### Syllabi

for

### The Bachelor of Maritime Transport and Nautical Science

(The Master Mariner Training Programme)

Version 6.10, 1 February 2022



### Overview of syllabi:

No.	Subject area	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8
10100	Workshop Training, Safety and Security (BS)	х							
10200	On Board Training (BS)		х			х	х		
10300	Nautical Science (BS)			х	х	х		х	
10400	Technology (BS)			х	х	х		х	
10500	Management (BS)			х	х			х	
10600	Interdisciplinary Elements and Methodology (BS)	х		Х	Х			Х	Х
10800	Elective Subjects (BS)					х		х	



Subject area:	10100	Workshop Training, Safety and Security	(BS)		
		Introduction and First Aid Courses	BS1		
Subject(s):	10111	Safety and Seamanship	BS1	15 ECTS	
	10112	Workshop	BS1	15 ECTS	
		L			
Admission criteria:	None for subject area Workshop Training, Safety and Security.				
Semester:	BS1				
ECTS credits:	30				
Course	Master Marine	er (BS) version 6.10, 1 February 2022.			
Regulations:					
Orders:	• Order on the p	professional bachelor training programme for	Master Marine	er - Danish	
	Order no. 1345     Order on tests	of 23 November 2018 as amended.	no 1585 of 13	December	
	2016, as amen	ided.	101 1000 01 10	Dettermber	
	• Order on grad	ing scale and other examination – Danish orde	er no 114 of 3 I	February	
	2015, as amended.				
	<ul> <li>Order on certificate of proficiency tests et cetera – Danish order no 184 26 March 1999, as amended</li> </ul>				
	Order on training programme and refresher training programme for safety at sea and				
	firefighting on board ships – Danish order no 226 of 2 March 2015, as amended.				
	<ul> <li>Order on training programme for Tanker Operations – Danish order no 1165 2</li> <li>November 2014, as amended</li> </ul>				
	<ul> <li>Order on training programme for operation of survival craft and rescue boat other</li> </ul>				
	than fast rescue boats – Danish order no 1207 23 October 2015, as amended.				
	• Order on training programme and refresher training programme for operation of fast				
	rescue boats – Danish order no 658 12 May 2015, as amended.				
	7 November 2	013, as amended.	- Danish order	10 1279 01	
STCW:	STCW Code, as a	amended: Part A, chapter II - Master and deck	department:		
	Section A-II/	I – Operational level	tu coourituu		
	Section A-VI	/1. paragraph 2	ty, security:		
	Person	nal survival techniques as set in table A-VI/1-1			
	Fire pr	evention and fire-fighting as set in table A-VI/	1-2		
	• Elemer	ntary first aid as set in table A-VI/1-3			
	Person     Section A-VII	hal safety and social responsibilities as set in ta /2 paragraph 1 to 12	ible A-VI/1-4		
	Profici	ency in survival craft and rescue boats other t	han fast rescue	e boats as	
	set in table A-VI/2-1.				
	<ul> <li>Proficiency in fast rescue boats as set in table A-VI/2-2</li> </ul>				
	Section A-VI/2-2, paragraph 7 to 12				



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	<ul> <li>Proficiency in fast rescue boats as set in table A-VI/2-2.</li> </ul>
	Section A-VI/4, paragraph 1 to 3
	<ul> <li>Medical first aid as set in table A-VI/4-1</li> </ul>
	Section A-VI/6, paragraph 6 to 8
	<ul> <li>Designated Security Duties as set in tablet A-VI/6-2</li> </ul>
	STCW Code, as amended: Part A, chapter V - Special training requirements:
	Section A-V/1-1-1
	<ul> <li>Basic training for oil and chemical tanker as set in table A-V/1-1-1</li> </ul>
	Section $\Delta$ -V/1-2-1
	• Pasic training for gas tanker as set in table $\Lambda V/1.2.1$
Certificate(s):	<u>Certificate of Proficiency Basic Safety Training</u> is issued upon completion of the training programme prescribed in Regulation VI/1 and STCW Code; section A-VI/2 of the STCW Convention of 1978. as amended.
	<u>Certificate of Proficiency in Medical First Aid</u> is issued upon completion of the training programme prescribed in Regulation VI/4, paragraph 1 of the STCW Convention of 1978, as amended.
	<u>Certificate of Proficiency in Motor Operation</u> is issued upon completion of the training programme prescribed in the Danish order no 184 of 26 March 1999 as amended.
	The person concerned must have
	1. passed the proficiency test in motor operation and
	2. completed 6 months' seagoing deck and/or engine duty in ships with a
	propulsion power of or above 100 kW.
	The proficiency test in motor operation is passed when the student has passed following
	subjects:
	1 Motor Operation – subject no 15250
	<ol> <li>Motor operation subject to 19230.</li> <li>Environment – subject no 15220.</li> </ol>
	<ol> <li>Electrical and Electronic Machinery and Systems – subject no 11212</li> </ol>
	5. Electrical and Electronic Machinery and Systems – Subject no 11212
	<u>Certificate of Proficiency for Designated Security Duties</u> is issued upon completion of the specialized training programme prescribed in Regulation VI/6, paragraph 4 to 6 of the STCW Convention of 1978, as amended and the Danish order no 1279 of 7 November 2013, as amended.
	<u>Course Certificate of Basic Training for Oil, Chemical and Gas Tanker Cargo Operations</u> is issued upon completion of the training programme prescribed in Regulation V/1-1, paragraph 2.2 and Regulation V/1-2, paragraph 2.2 of the STCW Convention of 1978, as amended and the Danish order no 1165 2 November 2014, as amended. ("Carry out fire- fighting operations" as set in table A-V/1-1-1 and 1-2-1 of STCW Convention of 1978, as amended)
	<u>Course Certificate in survival craft and rescue boat other than fast rescue boats</u> is issued upon completion of the training programme prescribed in Regulation VI/2, paragraph 1.3 of the STCW Convention of 1978, as amended and the Danish order no 1207 23 October 2015, as amended.
	<u>Certificate of Proficiency in survival craft and rescue boat other than fast rescue boats</u> is issued upon completion of at least 6 months relevant seagoing service is proved and completed the training programme prescribed in Regulation VI/2, paragraph 1 of the



	STCW Convention of 1978, as amended and the Danish order no 1207 23 October 2015, as amended.				
	<u>Course Certificate in Fast Rescue Boats</u> is issued upon completion of the training programme prescribed in Regulation VI/2, paragraph 2.3 of the STCW Convention of 1978, as amended and the Danish order no 658 12 May 2015, as amended.				
	<u>Certificate of Proficiency in Fast Rescue Boats</u> is issued when a holder of Certificate of Proficiency in survival craft and rescue boat other than fast rescue boats has completed the training programme prescribed in Regulation VI/2, paragraph 2 of the STCW Convention of 1978, as amended and the Danish order no 658 12 May 2015, as amended.				
Qualification prerequisites for professors/inst ructors etc.	<ul> <li>Associate professors, assistant professors or instructors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall: <ul> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> </ul> </li> <li>Instructors of Elementary First Aid courses shall have completed a training programme for teachers of Eirst Aid approved by the Danich Eirst Aid Council</li> </ul>				
Core literature					
Responsible:	ROR				
Valid from:	2022-1	EIN			
Expired:					
Remarks:	None				



Purpose	BS				
Upon successful completion of this semester subject, the student will be able to sign on a mercha as an apprentice in his/hers onboard training and be prepared for the practical work on board a m vessel.	nt vessel herchant				
	DC4				
Introduction and First Aid Courses:	821				
Content:					
The introduction course introduces the program, giving the student a basic maritime knowledge and language. Furthermore, the course will introduce study techniques and SIMAC specific educational learning platforms. The first aid courses give the student the competencies to administer first aid and to be in charge of first					
Learning objectives:					
To identify the different ship types, their shapes, and general structural elements					
• To <b>use</b> SIMAC's educational support platforms such as Moodle, Untis and Wiseflow etc.					
<ul> <li>To understand study techniques for further use in the program.</li> </ul>					
<ul> <li>To demonstrate the competences of the requirements of STCW.</li> </ul>					
$\circ$ Elementary first aid as set in table A-VI/1-3 (CA)					
<ul> <li>Medical first aid as set in table A-VI/4-1 (CA)</li> </ul>					
Learning activities:					
Situation: Large class. Large class activities take place in the classroom setting and consist	of a				
varying mix of lecturing, tutorials and student activity.					
function of the groups may vary during the course such as buzz groups, learning cells, etc.					



Safety an	d Seamanship	BS1
Content:		
Learning ob	jectives:	
<ul> <li>To ex To dis avoid.</li> <li>To rec To de To de liquef</li> <li>To de condii</li> <li>To de condii</li> <li>To de accort</li> <li>To accort</li> <li></li></ul>	plain the use of navigational marks in IALA-A and IALA-B tinguish between common navigational lights and day signals used according to the ance rules cite the commonly used collision avoidance rules. termine a ships position by the means of terrestrial navigation monstrate the competences of the requirements of STCW basic training for oil, cher ied gas tanker operations as set in table A-V/1-1-1 and A-V/1-2-1 (CA) monstrate the start-up, mooring and manoeuvring of a small boat under normal we tions wintain a steady course, properly execute rudder orders, and communicate as both h bokout using navigational terms relating to ship's heading and steering. scribe the seafarer's conditions of employment, and describe his/her rights and oblig ding to the relevant legislation plain the content of the international safety management code and the use of safety gement system including the correct use of personal protective equipment monstrate the competences of the requirements of STCW: proficiency in survival craft and rescue boats other than fast rescue boat as set in VI/2-1 (CA) Proficiency in fast rescue boats as set in table A-VI/2-2 (CA) Personal survival techniques as set in table A-VI/2-1 (CA) Fire prevention and fire fighting as set in table A-VI/1-2 (CA) Designated security duties as set in table A-VI/1-2 (CA)	collision mical and ather nelmsman gations
Learning ac • Situat	tivities: ion: Large class. Large class activities take place in the classroom setting and consist	ofa
• Situat	ion: Practical sailing. The sailing exercises are designed to supplement the learning of	objectives

- on start up, mooring and manoeuvring a small boat. The exercises partly consist of counting activities.
- Situation: Practical survival training. The exercises are designed to supplement the learning objectives of STCW Basic safety training requirements. The exercises partly consist of counting activities.
- **Student centred activities:** The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the course such as buzz groups, learning cells, etc. For student centred activities the instructor(s) are available for tutoring, professional guidance, and formative feedback.
  - o Individual reading and answering of study questions
  - Workplace learning designed to supplement the learning objectives on basic mooring equipment and arrangement on merchant ships.



BS1

0	Interdisciplinary portfolio. The students are to work in their study groups on an
	interdisciplinary portfolio covering the learning objectives from all the courses of the
	semester.
0	Individual and group presentations

### Workshop

#### **Content:**

#### Learning objectives:

- To **explain** the basic principles of routine maintenance tasks performed on a merchant vessel including basic principles of docking and surface treatment.
- To **safely** perform and **assess** the quality of a minor maintenance or repair job relevant for a deck officer on a merchant ship.
- To **explain** and demonstrate the safe operation of a hydraulic mooring winch, a hydraulic crane.
- To **demonstrate** correct use of relevant hand tools applied in various maintenance tasks performed by deck personnel on a merchant vessel.
- To **distinguish** between and use knots, simple rope splices and lashing equipment in relation to lashing of cargo and stores.
- To identify different types of marine propulsion (CA)
- To **identify** environmental hazards on a merchant vessel and explain the basic principles of the relevant legislation (CA)
- To safely **operate** a small vessel's machinery including simple auxiliary and electrical systems, on board ships where there is no requirement for machinery personnel (less than 750 KW) (CA)
- Read draft, loadlines and explain the connection between draft, displacement and density.

#### Learning activities:

- **Situation:** Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- **Situation**: Workshop training. The workshop exercise is designed to supplement the learning objectives on correct use of relevant hand tools and assessment of the quality of a maintenance or repair job.
- **Situation:** Workshop training. The workshop exercise is designed to supplement the learning objectives on safe operation of a vessel's machinery up to 750kW.
- **Situation:** Workshop training. The Workshop exercise is designed to supplement the learning objectives on knots rope splices and lashing systems
- **Student centred activities:** The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the course such as buzz groups, learning cells, etc. For student centred activities the instructor(s) are available for tutoring, professional guidance, and formative feedback.
  - Individual reading and answering of study questions



- Workplace learning designed to supplement the learning objectives on operation and maintenance of a crane on merchant ships.
  - $\circ$   $\;$  Workplace learning by utilizing the basic tools of a deck officer.
  - Interdisciplinary portfolio. The students are to work in their study groups on an interdisciplinary portfolio covering the learning objectives from all the courses of the semester.
  - Individual and group presentations

### Examination

BS1

Examination name:	Workshop Training, Safety and Security
Examination type:	Portfolio Internal Oral Test Individual
Grade scale:	7-point scale
Preparation time:	None
Duration:	30 minutes
Aids allowed:	Portfolio
Important information:	At the examination, the student presents his/her portfolio with focus on either the safety and seamanship or workshop aspects. Each student is randomly assigned their focus by the Student Services and the student is informed of focus at the start of examination. The portfolio presentation should have a duration of about 10 minutes and the remainder of the time is for cross-examination of the assigned portfolio focus. The learning objectives of the certifying activities are not included in this examination.
Prerequisites for examination:	Counting activities in the safety and seamanship and workshop are completed. Description of counting activities and requirements for completion are described in the lesson plan.

### **Certifying Activities**

BS1

Certificate name:	Elementary First Aid
Examination type:	Ongoing assessment
Grade scale:	Passed/not passed
Preparation time:	N/A
Duration:	N/A
Aids allowed:	N/A
Important information:	The course consists of both theory and practical exercises.
	This certifying activity must be passed prior on board training in BS2.



