

Master of Science in Mechanical Engineering

# Marine Engineering

FA2





# Contacts



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## Track description

The marine environment presents enormous possibilities for development, the so-called blue economy. However, it is also an ecosystem that regulates global climate and is a reservoir of biodiversity. Responsible development of the blue economy requires both technical expertise and an understanding of the ocean environment.

The Marine Engineering track covers a wide range of engineering subjects relevant to the development and procurement of marine engineering.

These competencies include knowledge of the physical challenges in constructing offshore installations, developing technologies for both surface and underwater systems as well as modelling interactions with the natural marine environment.





# Skills

Students will learn how to:

- design, analyse, and control propeller/propulsive systems and auxiliary equipment considering efficiency and low environmental impact;
- design, analyse, construct and operate (manned as well as unmanned) vessels and underwater vehicles
- install and operate fixed and floating structures subject to different operating conditions





# FA2: Core Courses

Course Title	YEAR	SEM	ECTS	ECTS GROUP
Energy Conversion Technologies	1	1	5	5
Data Analysis for Future Transportation Systems	1	1	5	5
Control of Mechanical Systems	1	1	5	5
Advanced Dynamics of Mechanical Systems	1	1	10	10
Advanced Machine Design	1	2	10	10
Advanced Manufacturing Processes B	1	1	5	5

# FA2: Track Specific Courses

Course Title	YEAR	SEM	ECTS	ECTS GROUP
Naval Hydrostatics And Hydrodynamics	1	2	10	10
Ship Structural Analysis And Design	1	2	10	10
Ship Design And Project Management	2	1	5	15
Marine Propulsion Technology	2	2	5	
Advanced Techniques For Vibro Acoustic Measurements	2	1	5	
Surface Modeling for Engineering Applications	2	2	5	
De-manufacturing	2	1	5	
Industrial Project Management	2	2	5	
Materials for Sustainable Transportation Systems	2	1	5	15
<b>Elective courses</b> (Computational Fluid Dynamics - Fundamentals, Computational Fluid Dynamics - Experimental Assessment, Unmanned Vehicles, Wind Engineering, Modelling of Mechanical Behaviour of Materials, Non-Destructive Testing and Evaluation for Materials and Components, Repairing and Re-manufacturing Processes, Applied Project Management, ...)	2	1-2	5	
<b>Lab course</b> (Physis PEB, Wind Energy)	2	2	5	5

# FA2: Master's Thesis

**Analysis of  
alternative  
propulsion  
systems**

**Study of wave  
impact effects  
on ship  
structure and  
plating**

**Control of an  
unmanned  
underwater  
vehicle**

**Study of the  
dynamics of an  
offshore wind  
turbine platform**

