  
after graduating



**95%**  
works within the  
maritime industry