SIM



SIM



	<ol> <li>completion of 6 months' seagoing deck and/or engine duty in ships with a propulsion power of or above 100 kW</li> <li>This certifying activity (proficiency test in motor operation) must be passed</li> </ol>
	prior on board training in BS2.
Prerequisites for certifying activity:	



Subject area:	10200	On Board Training (BS)			
Subject(s):	10221	On Board Training BS2	BS2	30 ECTS	
	10251	On Board Training BS5	BS5	15 ECTS	
	10261	On Board Training BS6	DCC	15 ECTS	
	10262	On Board Training BS6	820	15 ECTS	
Admission criteria:On Board Training BS2The BS student must have passed all subjects in the first of the BS education in accordance with the course regul Master Mariner.			he first s e regulat	emester tion for	
	On Board Training BS5 & BS6	The BS student must have passed all subjects in BS1, BS2, BS3, BS4 and BS5 in accordance with the course regulation for Master Mariner.			
Semester:	BS2 + BS5 + BS6				
ECTS credits:	75				
Course Regulations:	• Master Mariner (BS) version 6.10, 1 February 2022.				
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> <li>Order on watchkeeping onboard ships – Danish order no 1758 of 22 December 2006, as amended.</li> </ul>				
STCW:	<ul> <li>STCW Code, as amended: Part A, chapter II - Master and deck department</li> <li>Section A-II/4</li> <li>Navigational at the support level as set in table A-II/4</li> </ul>				
Certificate(s):	<u>Course Certificate of Navigational Watchkeeping</u> is issued upon completion of at least 2 months relevant seagoing service is proved and completed the training programme prescribed in Regulation II/4, paragraph 1 to 3 of the STCW Convention, as amended and the Danish order no 1758 of 22 December 2006, as amended.				
Qualification prerequisites for professors/instru ctors etc.	<ul> <li>Associate professors, assistant professors or instructors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:</li> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> </ul>				
Core literature					



Responsible:	Subject Manager			
Valid from:	2022-1	EIN		
Expired:				
Remarks:	12 months = 365 6 months = 183 ca 4½ months = 137	calendar days3 months = 91 calendar daysalendar days2 months = 61 calendar dayscalendar days		
Prerequisites for Service at sea	<ul> <li>The durat 10211+10 board trai fulfilled w (365 caler</li> <li>The on bo minimum</li> <li>The on bo service at</li> <li>Earned se sea certifi</li> </ul>	ration of the on board training in BS2, BS5 & BS6 (subjects: +10251+10261) equaling 60 ECTS credits and the duration of the on training in BS6 (subject: 10262) equaling 15 ECTS credits is considered d when the effective service at sea amounts to a minimum of 12 months alendar days). board training in BS6 (subject; 10262) must have a duration of a um of 3 months (91 calendar days) effective service at sea. board training in BS6 (subject: 10262) cannot be replaced by other e at sea or merit from another education. I service at sea in ferries must be documented by showing a service at rtificate. If this is not possible, the service at sea will count for 50%.		
Change of study program from BS to BM:	<ul> <li>By change earned se relation 1 sea can be education</li> <li>If a chang apply for (subject: 2 minimum training in</li> <li>The appro (subject: 2 Training F</li> </ul>	<ul> <li>By change of program from BS to BM education, the student can transfer earned service at sea from the on board training in BS1 (subject: 10211) in the relation 1:1, though a maximum of 3 months (91 calendar days) of service at sea can be transferred to the on board training (subject: 20221) in the BM education.</li> <li>If a change of study causes an inconvenient study program, the student can apply for dispensation and get a part of the on board training in BM2 &amp; BM3 (subject: 20221 + 20231) postponed. However, the service at sea must at minimum be 4 months and 15 days (137 calendar days) in the on board training in BM2 &amp; BM3 (subject: 20221 + 20231).</li> <li>The approved Training Record Book from the On board training in BM2 &amp; BM3 (subject: 20221 + 20231) in the BS education is replaced with the green Training Record Book for Marine Engineers</li> </ul>		
Change of study program from BS to BJ	<ul> <li>By change earned served served</li></ul>	e of program from BS to BJ education, the student can transfer ervice at sea from the on board training in BS2 (subject: 10221) in the 1:1, though a maximum of 3 months (91 calendar days) of service at be transferred to the on board training in the BJ education. If on board training in BS2, BS5 & BS6 (subjects: 10211, 10251 & the student can get 50% of the earned service at sea transferred to the d training in the BJ education. It transfer from the on board training in BJ education cannot exceed 6 endar days) months efficient service at sea		



BS

#### Purpose:

During the on board training BS2 & BS5 at sea of 6 months (183 calendar days) the student must also be part of the navigational watchkeeping under supervision of a qualified officer in order to acquire a watchkeeping certificate in accordance with the STCW conventions regulation II/4.

The navigational watch duty should be planned such that the student also gets the opportunity to stand watch by canal passages, sailing in trafficked waters and under maneuver. Emphasis must be put on understanding the necessity of following good discipline on the bridge and in the engine room, see STCW convention chapter VIII.

The student must have completed a minimum of 6 months navigational watch supervised by the Master or another qualified officer in accordance with STCW convention – regulation II/1.

In the on board training BS6, the student shall learn to work in a development-oriented and problem solving way with the profession as Master. The student will draw links between experiences and theoretical knowledge here by being able to identify and analyze subjects, fields and problems that are central in relation to the profession as Master.

The on board training shall lead to the exchange of knowledge, skills and values between education and profession/industry and the establishment of a network.

### **On Board Training in BS2**

BS2
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#### Content:

#### Learning objectives:

 nowledge:
<ul> <li>the maritime organization with a focus on communication, safety and cooperation</li> </ul>
kills:
<ul> <li>apply the skills learned at the training school in a ship organization</li> </ul>
<ul> <li>conduct work safety and environmental considerations correctly</li> </ul>
competencies:
<ul> <li>communicate and collaborate on a ship</li> </ul>
<ul> <li>utilize the most appropriate work method considering quality, time, material, safety and</li> </ul>
environment

#### Learning activities:

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#### Examination:

Examination name:	On Board Training BS2
Examination type:	Ongoing assessment
Grade scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important information:	The Student Services supervises and ensures that the formal requirements in
	the Training Record Book are followed. If there is uncertainty or disagreements,





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	the course is investigated by the Vice President (Academics) in collaboration with the student's shipping company. Ultimately the decision about which initiatives need to be further applied in order to receive the grading given, is decided by the Vice President (Academics). The student must also show documentation for the service achieved at sea, which must be approved by the Student Services.
Prerequisites for examination:	None



On Board Training in BS5 BS5			
Content:			
Learning objectives:			
Knowledge:			
• the master's	ordinary administrative routines		
<ul> <li>the theory un the theory under the theory under theory under the theory under theory under the theory under the</li></ul>	iderlying the areas that the master deals with		
<ul> <li>practical sele</li> </ul>	ction and application of tools and measuring equipment		
the typical w	ays of communication in a ship organization		
SKIIIS.	ical situations accurring in the daily work		
<ul> <li>nanule practi</li> <li>apply the the</li> </ul>	cal situations occurring in the daily work		
<ul> <li>apply the the</li> <li>deal with a set</li> </ul>	election of problems with a possible interdisciplinary background		
Competencies:			
Learning activities:			
<ul> <li>plan and corr</li> </ul>	plete smaller tasks belonging to the ship's field of action		
participate ir	the ordinary administrative routines occurring on the ship		
work in an in	<ul> <li>work in an interdisciplinary way with subjects belonging to the master education</li> </ul>		
<ul> <li>work in a dev</li> </ul>	/elopment-oriented manner		
Examination:			
Examination name:	On Board Training BS5		
Examination type:	Ongoing assessment		
Grade scale:	Passed or Not Passed		
Preparation time:	None		
Duration:	N/A		
Aids allowed:	N/A		
Important information:	The Student Services supervises and ensures that the formal requirements in the		
	Training Record Book are followed. If there is uncertainty or disagreements, the		
	course is investigated by the Vice President (Academics) in collaboration with		
	the student's snipping company. Ultimately the decision which initiatives need		
	President (Academics)		
	The student must show documentation for the service achieved at sea, which		
	must be approved by the Student Services.		
Prerequisites for			
examination:	None		



On Board Training in BS6 BS6		
Content:		
Learning objectives:		
Knowledge:		
Skills:		
Competencies:		
Learning activities:		
Examination:		
Examination name:	On Board Training BS6	
Examination type:	Ongoing assessment	
Grade scale:	Passed or Not Passed	
Preparation time:	None	
Duration:	N/A	
Aids allowed:	N/A	
Important information:	The Student Services supervises and ensures that the formal requirements in the Training Record Book are followed. If there is uncertainty or disagreements, the course is investigated by the Vice President (Academics) in collaboration with the student's shipping company. Ultimately the decision which initiatives need to be further applied in order to receive the grading given is decided by the Vice President (Academics). The student must show documentation for the service achieved at sea, which must be approved by the Student Services.	
Prerequisites for examination:	None	



Subject area:	10300	Nautical Science (BS)		
Subject(s):	10311	Nautical Science (info - Workshop Training, Safety and Security – BS1)	BS1	See 10100
	10331	Nautical Science I Operational Simulation I (OPS-SIM I)	BS3	10 ECTS
	10341	Nautical Science II Operational Simulation II (OPS-SIM II)	BS4	10 ECTS
	10351	Nautical Science III Tactical Simulation (TAC-SIM) GMDSS	BS5	5 ECTS
	10371	Nautical Science IV	BS7	5 ECTS
	10381	Bridge Watchkeeping Duty (FMB Simulator Assessment)	BS8	
Admission criteria:				
Semester:	BS1 + BS3 + BS4 +	BS5 + BS7 + BS8		
ECTS credits:	30			
Course Regulations:	Master Mariner	(BS) version 6.10, 1 February 2022		
Orders:	<ul> <li>Order on the professional Bachelor Training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on tests in the maritime training programmes - order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination - order no 114 of 3 February 2015, as amended.</li> <li>Order on tests in Radio Communication and certificate of GMDSS – Danish order no 939 of 29 August 2011, as amended.</li> <li>Order on training programme and certificates for service on ships operating in Polar Waters – order no 762 of 11 June 2018, as amended.</li> </ul>			
STCW:	<ul> <li><u>STCW Code, as amended: Part A, chapter II - Master and deck department</u> Section A-II/1         <ul> <li>Navigational at the operational level</li> <li>Section A-II/2                 <ul> <li>Navigational at the management level</li> </ul> </li> <li>STCW Code, as amended: Part A, chapter IV – Radio operators Section A-IV/2                     <ul> <li>Radio communication at the operational level as set in table A-IV/2.</li> </ul> </li> </ul> </li> <li>STCW Code, as amended: Part A, chapter IV – Special training requirements</li> <li>Section A-IV/2.</li> </ul>			



	• Basic training for ships operation in polar waters as set in table A-V/4-1.		
	STCW Code, as amended: Part A, chapter VIII - Watchkeeping:		
<ul> <li>Section A-VIII/1 – Fitness for duty.</li> </ul>			
	<ul> <li>Section A-VIII/2 – Watchkeeping arrangement and principles to be observed</li> </ul>		
Certificate(s):Certificate of Competence for GMDSS radio operatorsis issued upon completence for GMDSS radio operatorstraining programme prescribed in Regulation IV/2, paragraph 1 to 2 of the ST Convention of 1978, as amended and the Danish order no 939 of 29 August amended.Course Certificate of training in the use of ARPA training programme prescribed in STCW-Convention of 1978, as amended: F			
	Chapter II – Maste	er and deck department – Table A-II/1 and Table A-II/2.	
	<u>Course Certificate of training in the use of generic ECDIS</u> is issued upon completion of the training programme prescribed in STCW Convention of 1978, as amended: Part A, Chapter II – Master and deck department – Table A-II/1 and Table A-II/2		
	<u>Certificate of proficiency in basic training for service on Ships operating in Polar Waters</u> is issued upon completion of the training programme prescribed in Regulation V/4, paragraph 2 of the STCW Convention of 1978, as amended and the Danish order no 762 of 11 June 2018, as amended.		
Qualification prerequisites for professors/instru ctors etc.	<ul> <li>Associate professors, assistant professors or instructors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall: <ul> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> </ul> </li> <li>If conducting training using a simulator the instructor shall: <ul> <li>have received appropriate guidance in instructional techniques involving the use of the simulator and</li> <li>have gained practical operational experience on the particular type of simulator being used</li> </ul> </li> </ul>		
Core literature	÷		
Responsible:	Subject Manager		
Valid from:	2022-1	EIN	
Expired:			
Remarks:	None		



Purpose		BS
The student acquires the competences of nautical science necessary to appraise, plan, execute and monitor merchant ship's progress and safe voyage, including the duties as a watchkeeping navigator on board merchant ships engaged in international trade. The student acquires the theoretical and practical qualifications in radio communication in accordance with international standards and regulations.		
The student manages the	English terms of nautical science in both oral and written communication	n
Nautical Science I		BS3
Content:		
Learning objectives:		
• To <b>implement</b> ter	ms and definition in the nautical professional language	
To <b>explain</b> various	s weather phenomena's and <b>distinguish</b> between the basic meteorologic	al
elements and def	Initions	
<ul> <li>To interpret and t</li> <li>To explain and dis</li> </ul>	stinguish between various navigational methods and calculations	
<ul> <li>To conduct and co</li></ul>	ompute nautical calculations in accordance with a ships voyage	
• To identify and cl	<b>assify</b> all types of vessel based on lights, day signals and sound signals	
• To role play realis	stic watchkeeping duties, tasks, scenarios, and use relevant equipment	
(OPS-SIM I) (CA)		
Learning activities:		
Situation: Large cl	lass. Large class activities take place in the classroom setting and consist	ofa
varying mix of lect	turing, tutorials, and student activity.	
Situation: Simulat	or – workplace learning. The OPS-SIM I exercises are designed to suppler	ment and
enhance the stude	ent's reflection on the learning objectives:	
○ Radar/AR	PA – theory and use	
o Technical	equipment – theory and use	
	seamanship	
<ul> <li>Student centred a</li> </ul>	in watchikeeping duties	ouns The
function of the gr	ouns may vary during the subject such as huzz groups learning cells etc.	For
student centred a	ictivities the assistant or associate professor(s) are available for tutoring.	101
professional guida	ance, and formative feedback.	
o Individual	l reading and answering of study questions	
<ul> <li>Individual</li> </ul>	l and group presentations	
<ul> <li>Workplac</li> </ul>	e learning by utilizing simulations of the tools of a global maritime profes	ssional.
<ul> <li>Subject de</li> </ul>	ocumentation. The subject documentation is the student's reflection on l	how the
learning o	bjectives are reached and is a compilation of theory, workplace practice	and
context. S	some core topics of the subject documentation are counting activities and	a are
	y to complete. nlinary case. The students are to work in their study groups on an interdi	scinlinary
case cove	ring the learning objectives from all the subjects of the semester.	Scipiniary



