Engineering Design and Applied Mechanics – maritime engineering

The following study plan contains the courses that are essential to naval architecture and maritime engineering. The student can, according to his or her fields of interest fill up the remaining ECTS with course from the group of “normative competence” courses, “technological specialisation” courses and electives.

General competence courses (min 15 ECTS)

42490 - *Technology, economics, management and organisation*[1] (10 ECTS). This course is mandatory.
02431 - *Risk management*[2] (5 ECTS)

Normative competence courses (min 15 ETCS – here 20 ECTS)

41106 - *Marine structures 1* (5 ECTS)
41216 - *Structural assessment of ships* (5 ECTS)
41323 - *Advanced fluid mechanics* (10 ECTS)

Technological specialisation courses (min. 30 ECTS incl. exceeding ECTS form the “general competence” and “normative competence” group, i.e. here min 25 ECTS)

41221 - *Ship propulsion and manoeuvring* (10 ECTS)
41222 - *Wave loads on ships and offshore structures* (5 ECTS)
41275 - *Ship operations* (5 ECTS)

[1] This course will include a maritime case.
[2] The students can choose a maritime case for the project work in this course.

Base plan for maritime engineering students, start autumn[3]

Semester	Monday		Tuesday		Wednesday		Thursday		Friday		3 week period
	1A	2A	3A	4A	5A	5B	2B	1B	4B	3B	
	8 - 12	13 - 17	8 - 12	13 - 17	8 - 12	13 - 17	8 - 12	13 - 17	8 - 12	13 - 17	
1 Autumn			41216 Structural assess. ships 5 ECTS		42490 TEMO. 10 ECTS	42490 TEMO. 10 ECTS	41275 Ship operations 5 ECTS				02431 Risk management 5 ECTS
2 Spring		41323 Adv. fluid Mechanics 10 ECTS			41106 Marine structures 1 5 ECTS		41323 Adv. fluid mechanics 10 ECTS				
3 Autumn	41221 Ship prop. and man. 10 ECTS			41222 Wave loads on ships etc. 5 ECTS				41221 Ship prop. and man. 10 ECTS			
4 Spring	**Master Thesis** 30-35 ECTS										

	General competence courses	15 ECTS (minimum 15 ECTS)
	Normative competence courses	20 ECTS (minimum 15 ECTS)
	Technological specialisation	20 ECTS (minimum 30 ECTS incl. exceeding ECTS from the “general competence” and “normative competence” courses)
	MSc thesis	30 or 35 ECTS

[3] Please note that the plan does not contain 120 ECTS but only the maritime core courses. The intention is that the student fills in the missing ECTS according to his or her interests.

Base plan for maritime engineering students, start spring[4]

Semester	Monday		Tuesday		Wednesday		Thursday		Friday		3 week period
	1A	2A	3A	4A	5A	5B	2B	1B	4B	3B	
	8 - 12	13 - 17	8 - 12	13 - 17	8 – 12	13 - 17	8 - 12	13 – 17	8 - 12	13 - 17	
1 Spring		41323 Adv. fluid mechanics 10 ECTS			42490 TEMO. 10 ECTS	42490 TEMO. 10 ECTS	41323 Adv. fluid mechanics 10 ECTS				
2 Autumn	41221 Ship prop. and man. 10 ECTS		41216 Structural assess. ships 5 ECTS	41222 Wave loads on ships etc. 5 ECTS			41275 Ship operations 5 ECTS	41221 Ship prop. and man. 10 ECTS			02431 Risk management 5 ECTS
3 Spring					41106 Marine structures 1 5 ECTS						
4 Autumn	**Master Thesis** 30-35 ECTS										

	General competence courses	15 ECTS (minimum 15 ECTS)
	Normative competence courses	20 ECTS (minimum 15 ECTS)
	Technological specialisation	20 ECTS (minimum 30 ECTS incl. exceeding ECTS from the “general competence” and “normative competence” courses)
	MSc thesis	30 or 35 ECTS

[4] Please note that the plan does not contain 120 ECTS but only the maritime core courses. The intention is that the student fills in the missing ECTS according to his or her interests.

Further competence and specialisations courses

In the plans above a **minimum of 5 ECTS** within the "Technological specialisation" are missing. These ECTS can be taken from "general competence" "technological specialisation" courses cf. http://sdb.dtu.dk/2014/5/57

Maritime engineering students should choose from the following courses:

Normative competence courses:

41319 - *Computational fluid dynamics* (10 ECTS, E3)
41514 - *Dynamics of machinery* (5 ECTS, F4B)
41822 - *Experimental fluid mechanics* (5 ECTS, January)

Technological specialisation:

41224 - *Linear wave dynamics* (5 ECTS, E2A)
41225 - *Nonlinear wave dynamics* (5 ECTS, F2A)
41346 - *IC engines - Experimental methods and data processing* (5 ECTS, F4A)
41521 - *Advanced vibration and stability analysis* (10 ECTS, F2)
41526 - *Fracture mechanics* (5 ECTS, E2B)

Electives

The elective courses can give the student a broader competence profile within the maritime field according to the student's interests. Possible electives could be:[5]

11440 - Petroleum engineering (5 ECTS, E4A)

13233 - Decision support and risk analysis (5 ECTS, E2B)
13150 - Transport economics (5 ECTS, F1A)
13420 - Green Transport Logistics (5 ECTS, F5B)
13432 - Maritime logistics (5 ECTS, F4B)

25302 – Physical Oceanography (5 ECTS, E1B)
25305 - Marine aquaculture (5 ECTS, F5B)

28415 - Oil and gas production (5 ECTS, F4A)

41117 - Marine structures 2 (5 ECTS, E1A)
41123 - Marine and hydraulic structures (5 ECTS, January)
41315 - Applied CFD (5 ECTS, June)
41343 - Fuels and emissions from transportation (5 ECTS, January)

42372 - Life cycle assessment of products and systems (10 ECTS, E1)
42375 - Advanced life cycle assessment and evaluation of environmental impacts (5 ECTS, January)
42543 - Management of change (5 ECTS, F4A)
42430 - Project management (F1A)
42085 - Strategy, design and market (5 ECTS, E2B)
42467 - Introduction to strategic management (5 ECTS, E1A)

46211 - Offshore wind energy (10 ECTS, E4)

[5] Courses are ordered after DTU department. Students that have followed the recommended BSc study track in maritime engineering will have the prerequisites for the elective courses listed here.