In years past, there was hardly any job more hazardous than to sail the seas. These days, we take it for granted that cargo ships can safely navigate the seas – largely because of technological advances in marine technology. These same technologies make it possible to extract oil from the seabed and load it on to a tanker in high winds and heavy seas.

If you are intrigued by the technologies that allow for the construction of highly complex modern ships, the exploitation of mineral wealth on the seabed, and other achievements of marine technology, TU Delft’s unique master’s programme may be just the programme for you. TU Delft’s MSc Programme in Marine Technology (MT) – the only one of its kind offered in the Netherlands – gives future engineers the knowledge and skills they need to handle the entire process of design, construction, production and operation of these ships and marine systems.

**Programme**
The Master’s programme Marine Technology offers two tracks: Science (MT-Sc) and Design, Production and Operation (MT-SDPO). The SDPO track provides a solid basis for working in industry as well as in research institutes. Graduates are found everywhere, improving not only the products but also the process (be it production, design or operations) and working as expert or integrator in mixed teams. This attitude and knowledge are developed in a challenging and personally tailored master program, where integration and application of knowledge, both from the bachelor and acquired in the master, plays a key role. Next to this the master has an international orientation, voiced by good possibilities to do a part of your second year abroad. A worthwhile experience in this time of globalisation.

**Specialisations**
Within the SDPO track, four specialisations are offered, each of which presents abundant possibilities to combine in-depth study of technical topics with logistics, technical marketing, management, safety and/or sustainability.
Curriculum Design, Production and Operation

The master is divided in three parts; 35 ECTS are obligatory, 40 ECTS are available for electives and 45 ECTS are reserved for your master thesis project (9 months)

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<tr>
<th>First Year</th>
<th>25 ECTS</th>
<th>Motions and Loading of Structures in Waves</th>
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<td>Structural Design and Analysis</td>
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<td>Design of Complex Specials</td>
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<td>Maritime Finance, Business &amp; Law</td>
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<td>Student Colloquia (0 ECTS)</td>
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<td>10 ECTS</td>
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<td>Introduction to Operations Research</td>
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<td>Risk in Maritime Asset &amp; Project Management</td>
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<td>25 ECTS</td>
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<td>Electives</td>
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<th>Second Year</th>
<th>15 ECTS</th>
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<td>Research</td>
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<td>45 ECTS</td>
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<td>Master Thesis</td>
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1 EC = 28 hrs study, according to the European Credit Transfer System (ECTS)
Total number of credits in the MSc programme = 120 EC For more information on all courses please visit: www.studyguide.tudelft.nl

- **Specialisation Ship Design**
  On the one hand focuses on the integration of a great multitude of engineering and design considerations, resulting in innovative designs of complex vessels. On the other hand the specialisation looks at the tools and processes of ship design, improving existing tools and also creating new ones to improve the processes and knowledge of designing and engineering.

- **Specialisation Ship Production**
  Ship Production is concerned in particular with the management of shipbuilding projects and shipyards. The specialisation offers two different focuses on the production of ships, one is operations oriented and concerns the improvement of processes on a shipyard, how to optimise machinery and reduce overall costs. The other is project oriented and is concerned with building a vessel. The focus here is on reducing the building cost of this particular vessel, through planning and smart engineering. In both cases financial considerations are important and simulation/variation plays an important role.

- **Specialisation Shipping Management**
  Shipping Management focuses on the purpose of the vessel, in view of the truism that technology is not in and of itself a goal, but rather the means to an end: maximising profit generated by the operation of the vessel. This specialisation focuses on the relations between the technical specifications of a ship, its intended operational profile and its ability to earn money. The field thus covers range from market analysis to concept design.

- **Specialisation Marine Engineering**
  Marine Engineering strives to teach the characteristics of the components of marine engineering systems, which is basically almost everything inside the vessel except the structure. These systems allow the vessel to perform its duty and in the current world of complex specials, the seamless integration of these systems is an ever increasing challenge. The specialisation plays a key role here as well as in the prediction of the behaviour of these integrated systems before constructing it, through advanced simulations based the underlying engineering and thermodynamic fundamentals.