Examination		
Examination name:	Nautical Science & Maritime Transport I	
Examination type:	Case (Nautical, Technology or Management)	
,	Internal oral test	
	Individual	
Grade scale:	7-point scale	
Preparation time:	None	
Duration:	30 minutes	
Aids allowed:	Interdisciplinary case	
Important information:	At the examination, the student presents his/her case with focus on either the nautical, technology or management aspects. Each student is randomly assigned their focus by the Student Services and the student is informed of focus at the start of examination.	
	The case presentation should have a duration of about 7 minutes, maximum 10 minutes.	
	The remainder of the time is for cross-examination of the assigned case focus and or the relevant subject documentation with focus on the counting activities. The interdisciplinary case must contain an exclusive summary written in English. The maximum scope of the interdisciplinary case is 50 pages as per SIMAC norm.	
	The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. The learning objectives of the certifying activities are not included in this	
	examination.	
Prerequisites for examination:	Counting activities in the nautical, technology, and management are completed. Description of counting activities and requirements for completion are described in the lesson plan. The case handed in as described in the lesson plan.	
Certifying Activity:		
Certificate name:	Radar/ARPA (1/3 – OPS-SIM I)	
Examination type:	Ongoing Assessment	
Grade scale:	Passes/Not passed	
Preparation time:	None	
Duration:	N/A	
	a. / a	

Duration:	N/A
Aids allowed:	N/A
Important information:	This certifying activity must be passed prior on board training in BS5.
Prerequisites for	Relevant instrument studies and passage planning.
certifying activity:	



BS4

### **Nautical Science II**

Content:

#### Learning objectives:

- To **interpret and appraise** all nautical information from nautical charts/ECDIS and other relevant publications
- To **determine** the ships position and progress using appropriate navigational methods and **evaluate** the accuracy
- To interpret readouts from and operate navigational equipment and control systems
- To **obtain**, **interpret and verify** data on meteorological and oceanographic conditions from sources such as weather charts, ice charts, wave charts, shipborne meteorological instruments, and navigational warnings.
- To **identify and analyse** close quarter situations and **conduct** correct action according to the International Collision Avoidance Rules with the **use** and **validation** of relevant equipment
- To demonstrate proper use of navigational equipment, incl. ECDIS and Radar/ARPA to determine the risk of collision and the monitoring of the ship progress based on prior planning (OPS SIM I + II) (CA)

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials, and student activity.
- Situation: Simulator workplace learning. The OPS-SIM II exercises are designed to supplement and enhance the student's reflection on the learning objectives:
  - $\circ \quad {\sf Radar}/{\sf ARPA}-{\sf theory} \ {\sf and} \ {\sf use}$
  - o Technical equipment theory and use
  - Practical seamanship
  - ColReg and watchkeeping duties
- Student centred activities. The student-centred activities are aimed mainly at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - Individual reading and answering of study questions
  - Individual and group presentations
  - Workplace learning by utilizing simulations of the tools of a global maritime professional.
  - Subject documentation. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to complete.
  - Interdisciplinary case. The students are to work in their study groups on an interdisciplinary case covering the learning objectives from all the subjects of the semester.

#### **Examination:**

Examination name:	Nautical Science & Maritime Transport I



-	
Examination type:	Case (Nautical, Technology or Management) Internal oral test Individual
Grade scale:	7-point scale
Preparation time:	None
Duration:	30 minutes
Aids allowed:	Interdisciplinary case
Important information:	At the examination, the student presents his/her case with focus on either the nautical, technology or management aspects. Each student is randomly assigned their focus by the Student Services and the student is informed of focus at the start of examination. The case presentation should have a duration of about 7 minutes, maximum 10 minutes. The remainder of the time is for cross-examination of the assigned case focus and or the relevant subject documentation with focus on the counting activities. The interdisciplinary case must contain an exclusive summary written in English. The maximum scope of the interdisciplinary case is 50 pages as per SIMAC norm. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. The learning objectives of the certifying activities are not included in this examination.
Prerequisites for	Counting activities in the nautical, technology, and management are completed.
examination:	Description of counting activities and requirements for completion are described in the lesson plan. The case handed in as described in the lesson plan.
Certifying Activity:	
Certificate name:	Radar/ARPA (2/3 – OPS-SIM II) Generic ECDIS course certificate (1/2)
Examination type:	Ongoing Assessment
Grade scale:	Passes/Not passed
Preparation time:	None
Duration:	N/A

Grade scale:	Passes/Not passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important information:	This certifying activity must be passed prior on board training in BS5.
Prerequisites for	Relevant instrument studies and passage planning.
certifying activity:	



#### Nautical Science III BS5 **Content:** Learning objectives: To plan and monitor a ship progress in various situations and execute proper use of navigational equipment, incl. ECDIS and Radar/ARPA to determine the risk of collision and the safe navigation of the ship - incl. assessment and validation of equipment To conduct radio watch and service in any given situation on radio equipment in any sea area (GOC - GMDSS) Learning activities: Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials, and student activity. Situation: Simulator – workplace learning. The TAC-SIM exercises are designed to supplement and enhance the student's reflection on the learning objectives: • Radar/ARPA – theory and use • Technical equipment – theory, use and validation • Practical seamanship ColReg and watchkeeping duties Workplace learning by utilizing simulations of the tools of a global maritime professional. Student centred activities. The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback. • Individual reading and answering of study questions Workplace learning by utilizing simulations of the tools of a global maritime professional. **Examination:** Nautical Science III (GOC - GMDSS) Examination name: Examination type: External oral exam Individual Grade scale: Passed/Not Passed Preparation time: None 45 minutes Duration: Aids allowed: N/A Important information: This examination only covers the competence required to obtain the Certificate of Competences for GMDSS radio operators, GOC. Prerequisites for examination: **Examination:** Nautical Science III Examination name:



Examination type:	Ongoing Assessment	
Grade scale:	Passed/Not Passed	
Preparation time:	None	
Duration:	N/A	
Aids allowed:	N/A	
Important information:	This examination covers the remainder of the learning objectives which are not part of the Course Certificate of training in the use of ARPA and the Course Certificate of training in the use of generic ECDIS and Transas type specific ECDIS.	
Prerequisites for	Counting activities in Nautical Science III completed	
examination:	Description of counting activities and requirements for completion are	
	described in the lesson plan.	
Certifying Activity:		
Certificate name:	Radar/ARPA (3/3 – TAC-SIM)	
	Generic ECDIS course certificate (2/2)	
	Transas Type specific ECDIS course	
Examination type:	Ongoing Assessment	
Grade scale:	Passes/Not passed	
Preparation time:	None	
Duration:	N/A	
Aids allowed:	N/A	
Important information:	<ul> <li>In order to obtain the Radar/ARPA certification the certifying activities</li> <li>Radar/ARPA 1/3, 2/3 and 3/3 must be passed.</li> <li>In order to obtain the Generic ECDIS course certificate the certifying activity</li> <li>Generic ECDIS course certificate 1/2 and 2/2 must be passed.</li> <li>This certifying activity must be passed prior on board training in BS5.</li> </ul>	
Prerequisites for certifying activity:	Relevant instrument studies and passage planning.	



**BS7** 

### **Nautical Science IV**

Content:

#### Learning objectives:

- **To perform** safe navigation and a safe navigational watch though the use of information from all appropriate navigational equipment systems to assist in decision making and command of the ship.
- **To appraise, plan, monitor and execute** route planning for all conditions in accordance with international practice and standards
- To **assess** relevant factors affecting the safe navigation of a ship in passage in various conditions of manoeuvrability, ship type and waters and **select** appropriate action to maintain safety of navigation, minimize any risk to the safety of the ship, and **optimize** the operation of the ship.
- To **assess** the weather and sea condition the ship is facing and **select** appropriate action to maintain the safety of navigation, minimize any risk to the safety of the ship, and **optimize** the operation of the ship considering the dynamic information on the weather, oceanography, and ice conditions from relevant sources
- **To perform** a watch in conformance with the International Collision Avoidance Rules and comply with international recognized standards and procedures.
- To **appraise and organize** the bridge team to ensure safe manning and compliance.

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing and student activity.
- Student centred activities. The student-centred activities are aimed at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - Individual reading and answering of study questions
  - Individual and group presentations
  - Workplace learning by utilizing simulations of the tools of a global maritime professional.
  - Syllabus documentation. The syllabus documentation is the student's reflection on how the learning objectives of the technology subjects are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in.
  - Interdisciplinary nautical and technology case.

#### **Examination:**

=/	
Examination name:	Nautical Science IV
Examination type:	Case External oral exam Individual
Grade scale:	7-point scale
Preparation time:	None
Duration:	45 minutes
Aids allowed:	Interdisciplinary nautical and technology case



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Important information:	At the examination, the student presents their case with focus on the nautical aspects. The case presentation should have a maximum duration of 10 minutes. The case must be written in English and the maximum scope is 30 pages as per SIMAC norm. The remainder of the time is for cross-examination of the case and or the syllabus documentation.
Prerequisites for examination:	Counting activities in nautical science IV completed and the interdisciplinary nautical and technology case handed in as per deadline from Student Services.

### Bridge Watchkeeping Duty (FMB Simulator Assessment)

BS8

#### Content:

The Bridge Watchkeeping Duty (FMB Simulator Assessment) is simulator-based and requires the student to demonstrates the accumulative learning outcome of the entire program by completing a series of navigational watches, both as part of a bridge team and in charge of a bridge team.

#### Examination:

	•
Examination name:	Bridge Watchkeeping Duty (FMB Simulator Assessment)
Examination type:	Internal
	Ongoing assessment
Grade scale:	Passed/Not Passed
Preparation time:	Minimum 1 week prior to the FMB Simulator Assessment details required to conduct the voyage planning will be made available to the student.
Duration:	5 navigational watches:
	<ul> <li>3 navigational watches as a supportive officer of the bridge team and</li> <li>2 navigational watches as the officer in charge of the bridge team.</li> </ul>
Aids allowed:	All aids allowed.
Important information:	The FMB Simulator Assessment focuses on the student's ability to perform a safe navigational bridge watch in all situations in accordance with STCW A-VIII standards regarding watchkeeping as well as demonstrating relevant competencies according to STCW table A-II/1. Learning objectives from the entire program syllabus can be included in the assessment.
Prerequisites for examination:	Voyage planning prepared.



Subject area:	10400	Technology (BS)		
Subject(s):	10411	Ship Technology (Info - Workshop Training, Safety and Security – BS1)	BS1	See 10100
	10431	Ship Technology I	BS3	10 ECTS
	10441	Ship Technology II	BS4	10 ECTS
	10451	Ship Operations I	BS5	5 ECTS
	10471	Ship Operations II	BS7	3 ECTS
	10472	Medical Care Course	BS7	2 ECTS
Admission criteria:				
Semester:	BS1 + BS3 + BS	4 + BS5 + BS7		
ECTS credits:	30 ECTS	30 ECTS		
Course Regulations:	• Master Mariner (BS) version 6.10, 1 February 2022.			
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> <li>Order on training programme and certificates in taking charge of medical care on board ship – Danish order no 1116 of 10 October 2014, as amended.</li> <li>Order on training programme and certificates for service on ships operating in Polar Waters – Dansih order no 762 of 11 June 2018, as amended.</li> <li>Order on training programme for Tanker Operations – Danish order no 1165 2 November 2014, as amended.</li> <li>Order on training programme and refresher training programme for advanced firefighting on board ships – Danish order no 1466 of 8 December 2015, as amended.</li> </ul>			
STCW:	Section A-I • Cargo • Contro operat • Naviga • Section A-I • Cargo • Contro manag Section A-I	amended: Part A, chapter II - Master and deck depo /1 handling and stowage at the operational level: Illing the operation of the ship and care for persons ional level. tion at the operational level:. Manouvre the ship. /2 handling and stowage at the management level: Illing the operation of the ship and care for persons rement level /2	on board	d at the d at the



	<ul> <li>Naviation at the management level:         <ul> <li>Manouvre and handle a ship in all conditions.</li> <li>Respond to navigational emergencies</li> </ul> </li> </ul>
	<ul> <li>STCW Code, as amended: Part A, chapter V - Special training requirements:</li> <li>Section A-V/1-1-1 <ul> <li>Basic training for oil and chemical tanker as set in table A-V/1-1-1</li> <li>Section A-V/1-2-1</li> </ul> </li> </ul>
	<ul> <li>Basic training for gas tanker as set in table A-V/1-2-1</li> </ul>
	<ul> <li><u>STCW Code, as amended: Part A, chapter II - Emergency, safety, security:</u></li> <li>Section A-VI/4, paragaph 4 to 6</li> <li>Medical care as set in table A-VI/4-2</li> </ul>
	<ul> <li>Section A-VI/3, paragraph 1 to 6</li> <li>Advanced fire-fighting as set in table A-VI/3</li> <li><u>STCW Code, as amended: Part A, chapter V – Special training requirements</u></li> </ul>
	<ul> <li>Section A-V/4</li> <li>Basic training for ships operation in polar waters as set in table A-V/4-1.</li> </ul>
Certificate(s):	<u>Certificate of Proficiency in taking charge of Medical Care on board</u> ship is issued upon completion of the training programme prescribed in Regulation VI/4, paragraph 2 to 3 of the STCW Convention of 1978, as amended and the Danish order no 1116 of 10 October 2014, as amended.
	<u>Certificate of Proficiency in Advanced Fire Fighting on board Ships</u> is issued upon completion of the training programme prescribed in Regulation VI/3 of the STCW Convention of 1978, as amended and the Danish order no 1466 of 8 December 2015, as amended.
	<u>Certificate of proficiency in basic training for service on Ships operating in Polar Waters</u> is issued upon completion of the training programme prescribed in Regulation V/4, paragraph 2 of the STCW Convention of 1978, as amended and the Danish order no 762 of 11 June 2018, as amended.
Qualification prerequisites for professors/instru ctors etc.	<ul> <li>Associate professors, assistant professors or instructors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:</li> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> </ul>
	<ul> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> <li>If conducting training using a simulator the instructor shall:</li> </ul>
	<ul> <li>have received appropriate guidance in instructional techniques involving the use of the simulator and</li> </ul>
	<ul> <li>have gained practical operational experience on the particular type of simulator being used</li> </ul>
Core literature	
Responsible::	Subject Manager



Valid from:	2022-1	EIN
Expired:		
Remarks:	None	



BS

BS3

The student acquires the technical competences necessary to perform the duties of master in port and at sea in an efficient, economic and safe manner whilst observing good seamanship and protecting the environment. The student will be capable of planning, conducting, evaluating and optimizing the safe cargo operations and the safe ship handling.

