

# Master of Science – Sustainable Maritime Engineering

Mandatory

1st Semester

- Principle analysis of marine structures
- Design of offshore systems
- Principles of marine fluid mechanics
- Ship design
- Safety of maritime systems

Team project (3th Semester)

Electives and techn. electives

2nd and 3rd Semester



- Resistance and propulsion
- Ship life cycle digitalization

- Advanced analysis of offshore systems
- Ocean waves

- Design of underwater systems
- Navigation, control and vehicle autonomy of maritime systems

Structural mechanics	Hydro-mechanics	Advanced technologies
Structural design of marine structures	Seakeeping and maneuvering	Additive manufacturing and lightweight design
Advanced analysis of marine structures	Computational fluid dynamics in maritime engineering	Large engines, energy converters and fuels for climate neutral marine applications
Selected topics for the analysis of marine structures	Experimental methods in maritime engineering	Technical production processes of maritime structures and ships

Structural mechanics	Hydro-mechanics	Advanced technologies
Structural design of marine structures	Design of offshore aquaculture systems	Ocean renewable energies
Advanced analysis of marine structures	Computational fluid dynamics in maritime engineering	Navigation, control and vehicle autonomy of maritime systems
Selected topics for the analysis of marine structures	Experimental methods in maritime engineering	Ocean research technologies

Design	Operations
Advanced analysis of marine structures	Deep-sea technology and practical applications of UW technology
Additive manufacturing and lightweight design	Computational fluid dynamics in maritime engineering
Deep-sea technology and practical applications of UW technology	Ocean research technologies

Numerical fluid mechanics	Introduction into C++	Maritime logistics
Coding of finite elements	Continuum mechanics	Ultimate strength assessment of maritime structures
Data management	Metal and heat treatment	Principles of energy technology: systems & applications in maritime context

Numerical fluid mechanics	Modelling and simulation of turbulent flows	Introduction into C++
Ship life cycle digitalization	Maritime logistics	Sailing Theory
Principles of energy technology: systems & applications in maritime context	Data management	Metal and heat treatment

Ship life cycle digitalization	Maritime Graphics	Principles of energy technology: systems & applications in maritime context
Modelling and simulation of turbulent flows	Introduction into C++	
Data management	Foundations of Machine Learning	

Nontechn. electives

- Industrial property right
- Essentials of ocean science and Sustainable ocean use

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Thesis

4th Semester

Master thesis

Colors:

- Prof. Kaeding
- Prof. Kornev
- Prof. Kosleck
- Prof. Sprenger
- Others