- **Research facilities**
  The SDPO Track is offered by the section Ship Design Production and Operation. This 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 a flume tank and a virtual laboratory of advanced simulations and tools often used or improved in MSc thesis projects carried out by our students.
Graduation projects
- Analysis and optimization of a machined steel kit manufacturing process.
- A feasibility study of a nuclear power plant on the JBF Arctic.
- Life Cycle Analysis of a Platform Supply Vessel.
- An approach for the calculation of fuel consumption and emissions for DP-3 class ships.

Career prospects
Driven for a large part by the success of the offshore industry, job prospects for graduates with shipyards such as Damen and IHC Merwede, as well the Dutch Ministry of Defence are excellent. Also work for contractors like SBM, Bluewater, Heerema and Allseas is an often chosen option. Indeed, MT graduates find outstanding opportunities with firms in many other fields as well, including (heavy) cargo transport and salvage firms, engineering companies, research institutes, banks and classifications societies. Many others continue on at TU Delft with studies leading to a PhD, or pursue a PhD while working for a company in industry.

After a long period of doubt between what masters track to start I finally chose for the MT Design, Production and Operation track. The broad nature of this track finally convinced me as it covers the entire field of maritime technology. I was especially interested in the Ship Design specialization as it covers some interesting courses on advanced marine vehicles, naval ships and design methods and tools. It is an excellent track for future Naval Architects who need to keep track of the broad picture of designing a ship, as well as have basic knowledge of all the different topics involved: hydromechanics, structures, design, production, economics, etc. The first semester of the first master year is spent in Norway at the NTNU in Trondheim. This provides an excellent opportunity to visit a different University with its own views and methods regarding education and marine technology. Of course there was also plenty of the time to explore the beautiful culture and nature of Norway. The SDPO master has plenty of opportunities to engage with the maritime industry. I decided to do my internship at the naval architecture department of a major Dutch yacht builder and my Master thesis at a famous Dutch research institute.
Admission requirements and application procedure

Dutch BSc degree
In most cases, if you hold a BSc degree and the Master’s programme is closely related to your Bachelor’s programme, you will be admitted directly into the programme. However, if the Master’s programme does not follow directly from your undergraduate programme, you will be required to take additional courses in what is called a bridging programme. This may be a standard programme, or it may be tailored to your specific situation.

To see which Master’s programmes are open to you on completion of your Bachelor’s degree Dutch university, go to www.doorstroommatrix.nl.

Application goes through Studielink: tudelft.studielink.nl

Dutch HBO degree
An HBO Bachelor’s degree does not qualify you for direct admission to a TU Delft Master’s degree programme. To start a Master’s degree programme, you will first need to complete a supplementary programme in order to bring your knowledge to the required level. You can do this during your HBO programme by completing a bridging or by means of a bridging programme after securing your HBO diploma.

Entrance requirements for mathematics and English (some exceptions) apply for both the bridging minor and the bridging programme. See www.hbodoorstroom.tudelft.nl for detailed information.

Application goes through Studielink: tudelft.studielink.nl

International applicants
To be considered for admission to a MSc Programme you’ll need to meet TU Delft’s general admission requirements.

1. A BSc degree (or a 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:
   • TOEFL (Test of English as a Foreign Language) with a minimum score of 21 for each section and an overall band score of at least 90 (internet-based test). Please note that we only accept the TOEFL internet-based test.
   • or IELTS (academic version) with a minimum score 6.0 for each section and an overall Band score of at least 6.5.
   • or proof that you have passed the University of Cambridge ‘Certificate in Advanced English’ with a minimum grade B or the University of Cambridge ‘Certificate of Proficiency in English’.

For international students, the application period starts in October and closes on 1 April. To start an MSc application, fill in the online application and pay the refundable application fee of €100. Then send hard copies of the application documents to TU Delft’s International Office. Please note that you should apply early when you want to be considered for a scholarship as well!

For more information about the application procedure and studying at TU Delft in general, go to: www.admissions.tudelft.nl.

Further information
Please visit the webpage for all details, complete requirements, deadlines and contact information: www.msc.tudelft.nl

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