Technically the student acquires the competences to safely operate minor ship machinery, to localize and remedy simple defects in common technical systems in ships and to perform the role as a maintenance manager. Finally the student acquires skills the competences to act independently on board with prehospital procedures as well as being the responsible medical caretaker on board ships with a medicine chest category A.

The student manages to communicate clearly and precise in English on professional issues.

### Ship Technology I

#### **Content:**

#### Learning objectives:

- To **identify** factors affecting draughts, trim, list, and stability of a ship and **compute** the condition of a ship through manual calculation.
- To **assess** a draught and stability condition against relevant legislation and **show** how the condition can become seaworthy.
- To **identify** forces affecting the hull and **analyse** a loading condition for local and global hull stress, and **explain** how to mitigate stress levels.
- To **interpret** the results of an inclining experiment.
- To **discuss** the various maintenance theories and systems and **select** appropriate methods of maintenance for a system or piece of equipment.
- To **explain** the technical configuration and operational and environmental challenges of the ballast and bilge systems.

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Situation: Laboratory. The lab exercise is designed to supplement the learning objectives on hull geometry and internal weight distribution on static stability through a model experiment.
- Student centred activities. The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - o Individual reading and answering of study questions
  - Workplace learning by utilizing simulations of the tools of a global maritime professional.
  - Subject documentation. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in.



<ul> <li>Interdisci case cove</li> </ul>	plinary case. The students are to work in their study groups on an interdisciplinary ring the learning objectives from all the subjects of the semester.
Examination:	
Examination name:	Nautical Science and Maritime Transport I
Examination type:	Case (Nautical, Technology or Management)
	Internal oral test
Crede cooles	
Grade scale:	
Preparation time:	None
Duration:	30 minutes
Aids allowed:	Interdisciplinary case
Important information:	At the examination, the student presents his/her case with focus on either the
	nautical, technology or management aspects. Each student is randomly
	assigned their focus by the Student Services and the student is informed of
	focus at the start of examination.
	The case presentation should have a duration of about 7 minutes, maximum 10 minutes.
	The remainder of the time is for cross-examination of the assigned case focus
	and or the relevant subject documentation with focus on the counting activities.
	The interdisciplinary case must contain an exclusive summary written in English.
	The maximum scope of the interdisciplinary case is 50 pages as per SIMAC
	norm.
	The subject documentation is the student's reflection on how the learning
	objectives are reached and is a compilation of theory, workplace practice and
	context.
Prerequisites for	Counting activities in the nautical, technology, and management are completed.
examination:	Description of counting activities and requirements for completion are
	described in the lesson plan.
	The case handed in as described in the lesson plan.



BS4

### Ship Technology II

Content:

#### Learning objectives:

- To assess reported defects and damage to cargo spaces, hatch covers, and ballast tanks and take appropriate action.
- To **distinguish** between the various wastes, discharges, and environmentally damaging emission generated on board ships and **outline** the treatment, storage and disposal of these wastes and discharges according to the relevant international legislation.
- To **explain** the technical configuration and operational and environmental challenges of cargo related and engineering systems and services.
- To **plan** and **monitor** safe cargo operations using relevant on board systems and applying appropriate cargo related and antipollution legislation.
- To distinguish between various cargo types and hazards and select the appropriate precautions in cargo handling and safe cargo stowage and securing using the relevant international guidelines and legislation.
- To **compute** amount of cargo loaded/discharged in various trades.
- To **identify** common automation components
- To **interpret** readouts from and **operate** integrated ship control systems
- To **explain** ship type specific intact and damage stability requirements and **assess** whether the ship complies with relevant legislation.
- To **control** fire fighting operations aboard ships, **train** and **organize** fire parties, **inspect** and **maintain** fire detection and fire extingushing systems and equipment, **investigate** and **compile** reports on incidents involving fire as set per table A-VI/3 of the STCW (practical training via external Advanced Fire Fighting Course). (CA)

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Student centred activities. The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - o Individual reading and answering of study questions
  - Individual and group presentation
  - Workplace learning by utilizing simulations of the tools of a global maritime professional.
  - Playing the action in handling DG document and stowage, segregating, loading and discharging DG on a model ship.
  - Subject documentation. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in.
  - Interdisciplinary case. The students are to work in their study groups on an interdisciplinary case covering the learning objectives from all the subjects of the semester.



Evamination	
Examination name:	Nautical Science and Maritime Transport II
Examination type:	Case (Nautical, Technology or Management)
	Internal Oral Test
Constant and a	
Grade scale:	7-point scale
Preparation time:	None 20 minutes
Aida allowed	30 minutes
Alds allowed:	At the sugginary case
Important information:	At the examination, the student presents his/her case with focus on either the
	nautical, technology or management aspects. Each student is randomly
	focus at the start of everyingtion
	The case procentation should have a duration of about 7 minutes, maximum 10
	minutes
	The remainder of the time is for cross-examination of the assigned case focus
	and or the relevant subject documentation with focus on the counting activities.
	The interdisciplinary case must contain an exclusive summary written in English.
	The maximum scope of the interdisciplinary case is 50 pages as per SIMAC
	norm.
	The subject documentation is the student's reflection on how the learning
	objectives are reached and is a compilation of theory, workplace practice and
	context.
	The learning objectives of the certifying activities are not included in this
	examination.
Prerequisites for	Counting activities in the nautical, technology, and management are completed.
examination:	Description of counting activities and requirements for completion are
	described in the lesson plan.
	The case handed in as described in the lesson plan.
Cortifuing Activity	
Certifying Activity.	
Certification name:	Advanced Fire Fighting
Examination type:	Theory: Individual written test or multiple choice
	Course: Ongoing assessment
Grade scale:	Passed/not passed
Preparation time:	None

Preparation time:	None
Duration:	Theory: 30 minutes
	Course: N/A
Aids allowed:	Theory: All
	Course: N/A
Important information:	The Theory must be passed prior participation in the advanced fire fighting
	course.
	This certifying activity must be passed prior on board training in BS5.
Prerequisites for	
certifying activity:	



### **Ship Operations I** BS5 **Content:** Learning objectives: To demonstrate how ships are constructed to safely navigate polar regions. (CA) To identify vulnerable engineering and cargo related systems and services in service in polar • regions and outline protective measures. (CA) To identify and assess the emergency situation facing a ship and respond by deciding on and prioritizing relevant action to maximize safety of persons on board and to protect the ship, the cargo, and the environment. To distinguish between the various ways of calculating the effect of a bilging and illustrate the effect of the bilging on draughts, trim, list, and stability. Learning activities: Situation: Large class. Large class activities take place in the classroom setting and consist of a • varying mix of lecturing, tutorials and student activity. Student centred activities. The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback. o Individual reading and answering of study questions • Workplace learning by utilizing simulations of the tools of a global maritime professional. o Subject documentation. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in. **Examination:**

Examination name:	Ship Operations I
Examination type:	Ongoing Assessment
Grade scale:	Passed/Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important information:	The ongoing assessment is based upon completion of the counting acitivities. The examination of the learning objectives will take place in the exam in Ship Operations II, BS7. The learning objectives of the certifying activity are not included in this examination.
Prerequisites for examination:	None


Certifying Activity:	
Certification name:	Basic Training for Service on Ships Operating in Polar Waters
Examination type:	Ongoing Assessment
Grade Scale:	Passed/Not passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	This certifying activity includes relevant learning objectives from Maritime Law I & HSEQ and Nautical Science II. This certifying activity must be passed prior on board training in BS5.
Prerequisites for certifying activity:	



**BS7** 

# **Ship Operations II**

Content:

#### Learning objectives:

- To **illustrate** the working principles of modern marine engines and **outline** their response to manipulation of their remote controls.
- To assess relevant factors affecting the safe manoeuvring and handling of a ship in berthing, anchoring, docking, or passage in various conditions of loading and weather and select appropriate action to maintain safety of navigation, minimize any risk to the safety of the ship, and optimize the operation of the ship.
- To **monitor** the weather and sea condition the ship is facing and **select** appropriate action to maintain the safety of navigation, minimize any risk to the safety of the ship, and **optimize** the operation of the ship.

To discuss methods of complying with international emission legislation and describe IMOs ambitions to

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing and student activity.
- Situation: Simulator Workplace learning. The simulator exercises are designed to provide a series
  of complex and challenging workplace situations of a ship approach and berthing situation where
  students have to route plan and optimize the port approach and berthing whilst exercising good
  seamanship and leadership, maintaining control of comprehensive internal and external
  communication and taking into account the uncontrollable and controllable forces acting on a ship
  in literal sea areas and ports.
- Student centred activities. The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - o Individual reading and answering of study questions
  - Workplace learning by utilizing simulations of the tools of a global maritime professional.
  - Syllabus documentation. The syllabus documentation is the student's reflection on how the learning objectives of the technology subjects are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in.Interdisciplinary nautical and technology case.

Examination name:	Ship Operations II	
Examination type:	Case	
	External oral exam	
	Individual	
Grade scale:	7-point scale	
Preparation time:	None	
Duration:	45 minutes	



Aids allowed:	Interdisciplinary nautical and technology case
Important information:	At the examination the student presents their case with focus on the technology aspects. The case presentation should have a maximum duration of 10 minutes. The case must be written in English and the maximum scope is 30 pages as per SIMAC norm. The remainder of the time is for cross-examination of the case and or the syllabus documentation
Prerequisites for examination:	Counting activities in Ship Operations II completed and the interdisciplinary nautical and technology case handed in as per deadline from Student Services.



## **Medical Care Course**

BS7

#### **Content:**

The student acquires the medical care competences necessary to perform the duties of person in charge of the medical care on board ship. The student will acquire sufficient knowledge to take immediate effective action in case of accidents or illness likely to occur on board ship as set per table A-VI/4-2 of the STCW.

#### Learning objectives:

- To function as the Radio Medical doctor's eyes, ears and hands when treating a sick or injured person by using the contents of:
  - "Medical Book for Seafarers"
  - "Record, Control Document and User Guidelines Category A" and
  - "Radio Medical Records"
  - "Medicine chest Category A"

under the framework of current law.

- To carry out independently the first aid and pre-hospital caretaker procedures according to the "Medical Book for Seafarers"
- To identify and use mobile resuscitation equipment
- To insert an intravenous cannula, a drip, and use injection technics

#### Learning activities:

Examination name:	Medical Care Course
Examination type:	Ongoing assessment
Grade scale:	Passed/not Passed
Preparation time:	N/A
Duration:	N/A
Aids allowed:	N/A
Important information:	
Prerequisites for	
examination:	



Subject area:	10600	Management (BS)		
Subject(s):	10631	Maritime Law I and HSEQ	BS3	7,5 ECTS
	10641	Maritime Law II and HRM	BS4	7,5 ECTS
	10671	Shipping Commerce	BS7	5 ECTS
	10672	Master's Maritime Law	BS7	5 ECTS
Admission criteria:				
Semester:	BS3 + BS4 + BS7			
ECTS credits:	25			
Course Regulation:	Master M	ariner (BS) version 6.10, 1 February 2022.		
Orders:	<ul> <li>Order on the professional Bachelor Training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> <li>Order on training programme for maritime security of ships – Danish order no 1279 of 7 November 2013, as amended.</li> <li>Order on occupational health training for members of the safety group in merchant ships and on occupational health teacher training issued by the Danish Maritime Authority – Danish order no. 795 of 22 June 2017.</li> <li>Order on training programme and certificates for service on ships operating in Polar Waters – Danish order no 762 of 11 June 2018, as amended.</li> <li>Order on safety work in merchant ships (Working environment in ships) - Danish order no. 846 of 25 June 2018.</li> </ul>			
STCW:	<ul> <li><u>STCW Code, as amended: Part A, chapter II - Master and deck department:</u> Section A-II/1 – Operational level</li> <li>Controlling the operation of the ship and care for persons on board at the operational level</li> <li>Section A-II/2 – Management level</li> <li>Controlling the operation of the ship and care for persons on board at the management level</li> <li><u>STCW Code, as amended: Part A, chapter VI - Emergency, Safety, Security:</u> Section A-VI/5, paragraph 1 to 4</li> <li>Ship Security Officers as set in tablet A-VI/5</li> <li><u>STCW Code, as amended: Part A, chapter V – Special training requirements</u> Section A-V/4</li> <li>Basic training for ships operation in polar waters as set in table A-V/4-1.</li> </ul>		the the	



Certificate(s):	<u>Certificate of Proficiency as Ship Security Officers</u> is issued when experience of at least 12 months relevant seagoing service is proved and completed the specialized training programme prescribed in Regulation VI/5 paragraph 1.2 of the STCW Convention of 1978, as amended and the Danish order no 1279 of 7 November 2013, as amended. <u>Course Certificate of Training in Safety &amp; Health §16 course</u> is issued upon completion of the training programme prescribed in the Danish order no. 795 of 2 June 2017, as amended. <u>Certificate of proficiency in basic training for service on Ships operating in Polar Waters</u> is issued upon completion of the training programme prescribed in Regulation V/4, paragraph 2 of the STCW Convention of 1978, as amended and the Danish order no 762 of 11 June 2018, as amended.		
Qualification prerequisites for professors/ins tructors etc.	<ul> <li>Associate professors or assistant professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall: <ul> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> </ul> </li> <li>In accordance with the Danish order no. 765 of 22 June 2017 the instructor of §16 safety and health working environment courses shall have completed a training programme for teachers of working environment approved by the Danish Maritime Authority.</li> </ul>		
Core literature			
Responsible:	Subject Manager	Subject Manager	
Valid from:	2022-1	EIN	
Expired:			
Remarks:			



#### Purpose

Successful completion of this Management module will qualify the student for a managerial position at sea or ashore where he or she will be able to apply leadership competences, skills, and knowledge of the legal framework and commercial practices of the maritime industry in a safe, innovative and intercultural manner.

## Maritime Law I and HSEQ

#### **Content:**

# BS

BS3

ient:

#### Learning objectives:

- To **identify** how various internal or external bodies from within the maritime industry interact with the vessel and her operator's departments
- To **identify** and **apply** the international and national legal framework and regulatory instruments of the maritime industry into the management of a merchant vessel, her crew and operator
- To **apply** the correct Danish and international maritime codes in situations relevant in the role of junior navigating officer
- To **apply** the seafarer's rights and obligations in complex employment situations including the role of the crewing manager in consideration of crew contracts, qualifications and certificates
- To **review**, **appraise** and **document** compliance within the ISM Code and other quality assurance systems within Health (§16), Safety and Environment (CA)

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Student centred activities. The student centred activities are aimed at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - Individual reading and answering of study questions
  - Role play action in various situations that the officer can face
  - Subject documentation. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in.
  - Interdisciplinary case. The students
  - are to work in their study groups on an interdisciplinary case covering the learning objectives from all the subjects of the semester.

Examination name:	Nautical Science and Maritime Transport I	
Examination type:	Case (Nautical, Technology or Management)	
	Individual	
Grade scale:	7-point scale	



Prenaration time	None	
Duration:	30 minutes	
Alds allowed:	Interdisciplinary case	
Important information:	At the examination, the student presents his/her case with focus on either the nautical, technology or management aspects. Each student is randomly assigned their focus by the Student Services and the student is informed of focus at the start of examination.	
	The case presentation should have a duration of about 7 minutes, maximum 10 minutes.	
	The remainder of the time is for cross-examination of the assigned case focus and or the relevant subject documentation with focus on the counting activities. The interdisciplinary case must contain an exclusive summary written in English. The maximum scope of the interdisciplinary case is 50 pages as per SIMAC norm. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. The learning objectives of the certifying activities are not included in this examination.	
Prerequisites for examination:	Counting activities in the nautical, technology, and management are completed. Description of counting activities and requirements for completion are described in the lesson plan. The case handed in as described in the lesson plan.	

# **Certifying Activity:**

Certificate name:	Safety & Health §16 course
Examination type:	Ongoing assessment
Grade scale:	Passed/not passed
Preparation time:	N/A
Duration:	N/A
Aids allowed:	N/A
Important information:	This certifying activity must be passed prior on board training in BS5.
Prerequisites for	
certifying activity:	



## Maritime Law II and HRM

BS4

#### Content:

#### Learning objectives:

- To **appraise** flag state, class, port state and commercial vessel inspection regimes that ensure maritime compliance
- To **explain** how adherence to governing laws and regulations lead to issuance of ship certificates
- To carry out the duties of a Ship Security Officer in cooperation with the CSO, PFSO and ship's master and crew (CA)
- To **define** basic organizing concepts such as division of labour, chain of command, and span of control
- To **distinguish** between different factors that influence diversity awareness and **explain** how they may affect maritime operations
- To **describe** the basic characteristics of organizational culture
- To **assess** how leadership styles can affect the performance of the employee and teams within the organization
- To **evaluate** principles of human resource management and **distinguish** between different techniques, activities and approaches and their relevance to a multicultural environment

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Student centred activities. The student centred activities are aimed at the study groups. The
  function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For
  student centred activities the assistant or associate professor(s) are available for tutoring,
  professional guidance, and formative feedback.
  - Individual reading and answering of study questions
  - Role play action in various situations that the officer can face
  - Subject documentation. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in.
  - Interdisciplinary case. The students are to work in their study groups on an interdisciplinary case covering the learning objectives from all the subjects of the semester.

Examination name:Nautical Science and Maritime Transport IIExamination type:Case (Nautical, Technology or Management) Internal oral test IndividualGrade scale:7-point scalePreparation time:NoneDuration:30 minutes		
Examination type:Case (Nautical, Technology or Management) Internal oral test IndividualGrade scale:7-point scalePreparation time:NoneDuration:30 minutes	Examination name:	Nautical Science and Maritime Transport II
Grade scale:7-point scalePreparation time:NoneDuration:30 minutes	Examination type:	Case (Nautical, Technology or Management) Internal oral test Individual
Preparation time:NoneDuration:30 minutes	Grade scale:	7-point scale
Duration: 30 minutes	Preparation time:	None
	Duration:	30 minutes



Aids allowed:	Interdisciplinary case
Alus alloweu.	interdisciplinary case
Important information:	At the examination, the student presents his/her case with focus on either the nautical, technology or management aspects. Each student is randomly assigned their focus by the Student Services and the student is informed of focus at the start of examination. The case presentation should have a duration of about 7 minutes, maximum 10 minutes. The remainder of the time is for cross-examination of the assigned case focus and or the relevant subject documentation with focus on the counting activities. The interdisciplinary case must contain an exclusive summary written in English. The maximum scope of the interdisciplinary case is 50 pages as per SIMAC norm.
	The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. The learning objectives of the certifying activities are not included in this examination.
Prerequisites for	Counting activities in the nautical, technology, and management are completed.
examination:	Description of counting activities and requirements for completion are described in the lesson plan.
	The case handed in as described in the lesson plan.

#### **Certifying Activity:**

, , ,	
Certificate name:	Proficiency as Ship Security Officers
Examination type:	Ongoing assessment
Grade scale:	Passed/not passed
Preparation time:	N/A
Duration:	N/A
Aids allowed:	N/A
Important information:	This certifying activity must be passed prior on board training in BS5.
Prerequisites for	
certifying activity:	

## **Shipping Commerce**

## BS7

#### Content:

#### Learning objectives:

- To **describe** the dynamics within a maritime organization, and their effect on performance
- To **explain** the principles and concepts relating to maritime business and outline the factors that influence it, and propose innovative optimization solutions
- To **apply** management and financial knowledge related to maritime practices
- To **compare** difference maritime business and economics approaches, and **assess** their effect on maritime operations
- To **evaluate** on business activities and **assess** their impact, both present and in the future, on the maritime industry and professional practice



#### • To communicate your proposals

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Student centred activities. The student centred activities are aimed at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - o Individual reading and answering of study questions
  - o Role play action in various situations that the master can face
  - Subject documentation. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in.
  - $\circ$   $\;$  Student presentations with peer-on-peer feedback.
  - Management project. The students are to work in their study groups on a management project covering the learning objectives from all the subjects of the semesters'.



#### **Master's Maritime Law BS7 Content:** Learning objectives: To debate the master's duties as representative of the shipowner, operator, charterer, cargo owner, crew manager and representative of the flag state (stakeholders) • To **outline** the master's power of attorney in situations such as general average, salvage, towage, maritime lien and arrest • To appraise the insurance needs of the shipowner, operator, charterer, cargo owner, crew manager and identify which insurance policy applies in given situations • To select relevant evidence following accidents in order to secure the legal and commercial position of stakeholders To select relevant action in any given situation to protect the interests of the shipowner, operator, charterer and cargo owner Learning activities: Situation: Large class. Large class activities take place in the classroom setting and consist of a • varying mix of lecturing, tutorials and student activity. Student centred activities. The student centred activities are aimed at the study groups. The • function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback. • Individual reading and answering of study questions • Role play action in various situations that the master can face Subject documentation. The subject documentation is the student's reflection on how the 0 learning objectives are reached and is a compilation of theory, workplace practice and context. Some core topics of the subject documentation are counting activities and are mandatory to hand in. Management project. The students are to work in their study groups on a management 0 project covering the learning objectives from all the subjects of the semesters'. **Examination:** Management (Shipping Commerce and Master's Maritime Law): Examination name: Examination type: Project (Management) External oral exam Individual Grade scale: 7-point scale Preparation time: None Duration: 45 minutes Aids allowed: Interdisciplinary management project Important information: At the examination the student presents the project with focus on the Management subjects. The project must be written in English, and maximum scope is 14 pages as per SIMAC norm.





	The presentation should have a maximum duration of 10 minutes'. The remainder of the time is for cross-examination of the project and or the syllabus documentation with focus on the counting activities.
Prerequisites for examination:	Counting activities are completed. Description of counting activities and requirements for completion are described in the lesson plan. The project handed in as described in the lesson plan.



Subject area:	10700 Interdisciplinary Elements and Methodology (BS)			
Subject (s):	10731	Interdisciplinary case I (Nautical Science and Maritime Transport I)	BS3	2½ ECTS
	10741	Interdisciplinary case II (Nautical Science and Maritime Transport II)	BS4	2½ ECTS
	10771	Interdisciplinary Management project	BS7	5 ECTS
	10781	Bachelor project	BS8	15 ECTS
Admission criteria:	The final Bachelor Project period in BS8	All subjects of the BS education programme must accordance with the course regulations for Maste Professional Work Experience.	t be pass er Marin	ed in er, except
Semester:	BS3 + BS4 + BS7 +	BS8		
ECTS credits:	10 ECTS - (Interdisciplinary elements and methodology) 15 ECTS - (Bachelor Project)			
Course Regulations:	• Master Mariner (BS) version 6.10, 1 February 2022.			
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on tests in the maritime training programmes - order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination - order no 114 of 3 February 2015, as amended.</li> </ul>			
STCW:	None			
Certificate(s):	None			
Qualification prerequisites for professors/instru ctors etc.	<ul> <li>Interdisciplinary and Methodology:</li> <li>Associate professors or assistant professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall: <ul> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> </ul> </li> <li>Bachelor project: <ul> <li>Associate professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall: <ul> <li>have a qualification level that is higher than the level of learning objectives for the subject training being conducted.</li> </ul> </li> </ul></li></ul>			





	<ul> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> <li>Assistant professors can act as bachelor supervisors when they are on the final part of their master's degree.</li> </ul>		
Core literature			
Responsible:	Robert Rickmann		
Valid from:	2022-1	EIN	
Expired:			
Remarks:	None		



## Purpose

The purpose of this subject is to train the ability of the student to gather and process information and to find and utilise relevant theories in order to work with scientific projects based on a self defined problem within the area of the profession. The subject also trains the ability to combine knowledge from various fields within the profession as well as the ability to evaluate the own process of work and the results.

# Interdisciplinary case I => Nautical Science and Maritime Transport I

#### **Content:**

BS

## BS3

#### Learning objectives:

- Distinguish between basic scientific theories
- Conduct a targeted information search
- Devise a protocol and documentation
- Describe a study design and explain the impact of the design on the study's reliability and validity
- To **produce** astructured professional paper in accordance with set academic requirements on relevant professional subjects and problems.

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Student centred activities. The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the course such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - Interdisciplinary case. The students are to work in their study groups on an interdisciplinary 0 case covering the learning objectives from all the subjects of the semester.
  - Written work. In all subjects of the semester the students are to perform written work in 0 accordance with set academic requirements

Examination name:	Nautical Science and Maritime Transport I
Examination type:	Case (Nautical, Technology or Management) Internal oral test
Crada anala:	
Grade scale:	7-point scale
Preparation time:	None
Duration:	30 minutes
Aids allowed:	Interdisciplinary case
Important information:	At the examination, the student presents his/her case with focus on either the nautical, technology or management aspects. Each student is randomly assigned their focus by the Student Services and the student is informed of focus at the start of examination.





	The case presentation should have a duration of about 7 minutes, maximum 10 minutes. The remainder of the time is for cross-examination of the assigned case focus and or the relevant subject documentation with focus on the counting activities. The interdisciplinary case must contain an exclusive summary written in English. The maximum scope of the interdisciplinary case is 50 pages as per SIMAC norm. The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context.
Prerequisites for examination:	The interdisciplinary case is handed in as per deadline in the lesson plan.



#### BS4 Interdisciplinary case II => Nautical Science and Maritime Transport II **Content:** Learning objectives: To **select** the relevant scientific research method and **explain** the prerequisites for different types of data-analysis. To design quantitative and qualitative research, analyse the result, and assess the reliability and validity of the results. To produce a structured and well argumented professional paper in accordance with academic standards on complex and relevant professional issues. Learning activities: Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity. Student centred activities. The student centred activities are aimed mainly at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor (s) are available for tutoring, professional guidance, and formative feedback. Interdisciplinary case. The students are to work in their study groups on an interdisciplinary 0 case covering the learning objectives from all the subjects of the semester. Written work. In all subjects of the semester the students are to perform written work in 0 accordance with set academic requirements **Examination:** Nautical Science and Maritime Transport II Examination name: Case (Nautical, Technology or Management) Examination type: Internal Oral Test Individual Grade scale: 7-point scale Preparation time: None Duration: 30 minutes Aids allowed: Interdisciplinary case Important information: At the examination, the student presents his/her case with focus on either the nautical, technology or management aspects. Each student is randomly assigned their focus by the Student Services and the student is informed of focus at the start of examination. The case presentation should have a duration of about 7 minutes, maximum 10 minutes. The remainder of the time is for cross-examination of the assigned case focus and or the relevant subject documentation with focus on the counting activities. The interdisciplinary case must contain an exclusive summary written in English. The maximum scope of the interdisciplinary case is 50 pages as per SIMAC norm.





	The subject documentation is the student's reflection on how the learning objectives are reached and is a compilation of theory, workplace practice and context.
Prerequisites for examination:	The interdisciplinary case is handed in as per deadline in the lesson plan.



# **Interdisciplinary Management Project**

## BS7

#### **Content:**

#### Learning objectives:

- Demonstrate multi-causal data analysis and mixed methods approaches
- **Conduct** a study in accordance with relevant scientific methods and standardTo critical **reflect** and **evaluate** different types of research designs
- To write a scientific paper in accordance with academic standards
- Disseminate complicated professional issues to professionals in the maritime industry

#### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Student centred activities. The student centred activities are aimed at the study groups. The function of the groups may vary during the subject such as buzz groups, learning cells, etc.. For student centred activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - Project. The interdisciplinary management project is further described in the Management syllabus.
  - Student presentations with individual or group peer-on-peer feedback.

E	
Examination name:	Management (Shipping Commerce and Master's Maritime Law):
Examination type:	Project (Management)
	External oral exam
	Individual
Grade scale:	7-point scale
Preparation time:	None
Duration:	45 minutes
Aids allowed:	Interdisciplinary management project
Important information:	At the examination the student presents the project with focus on the
	Management subjects. The project must be written in English, and maximum scope is 14 pages as per SIMAC norm.
	The presentation should have a maximum duration of 10 minutes'. The
	remainder of the time is for cross-examination of the project and or the syllabus
	The presentation should have a maximum duration of 10 minutes'. The
	remainder of the time is for cross-examination of the project and or the syllabus
	documentation with focus on the counting activities.
Prerequisites for	Counting activities are completed.
examination:	Description of counting activities and requirements for completion are
	described in the lesson plan.
	The project handed in as described in the lesson plan.



#### **BS8 Bachelor project** Content: Learning objectives: To define a relevant research problem within the field of the profession To apply relevant scientific research designs and methods to the problem To evaluate and discuss the chosen research designs, -methods and the process. To evaluate, discuss and disseminate the results and conclusions with professionals in the maritime industry Learning activities: Situation: Large class. The large class activity takes place in the classroom setting and consists of an introduction to the bachelor project. Student centred activities. The student centred activities can be performed on an individual or • group basis. Each student or group of students can choose between available assistant and associate professors for tutoring and guidance on the project. Bachelor project. The research, analysis work and production of the project is the sole student centred activity of the semester. **Examination: Bachelor Thesis** Examination name: External oral exam Examination type: Individual Grade scale: 7-point scale Preparation time: None Duration: 1 hour Aids allowed: All Important information: Exam Language: • The project can be written in either English or Danish. The examination will be carried out in either English or Danish at the • choice of the student. The student must notify the student administration if the project and the examination will be held in English. Notice is given when handing in the preliminary problem statement. The ability to formulate and spell is an integral part of the assessment of the academic content. **Examination:** • The student starts the examination with a 15 minutes' presentation. **Before examination:** The BA methodology course must be passed before handing in the • preliminary problem statement. The preliminary problem statement must be handed in no later than 2 weeks after commencing the project period in accordance with the lesson plan





	• The final problem statement must be approved by the supervisor and handed in/uploaded as described in the lesson plan no later than 3 weeks before the deadline set for the final hand-in of actual project.
	After examination: Students resitting the exam do not need to hand in a preliminary problem statement or a final problem statement, provided it has been approved by the supervisor for re-examination.
Prerequisites for examination:	All other subjects and Professional Work Experience of the BS education programme must be passed in accordance with the course regulations for Master Engineer. The bachelor project problem statement must be approved by the turoring assistant or associate professor prior the the bachelor project hands-in on time in accordance with the lesson plan.

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# **BS – Subject Syllabus**

Subject area:	10800	Elective Subjects (BS)	
Subject(s):	88100	Elective Subject ( <b>BS</b> , BM, BJ & SE)	
	88105	Operational Optimization and Management Tools	3 ECTS
	88109	Negotiating Skills	3 ECTS
	88110	Communication Skills	2 ECTS
	88111	Advanced Training for Liquefied Gas Tanker Cargo Operations	2 ECTS
	88120	Project management	2 ECTS
	88122	Pax-RoRo	2 ECTS
	88125	Shipping and chartering	2 ECTS
	88129	Advanced English	2 ECTS
	88148	Innovation and Entrepreneurship I+II	5 ECTS
	88135	Advanced Polar Code Training	2 ECTS
	88141	Energy Efficient Ship Operation	2 ECTS
	88143	Globalization	2 ECTS
	88144	Offshore Support Operation	3 ECTS
	88145	Advanced Training for Oil & Chemical Tanker Cargo Operations	3 ECTS
	88146	Human Factors in Safety	5 ECTS
	88150	Cross-Cultural Leadership	3 ECTS
	88149	How to Start a Business and Private Legislation	5 ECTS



Subject area:	88000	Elective Subject (BS+BJ+SE)		
Subject(s):	88100	Elective Subject		
	88105	Operational Optimization and Management Tools	3 ECTS	
Admission criteria:	None			
Criteria to pass subject	<ol> <li>These assessments make up the subject:         <ol> <li>None assessment using the 7-point grade scale.                 <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>One assessment graded Passed/Not Passed.                     <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ol></li> </ol>			
Semester:	BS5 + BS7 + BJ6 +	BS5 + BS7 + BJ6 + SE(SKF) + SE(MCH) + SE(SCH)		
ECTS credits:	3			
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> </ul>			
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>			
STCW:	None			
Certificate(s):	None			
Responsible:	Subject Manager			
Valid from:	2022-1	EIN		
Expired:				
Remarks:	None			



## Purpose

The objective of this course is to qualify the student to understand and use different optimizing- and management tools. Upon completion of the course, the student will gain the necessary knowledge, understanding, skills and competences to optimize workflows onboard and ashore.

## Learning objectives

#### **Operational Optimization and Management Tools (88105):**

#### Knowledge:

- Management tools as LEAN, JIT, SIX SIGMA and KAIZEN.
- Operational optimization influence on organization and economy.

#### <u>Skills</u>:

None

#### Competencies:

• Implement and use management tools to improve the organization's work environment, safety and economy

## **Core literature**

None

## Examination

#### **Operational Optimization and Management Tools (88105):**

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	



## Qualification prerequisites for professors/instructors etc.

Associate professors or assistant professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS+BM+BJ+SE)		
Subject(s):	88100	Elective Subject		
	88109	Negotiating Skills	3 ECTS	
Admission criteria:	None			
Criteria to pass subject	<ol> <li>These assessments make up the subject:         <ol> <li>None assessment using the 7-point grade scale.</li> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ol> </li> <li>One assessment graded Passed/Not Passed.         <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ol>			
Semester:	BS5 + BS7 + BM8 + BJ5/BJ6 + SE(SKF) + SE(MCH) + SE(SCH) BM8 (Specialization: Management)			
ECTS credits:	3			
Course Regulations:	<ul> <li>Master Mariner</li> <li>Marine Enginee</li> <li>Ship Officer (BJ-</li> <li>Master Mariner</li> <li>Marine Enginee</li> <li>Ship Officer (BJ)</li> </ul>	(BS) Version 5.80, 1 February 2021. r (BM) Version 5.80, 1 February 2021. -SE) Version 5.80, 1 February 2021. (BS) Version 6.10, 1 February 2022. r (BM) Version 6.10, 1 February 2022. Version 6.10, 1 February 2022.		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no 1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programme for Ship Officer no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>			

STCW:	None	
Certificate(s):	None	
Responsible:	Subject Manager	
Valid from:	2022-1	EIN
Expired:		
Remarks:	None	

## Purpose

This negotiating skills course will enable students to understand how they can negotiate constructively with principals, colleagues, suppliers and contact negotiations and be able to carry out a negotiation, which creates a win-win outcome for all parties. This course covers all the basics of negotiating in a practical and interactive way.

## Learning objectives

#### Negotiating Skills (88109):

#### Knowledge:

- Your values and how they impact on your negotiations.
- Understanding the nature of the gap between you and the other party.
- Styles and negotiators.
- Understand the structure underlying all negotiations.
- Identify the appropriate skills used in negotiations.
- Creating win-win negotiations.
- Preparing for a negotiation and setting objectives.
- Finding out as much as you can about the other party's needs and aspirations.
- Developing a strategy for success.
- Framing.
- Recognizing and dealing with 'underhand' tactics and manipulation.
- The importance of establishing a productive environment.
- Cross-cultural negotiations understanding and dealing with different cultures.
- Understanding the meaning and importance of body language.
- Understanding the communication process.

#### <u>Skills</u>:

- Listening skills.
- Assertiveness how to be assertive, but not aggressive, in negotiations.
- Questioning skills.
- Finding innovative solutions to objections.
- Summarizing and synthesizing skills.



#### Competencies:

- Open a negotiation.
- Conduct a negotiation both in English and in Danish.
- Handle objections.
- Question his or her negotiating partner.

## **Core literature**

Forhandlingsteknik i teori og praksis af Anne Bay Nordtorp.

## Examination

#### Negotiating Skills (88109):

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

## Qualification prerequisites for professors/instructors etc.

Associate professors or assistant professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:

- have a qualification level that is the same or higher than the level of learning objectives for the subject
  - and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS+BM+BJ+SE+Tutor)	
Subject(s):	88100	Elective Subject	
	88110	Communication Skills	2 ECTS
Admission criteria:	None		
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>		
Semester:	BS5 + BS7 + BM8 + BJ5/BJ6 + SE(SKF) +SE(MCH) +SE(SCH) + Tutor BM8 (Specialization: Management)		
ECTS credits:	2		
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Marine Engineer (BM) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Marine Engineer (BM) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> </ul>		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE! eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>		



STCW:	None	
Certificate(s):	None	
Responsible:	Subject Manager	
Valid from:	2022-1	EIN
Expired:		
Remarks:	None	

## Purpose

The student will obtain knowledge, skills, and competences for planning, carrying out, and reflecting on the communication of a message by various means.

## Learning objectives

#### Communication Skills (88110):

#### Knowledge:

- The basic terms of communication.
- The background of the participants/receivers.
- The effects of various means of communicating a message and the interaction between the sender and receiver of a message.

#### <u>Skills</u>:

- Plan and carry out the communication of a message by various means and to various target audiences.
- Choose the method to communicate a message.
- Use common technical means to communicate or present a message (e.g. presentation software, A/V equipment).

#### Competencies:

- Reflect on a communication course carried out.
- Estimate which means of communication would be appropriate in a given situation.
- Suggest adjustments based on the evaluation of a communication course.

### **Core literature**

None



## Examination

#### Communication Skills (88110):

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

# Qualification prerequisites for professors/instructors etc.

Associate professors or assistant professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:

- have a qualification level that is the same or higher than the level of learning objectives for the subject
  - and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS+BJ+SE)	
Subject(s):	88100	Elective Subject	
	88111	Advanced Training for Liquefied Gas Tanker Cargo Operations	2 ECTS
Admission criteria:	Passed Basic Training for Oil, Chemical & Gas Tanker Cargo Operations		
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>		
Semester:	BS5 + BS7 + SE(SKF) + SE(MCH) + SE(SCH)		
ECTS credits:	2		
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ Version 6.10, 1 February 2022.</li> </ul>		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner– Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner- Danish order no. 1349 of 23 November 2018 as amended. This order is for students who were registered in BS1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015 as amended.</li> </ul>		
STCW:	<ul> <li>STCW Code, as amended: Part A, chapter V - Special training requirements Section A-V/1-2, paragraph 3</li> <li>Advanced training for liquefied gas tanker cargo operations as set in tablet A-V/1-2-2</li> </ul>		
Certificate(s):	<u>Certificate of Advanced Training for Liquefied Gas Tanker Cargo Operations</u> is issued upon completion of the training programme prescribed in Regulation V/1-2, paragraph 4.3 of the STCW Convention of 1978, as amended and the Danish order on training programme for Tanker Operations and the Danish order no 1165 3. November 2014, as amended.		





	Danish Maritime Authority <i>can issue <u>Certificate of Proficiency in Advanced Training for</u> <u>Liquefied Gas Tanker Cargo Operations</u>, when experience of at least 3 months relevant seagoing service on a Gas Tanker is proved and completed the specialized training programme prescribed in Regulation V/1-2, paragraph 4 of the STCW Convention of 1978, as amended.</i>	
Responsible:	Subject Manager	
Valid from:	2022-1	EIN
Expired:		
Remarks:	None	

## Purpose

The overall purpose is to enhance safety of liquefied gas tanker cargo operations on board liquefied gas tankers and thereby reducing the risk of injuries or death to crewmembers and preventing damage to the ship, the cargo and the environment. The course will provide the student the knowledge, skills and competences to safely perform and monitor cargo operations taking cargo hazards into account in relation to occupational health and safety and the environment in compliance with legislative requirements.

## Learning objectives

#### Advanced Training for Liquefied Gas Tanker Cargo Operations (88111):

#### Knowledge:

- Liquefied gas tanker design, cargo systems and equipment including:
  - Types of liquefied gas tankers and cargo tank construction
  - o General arrangement and construction
  - o Cargo containment systems including materials of construction and isulation
  - Cargo handling equipment:
    - Cargo pumps and pumping arrangement
    - Cargo pipelines and valves
    - Expansion devices
    - Flame screens
    - Temperature monitoring systems
    - Cargo tank level gauging systems
    - Tank pressure monitoring and control system
  - Cargo temperature maintenance system
  - Tank atmosphere control system (inert gas, nitrogen) including storage, generation and distribution systems
  - Cofferdam heating systems
  - Gas detection systems
  - Ballast systems
  - o Boil-off systems
  - o Reliquefaction systems





- o ESD
- Custody transfer system
- Pump theory, different types of pumps and their operation
- Loading, unloading, care and handling of cargo including:
  - The cargo's effect on trim, stability and structural integrity
  - o Application of cargo related operation plans, procedures and checklists for:
    - Post docking and loading including:
      - Tank inspection
      - Inerting
      - Gassing up
      - Cooling down
      - Loading
      - Deballasting
      - Sampling
    - Sea passage including:
      - Cooling down
      - Pressure maintenance
      - Boil-off
      - Inhibiting
    - Unloading
      - Unloading
      - Ballasting
      - Stripping and cleaning systems
      - Systems to make tank liquid free
    - Predocking preparations including:
      - Warm up
      - Inerting
      - Gas freeing
      - Ship to ship transfer
- Physical and chemical properties of noxious liquid cargoes including the MSDS and:
  - Chemical structure
  - Vapours:
    - Simple gas laws
    - States of matter
    - Liquid and vapour densities
    - Diffusion and mixing of gases
    - Compression of gases
    - Reliquefaction and refrigeration of gases
    - Critical temperature
    - Flashpoints
    - Compatibility, reactivity and positive segregation of gases
    - Polymerization
    - Saturated vapour pressure
    - Dew and bubblepoint
    - Lubrication of compressors
    - Hydrate formation
  - Liquid:
    - Properties of a single liquid
    - Nature and properties of solutions
    - Thermodynamic units



- Basic thermodynamic laws and diagrams
- Properties of materials
- Effect of low temperature
- Hazards and the appropriate precautions to counter these during cargo operations including:
  - o Flammability and explosion
  - Toxicity
  - Health hazards
  - $\circ \quad \text{Inert gas composition} \\$
  - o Electrostatic hazards
  - o Reactivity
  - $\circ$  Corrosivity
  - Polymerizing cargoes
  - o Dangers of non-compliance with relevant rules and regulations
- Occupational health and safety including:
  - o Safe work practices
  - Precautions when entering enclosed spaces
  - o Repair work precautions including cold and hot work
  - o Electrostatic precautions
  - Use of PPE including toxic gas monitoring equipment
  - Cold burn and frostbite
- Emergency procedures on board noxious liquid tankers
- Precautions to prevent pollution of the environment
- Legislative requirements concerning noxious liquid tanker cargo operations
- Industry requirements concerning oil tanker cargo operations

#### <u>Skills</u>:

- Planning of cargo operations with regards to:
  - Ship arrangement, cargo systems and equipment
  - Ship stability, trim and stress
  - Cargo properties and hazards
  - Application of occupational health and safety and safe working practices including risk assessment and personal shipboard safety relevant for oil tankers
  - o Environmental and local legislative requirements
  - o Industry guidelines
- Perform and monitor cargo operations and react appropriately on failure of systems or services essential to cargo operations
- Cargo measurements and calculations including liquid and vapour phase, on board quantity, remain on board quantity and boil-off calculations
- Manage and supervise personnel with cargo-related responsibilities
- Calibrate and use gas monitoring and detection systems and equipment
- Responds to emergencies according to MFAG and the SMPEP including ESD, rescue from enclosed spaces, emergency cargo valve operation and fire fighting
- Take precautions to avoid pollution of the atmosphere and the environment
- Monitor and control compliance with legislative requirements i.e. Marpol convention, IGC code, other relevant IMO guidelines, industry guidelines and commonly applied port regulations

#### Competencies:

• Conduct safe noxious liquid tanker cargo operations


## **Core literature**

- SOLAS convention from IMO
- FSS code from IMO
- MARPOL convention from IMO
- IGC code from IMO
- IBC code from IMO
- ISGOTT
- Tanker Safety Guide Liquefied Gases

### Examination

### Advanced Training for Liquefied Gas Tanker Cargo Operations (88111):

Examination type:Ongoing assessmentGrading scale:Passed or Not PassedPreparation time:NoneDuration:N/AAids allowed:N/AImportant Information:NonePrerequisites forExamination:

# Qualification prerequisites for professors/instructors etc.

- have a qualification level that is higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.
   and in accordance with the Danish order no. 1165 of 3 November 2014, as amended
- have practical experience on board liquefied gas tankers at management level and the instructor shall be
  - Associate professor at a maritime academy with specific theoretical and professional knowledge of liquefied gas tankers and their operations acquired as surplus officer on board a liquefied gas tanker or
  - Senior ships officer with minimum 2 years of experience on board liquefied gas tanker and trained in teaching.



Subject area:	88000	Elective Subject (BS+BJ+SE)	
Subject(s):	88100	Elective Subject	
	88120	Project management 2 ECTS	
Admission criteria:	None		
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0.</li> <li>(no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>		
Semester:	BS5 + BS7 + BJ5/B	J6 + SE(SKF+MCH+SCH)	
ECTS credits:	2		
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> </ul>		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>		
STCW:	None		
Certificate(s):	None		
Responsible:	Subject Manager		
Valid from:	2022-1	EIN	
Expired:			
Remarks:	None		
Purpose			





The objective of this course is to qualify the student to understand and use generally project management tools. Upon completion of the course, the student will have ability and knowledge of the process and activity of planning, organizing, motivating, and controlling resources and procedures to achieve specific goals.

## Learning objectives

### Project management (88120):

### Knowledge:

- Basic phases of Project management.
- Methods to achieve specific and measurable goals.
- Management planning and schedule tools like the Gantt chart.
- Roles in Project Management (project manager, project team, project owner).

#### <u>Skills</u>:

- Deal with scope, time, quality and budget of a project.
- Participate in a project team.

#### **Competencies**:

• Achieve the project goals and objectives.

### **Core literature**

None



## Examination

### Project management (88120):

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

# Qualification prerequisites for professors/instructors etc.

- have a qualification level that is the same or higher than the level of learning objectives for the subject
- and
  have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.

Subject area:	88000	Elective Subject (BS+BJ+SE)	
Subject(s):	88122	Pax-RoRo (2 ECTS)	
	88122-1	§5, Crisis management and crowd control (human behavior)	1½ ECTS
	88122-2	§7, Training in organization and execution of lifeboat and fire drills	½ ECTS
Admission criteria:	None		
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>		
Semester:	BS5 + BS7 + BJ5/BJ6 + SE(SKF) + SE(MCH) + SE(SCH)		
ECTS credits:	2		
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> </ul>		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>		
STCW:	<ul> <li><u>Annex to STCW Convention, as amended: Chapter V - Special training requirements:</u> Regulation V/2, paragraph 6</li> <li><u>STCW Code, as amended: Part A, chapter V - Special training requirements:</u> Section A-V/2, Paragraph 3, Crisis management and human behaviour training as set in table A-V/2</li> <li><u>Annex to STCW Convention, as amended: Chapter V - Special training requirements:</u></li> </ul>		



	Regulation V/2, paragraph 7 <u>STCW Code, as amended: Part A, chapter V - Special training requirements:</u> Section A-V/2, Paragraph 4, Passenger safety. Cargo safety and hull integrity training		
Certificate(s):	<ul> <li><u>Course Certificate of training for personnel on passenger ships and ro-ro passenger</u> <u>ships</u> is issued when</li> <li>1. passed course §5, Crisis management and crowd control (human behavior) and</li> <li>2. passed course §6, Passenger safety, cargo safety and hull integrity training and</li> <li>3. passed course §7, Training in organization and execution of lifeboat and fire drills</li> <li>Credit transfer is given to Course §6, when a BS or BJ student has passed course Ship</li> <li>Technology III or a BM student has passed course Ship Technology and Docking for</li> <li>Marine Engineers.</li> <li>Order of a special qualification requirements, etc. for personnel on passenger ships – order no 391 of 22 April 2014, as amended</li> </ul>		
Responsible:	Subject Manager		
Valid from:	2022-1	EIN	
Expired:			
Remarks:	None		

### § 5, Crisis management and crowd control (human behaviour):

The purpose of this part of the optional course is to let the student as ships officers or as responsible for the safety of passengers acquire the knowledge, skills and competences to handle the safety of passengers on board passenger ships in adverse and emergency situations.

### § 7, Training in organization and execution of lifeboat and fire drills:

The purpose of this part of the optional is to let the student acquire the knowledge, skills and competence to enhance the management of fire and boat drills including evacuation of passengers on board passenger ships.

## Learning objectives

### Pax-RoRo:

### §5, Crisis management and crowd control (human behavior) (88122-1):

### Knowledge:

- Emergency plans and procedures
- Leadership skills and stress handling

- Human behavior and responses
- The importance of clear and concise instructions and reports

#### <u>Skills</u>:

- Initial assessment of and providing an effective response to emergency situations in accordance with the established emergency procedures
- Ability to lead and direct others in emergency situations
- Ability to identify the development of symptoms of excessive personal stress
- Awareness of the general reaction patterns of people in emergency situations
- Ability to provide relevant information in emergency situations

### **Competencies:**

- Organize shipboard emergency procedures
- Optimize the use of resources
- Control response to emergencies
- Control passengers and other personnel during emergency situations
- Establish and maintain effective communications

### §7, Training in organization and execution of lifeboat and fire drills (88222-2):

#### Knowledge:

- Appropriate safety regulations concerning passenger ships' fire safety, evacuation and use of life saving appliances
- Importance of a common understanding regarding the importance of a thorough preparation and planning of all required drills
- Planning, preparation, execution and evaluation of fire fighting and evacuation drills

### <u>Skills</u>:

- Include crisis management and crowd control into fire fighting and evacuation drills
- Heighten safety awareness when conducting fire fighting and safety drills.
- Enhance cooperation between the different personnel groups
- Motivation of personnel in conjunction with execution of drills
- Involvement of leading personnel in when planning, executing and evaluating drills

### Competencies:

- Planning of fire fighting and evacuation drills
- Execution of fire fighting and evacuation drills
- Evaluation of fire fighting and evacuation drills

### **Core literature**

None



## Examination

§5, Crisis management and crowd control (human behavior) & §7, Training in organization and execution of lifeboat and fire drills (88122):

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

# Qualification prerequisites for professors/instructors etc.

- have a qualification level that is higher than the level of learning objectives for the subject in accordance with the Danish order no. 391 of 22 April 2014 and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS+BJ+SE)	
Subject(s):	88100	Elective Subject	
	88125	Shipping and Chartering	2 ECTS
Admission criteria:	None		
Criteria to pass subject	<ol> <li>These assessments make up the subject:         <ol> <li>None assessment using the 7-point grade scale.                 <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>One assessment graded Passed/Not Passed.                     <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ol></li> </ol>		
Semester:	BS5 + BS7 + BJ5/B	J6 + SE(SKF) + SE(SCH)	
ECTS credits:	2		
Course Regulations: Orders:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> <li>Order on the professional bachelor training programme for Master Mariner – Danish</li> </ul>		
	<ul> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>		
STCW:	None		
Certificate(s):	None		
Responsible:	Subject Manager		
Valid from:	2022-1	EIN	
Expired:			
Remarks:	None		

The objective of Shipping and Chartering is to qualify the student to fulfill the commercial obligations of a ship and shipowner when fixed on a charter party with due regard to securing the interests of his principals. These include the contractual terms of international commerce which affect the charter party and the shipments of cargo.

The participants will acquire a sound comprehension of shipping trade mechanisms, shipping market cycles, the freight, sale and purchase, newbuilding and demolition markets and ships' employment enabling them to comprehend the ship operator's choice of vessels employment. All lectures and course material will be presented in English.

## Learning objectives

### Shipping and chartering (88125):

### Knowledge:

- The role of the owner, carrier, charterer, operator and broker in a chartering perspective.
- Chartering categories and hybrids.
- Contracts of carriage/affreightment and incorporated clauses.
- Choice of legal forum in chartering agreements.
- Deviation and liberty clauses.
- Documentary Credit System.
- Chartering abbreviations.
- The organization of the Shipping Market.
- Bunker strategy.
- Characteristics of shipping market cycles.
- Supply and Demand.
- Immediate, short and long term freight rate mechanisms.
- Key shipping indexes'.
- The freight market, the sale and purchase market, the demolition market and the new building market.

### <u>Skills</u>:

- Understand chartering contract negotiations.
- Read and understand the content of standard charter parties.
- Understand the implications of standard abbreviations regarding laytime and demurrage.
- Understand key shipping indexes'.
- Identify whether a particular market is weak or strong based upon shipping newsletters.
- Link world events into a shipping context.

### Competencies:

- Compute laytime and demurrage against a charter party.
- Issue letters of protest.



# **Core literature**

Core literature for this course will be provided by the responsible lecturer.

## Examination

### Shipping and chartering (88125):

Ongoing assessment
Passed or Not Passed
None
N/A
N/A
Course participants may also pass this course by completing a 3 days internship at an approved shipping office. This must be approved by the course lecturer prior to commencement.
None

# Qualification prerequisites for professors/instructors etc.

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS+BM+BJ+SE)	
Subject(s):	88100	Elective Subject	
	88129	Advanced English	2 ECTS
Admission criteria:	The student shoul tests the ability to C1 on the Commo	d have demonstrated in a previous exam or in spoken an speak and write English at the level 10 on the trini-scale n European Scale for Languages (CEFR)	d written or a level
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale.</li> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> <li>2. One assessment graded Passed/Not Passed.</li> <li>This assessment must be graded Passed.</li> </ul>		
Semester:	BS5 + BS7 + BM5 -	+ BM8 + BJ5/BJ6 + SE(SKF) + SE(MCH) +SE(SCH)	
ECTS credits:	2		
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Marine Engineer (BM) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Marine Engineer (BM) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> </ul>		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no 1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> </ul>		



STCW:	None	
Certificate(s):	None	
Responsible:	Subject Manager	
Valid from:	2022-1	EIN
Expired:		
Remarks:	None	

To enable the student to work as a Ships Officer or Master Engineer with a competence and ability in English so he/she can compete for jobs on sea or on land, conduct business in an international working environment, and carry out research and other enquiries in the maritime merchant sector.

## Learning objectives

### Advanced English (88129):

### Knowledge:

- The language and vocabulary of job applications and interviews, human resources, qualifications and relevant personal experience.
- The language of technical reports, ordering supplies, communications with ship owners and charterers, and maintaining efficiency onboard.
- The language of environmental protection, emissions and the latest developments in these fields.
- The language of negotiating, diplomacy, and managing cultural differences.
- The language of planning, meetings, decision making and teamwork.
- Appropriate English for projects, surveys and research into maritime topics.

### <u>Skills</u>:

- Write job applications and Curriculum Vitae to international companies.
- Conduct him/herself well in job interviews.
- Write letters and reports in relation to his job of Master or Chief Engineer.
- Analyze, advise and report on ship efficiency and environmental protection matters in English.
- Negotiate and use diplomacy in English when dealing with people of all ranks.
- Organize his/her own work and those of others in English.
- Carry out maritime research and surveys, and be familiar with project methodology language, in English.

### Competencies:

• Act and speak with confidence in the modern international merchant shipping world.



- Communicate in writing to all major stakeholders.
- Complete research or projects in English which should be of a sufficient level to be published.

## **Core literature**

Science Research Writing for non-Native Speakers, H.G.Glasman-Deal, 2014, Imperial College Press, UK

### Examination

### Advanced English (88129):

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

# Qualification prerequisites for professors/instructors etc.

- have a qualification level that is the same or higher than the level of learning objectives for the subject
  - and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS+BM+BJ+SE)	
Subject(s):	88100	Elective Subject	
	88148	Innovation and Entrepreneurship - Module I+II	5 ECTS
Admission criteria:	None		
Criteria to pass subject	<ol> <li>These assessments make up the subject:         <ol> <li>None assessment using the 7-point grade scale.                 <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>One assessment graded Passed/Not Passed.                 <ul> <li>This assessment must be graded Passed</li> </ul> </li> </ol></li> </ol>		
Semester:	BS5 + BS7 + BM8 + BJ5 BM8 (Specialization: M	+ SE(SKF) + SE(MCH) + SE(SCH) Janagement) + BM8 (Specialization: Automation)	
ECTS credits:	5		
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Marine Engineer (BM) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Marine Engineer (BM) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> </ul>		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended. This order is for students who were registered in BS1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no 1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer - Danish order no. 1348 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer - Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>		



STCW:	None		
Certificate(s):	None	None	
Responsible:	Subject Manager		
Valid from:	2022-1	EIN	
Expired:			
Remarks:	Replaces "88130 Innovation and Entrepreneurship (I+II)" (6 ECTS) from 2021-2.		

### Purpose

The student should obtain skills, knowledge and competences in order to understand and work with the fundamental focus areas of Innovation and Entrepreneurship.

### Learning objectives

### Innovation and Entrepreneurship – Module I & II (88130):

Both module I and module II are based on student ideas and projects – therefore the precise content and perspectives are variable.

Both in module I and module II, the students are encouraged to participate in "Start-Up-Programme" by "FFE-YE"

### Module I:

### Knowledge:

- Idea generating. Idea generating techniques and methods.
- The fundamental parts of an innovation process
- The principles of effectual entrepreneurship

### <u>Skills</u>:

- Identify market needs and perspectives
- Idea screening and development
- Simple idea descriptions and prototyping
- Oral and written pitching

### Competencies:

• None

### Module II:

### Knowledge:

- Basic elements of a business plan
- Content of "Business Model Canvas"



• Basic Business Models

### <u>Skills</u>:

- Strategic business development
- Causation and effectuation principles
- Evaluation of business ideas and models.
- Oral presentation

### **Competencies**:

• Written Business Plan and presentation

## **Core literature**

"Entreprenørskab i teori og praksis" – IDEA 2009 "Innovation" – Systime "Effectual Entrepreneurship" – S. Sarasvathy www.iværk.dk www.amino.dk www.startvækst.dk

## Examination

### Module I & II:

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

## Qualification prerequisites for professors/instructors etc.

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS + SE)		
Subject(s):	88100	Elective Subject		
	88135	Advanced Polar Code Training	2 ECTS	
Admission criteria:	Passed Basic Pola	r Code Training	-	
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>			
Semester:	BS5 + BS7 + SE(SK	F) + SE(SCH)		
ECTS credits:	2			
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10. 1 February 2022.</li> </ul>			
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> <li>Order on training programme and certificates for service on ships operating in Polar</li> </ul>			
STCW:	STCW Code, as an Section A-V/4 • Advance	nended: Part A, chapter V – Special training requirements ed training for ships operation in polar waters as set in tak	ole A-V/4-2.	
Certificate(s):	<u>Course Certificate</u> issued upon comp paragraph 4 of the training programm order no 762 of 12 The Academy may <u>Ships operating in</u>	in advanced training for service on Ships operating in Pole oletion of the training programme prescribed in Regulation e STCW Convention of 1978, as amended and the Danish ne and certificates for service on ships operating in Polar 1 June 2018, as amended y issue a <u>Certificate of Proficiency in advanced training for</u> <u>Polar Waters</u> , when basic training for service on Ships op	<u>ar Waters</u> is n V/4, order on Waters – <u>service on</u> perating in	



	Polar waters is passed and at least 2 months relevant seagoing service in polar waters is proved.	
Responsible:	Subject Manager	
Valid from:	2022-1	EIN
Expired:		
Remarks:	None	

The purpose of Advanced Polar Code Training is for the student to gain the necessary knowledge, skills and competencies to perform the duties as master on board ships operation in polar waters in an efficient and safe manner whilst observing good seamanship.

## Learning objectives

### Advanced Polar Code Training (88135):

The student must obtain knowledge of:

- Reporting regimes in polar waters
- hazards associated with limited terrestrial navigational aids in polar regions;
- high latitude errors on compasses
- Understand icebreaker convoy terminology, and communications, and take icebreaker direction and move in convoy
- knowledge of different type of propulsion and rudder systems, including limitations to avoid damage when operating in ice;
- the use of heeling and trim-systems.; hazards in connection with ballast and trim in relation with ice

The student must acquire the **<u>skills</u>** necessary to:

- recognize the limitations of hydrographic information and charts in polar regions and whether the information is suitable for safe navigation
- perform passage planning deviation and modification for dynamic ice conditions
- identify limitations in discrimination of radar targets and ice-features in ice clutter
- Understand and recognize limitations of electronic positioning systems at high latitude
- Understand and recognize limitations in nautical charts and pilot descriptions
- Understand and recognize limitations in communication systems
- Prepare and conduct risk assessment before approaching ice including presence of icebergs, and taking into account wind, darkness, swell, fog and pressure ice
- Conduct communications with an icebreaker and other vessels in the area and with Rescue Coordination Centers



- Understand and describe the conditions for the safe entry and exit to and from ice or open water, such as leads or cracks, avoiding icebergs and dangerous ice conditions and maintaining safe distance to icebergs
- Understand and describe ice ramming procedures including double and single ramming passage
- Recognize and determine the need for bridge watch team augmentation based upon environmental conditions, vessel equipment and vessel ice class
- Recognize the presentations of the various ice conditions as they appear on radar
- Understand methods to avoid besetment and to free beset vessel, and consequences of besetment
- Understand towing and rescue in ice, including risks associated with operation;
- Recognize conditions, which impact polar visibility and may give indication of local ice and water conditions, including sea smoke, blink and refraction.
- Understand the procedures and techniques for abandoning the ship and survival on the ice and in ice-covered waters
- Recognize limitations on fire-fighting systems and lifesaving appliances due to low air temperatures
- Understand unique concerns in conducting emergency drills in ice and low temperatures;
- Understand unique concerns in conducting emergency response in ice and low air and water temperatures

The student must acquire the **<u>Competencies</u>** necessary to:

- Develop a safe routing and passage planning to avoid ice where possible
- Handle the ship in various ice concentration and coverage, including risks associated with navigation in ice, and turning backing; avoidance; etc.
- Perform docking and undocking in ice covered waters, including hazards associated with operation and the various techniques to safely and undock in ice covered waters
- Anchoring in ice, including the dangers to anchoring system ice accretion to hawse pipe and ground tackle

## **Core literature**

- Ice Navigation in Canadian Waters", Icebreaking Program, Maritime Services, Canadian Coast Guard, Fisheries and Oceans Canada, Ottawa, Ontario (Revised August 2012)
- WMO Sea ice nomenclature (
- "Polar ship operations", The Nautical Institute
- "The Ice Navigation Manual" by Patrick R M Toomey, Michael Lloyd, David J. House, and David Dickins. Wither by Seamanship Publishers

Note: - Other publications deemed relevant pending regional requirements:

### Antarctica

• Secretariat of the Antarctic Treaty (http://www.ats.aq/index\_e.htm) for documents pertaining to Antarctic regulations, annexes and Madrid protocol



### Canada

- Arctic Sailing Directions (ARC 400, ARC 401, ARC 402, ARC 403 & ARC 404)
- Arctic Waters Oil Transfer Guidelines
- Guidelines for the Operation of Passenger Vessels in Canadian Arctic Waters TP 13670
- Manual of Standard Procedures for Observing and Reporting Ice Conditions (MANICE)

### Denmark/Greenland

• PUB. 181 Sailing Directions (Enroute) Greenland and Iceland

### Russia

• PUB 180 Sailing Directions (Planning Guide) Arctic Ocean

### **Bibliography (B)**

- ABS Guide for vessels operating in low temperatures. (Dec 2009)
- Observers' Guide to Sea ICE (NOAA)
- Ice Advice for Trading in Polar Regions (The Swedish Club)
- Admiralty Sailing Directions NP10 through 12 Arctic Pilot
- Baltic Ice Management Handbook

### Antarctica

• PUB. 200 Sailing Directions (Planning Guide & Enroute) Antarctica

### Videos - DVDs, CD ROMs, CBT's (V)

• NAVIGATING IN ICE (Videotel) (Code No. 927)

SAFE ESCORT (Canadian Coast Guard)

## Examination

### Advanced Polar Code Training (88135):

Examination type:	Ongoing assessment
Grading scale:	Passed or not passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	
Examination:	None



## Qualification prerequisites for professors/instructors etc.

Associate professors or assistant professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.

If conducting training using a simulator the instructor shall:

- have received appropriate guidance in instructional techniques involving the use of the simulator and
- have gained practical operational experience on the particular type of simulator being used



7Subject area:	88000	Elective Subjects (BS+SE)		
Subject(s):	88100	Elective Subject		
	88141	Energy Efficient Ship Operation	2 ECTS	
Admission criteria:				
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale.</li> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> <li>2. One assessment graded Passed/Not Passed.</li> <li>This assessment must be graded Passed.</li> </ul>			
Semester:	BS5, BS7, SE(SKF),	BS5, BS7, SE(SKF), SE(MCH) og SE(SCH).		
ECTS credits:	2 ECTS			
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.80, 1 February 2022.</li> </ul>			
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Dansih order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>			
STCW:				
Certificate(s):				
Responsible:	Subject Manager			
Valid from:	2022-1	EIN		
Expired:				
Remarks:				



The purpose of the course is for the student to acquire knowledge of energy efficient ship operation, to obtain awareness and develop the skills to actively eco-drive available machinery and equipment under the prevailing conditions taking into account commercial aspects, regulation and safety.

## Learning objectives

### **Energy Efficient Ship Operation (88141):**

### Knowledge:

- Ship energy efficient management and operation
- Energy optimization of ships equipment, design, operation and maintenance
- Performance systems
- Data types, logged, manually collected and noon report
- Data collection, measurements and uncertainties
- Regulation EEDI, EEIO, SEEMP, IMO fuel data collection system and the EU MRV directive

### <u>Skills</u>:

- Obtain and maintain awareness of energy efficient operation
- Interpretation of measured data from fuel consumption and running equipment
- Optimize performance based on performance data

### Competencies:

- Handling complex situations balancing safety, time and energy efficiency
- Reflection on actions taken in balancing different or conflicting objectives
- Plan, perform and evaluate tests on board
- Ability to communicate and document the results of tests



## **Core literature**

N/A

## Examination

Energy Efficient Ship Operation (88141):				
Examination type:	Ongoing assessment			
Grading scale:	Passed/Not Passed			
Preparation time:	N/A			
Duration:	N/A			
Aids allowed:	N/A			
Important Information:	None			
Prerequisites for Examination:	A written report must be handed in as stated in the course plan			

## Qualification prerequisites for professors/instructors etc.

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective subjects (BJ+BS+BM+SE)		
Subject(s):	88100	Elective subject		
	88143	Globalization	2 ECTS	
Admission criteria:				
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>			
Jemester.	BM8 (Specialization Management)			
ECTS credits:	2			
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Marine Engineer (BM) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Marine Engineer (BM) Version 6.10, 1 February 2022.</li> <li>Ship Officer (BJ) Version 6.10, 1 February 2022.</li> </ul>			
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no 1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>			

STCW:			 	
Certificate(s):				
Responsible:	Subject Mana	ager		
Valid from:	2022-1	EIN		
Expired:				
Remarks:				

# Purpose

The purpose of this subject is to give the students an understanding of the globalization process. This subject will equip the students with some knowledge of the happenings in the field of economy, finance, culture and politics – with an emphasis on market and consumer behavior.

## Learning objectives

### Globalization (88143):

### Knowledge:

- Globalization and the new global economy
- Continuity and change in the world economy since the 1970s
- Regional and multilateral agreements
- The field of economy, finance, culture and politics
- The development of new markets
- Consumer behavior and how it affects international trade and shipping
- Techniques on how to spot market opportunities
- The consequences of outsourcing

### <u>Skills</u>:

- Understand the globalization process
- Understand the mechanism of international economic connections through which it works and an idea of some of the debates it has evoked
- Analyze market opportunities
- Reflect on how the maritime industry can explore market opportunities
- Reflect on different scenarios raised

### Competencies:

- Critically evaluate and assess a market
- Critically evaluate global transformation



### **Core literature**

N/A

## Examination

### Globalization (88143):

Ongoing assessment
Passed/Not Passed
None
N/A
N/A
None
None

## Qualification prerequisites for professors/instructors etc.

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective subjects (BS+SE)		
Subject(s):	88100	Elective subject		
	88144	Offshore Support Operations	3 ECTS	
Admission criteria:	None			
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0.</li> <li>(no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>			
Semester:	BS5 + BS7 + SE(SKF) + SE(SCH)			
ECTS credits:	3			
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> </ul>			
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2d for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015.</li> </ul>			
STCW:				
Certificate(s):				
Responsible:	Subject Manager			
Valid from:	2022-1	EIN		
Expired:				
Remarks:				



The purpose of the course is to let the participant acquire knowledge, skills and competences in operating offshore support vessels.

### Learning objectives

### Knowledge:

- Offshore Support Vessel types, common general arrangements and configurations
- Maneuvering and propulsive set-up and characteristics
- Introduction to Dynamic Positioning equipment and systems
- Legislative background for <u>Offshore Supply Vessels</u> (OSV) and <u>Special Purpose Ships</u> (SPS) vessels incl. IMO requirements in resolution MSC.415(97) for heavy lift at sea, anchor handling and towage
- Class requirements for crane operations and heavy lift at sea
- Anchor handling operations
- Subsea construction and ROV operations
- Ship-to ship and Ship-to-platform operations
- Towing operations
- Risk Assessment in offshore support operations
- 500m zone(bridging documents/permits for entry/precautions/risks/emergencies)

### <u>Skills</u>:

• Utilize stability instruments to ensure safe heavy lift operations at sea

### Competencies:

- Ship handling maneuvers:
  - Man over board from platform
  - o Towage of another vessel
  - Ship to ship berthing

Utilizing different maneuvering set-ups:

- Twin propeller and thruster both ends
- o Twin Azimuth

## **Core literature**

N/A



## Examination

### **Offshore Support Operations (88144)**

Examination type:	Ongoing assessment
Grading scale:	Passed/Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

# Qualification prerequisites for professors/instructors etc.

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.



Subject area:	88000	Elective Subject (BS, BM & SE)		
Subject(s):	88100	Elective Subject		
	88145	Advanced Training for Oil and Chemical Tanker Cargo Operations	3 ECTS	
Admission criteria:	<ul> <li>Passed Basic Training for Oil, Chemical &amp; Gas Tanker Cargo Operations</li> <li>BM students must have passed all subjects in BM2(Maritime Operations) (Subject area Work Experience: 21110, 21150, 21160, 21180, 21190 &amp; 25425)</li> </ul>			
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>			
Semester:	BS5 + BS7 + BM8 (Maritime Operations), SE(SKF) + SE(MCH) + SE(SCH)			
ECTS credits:	3			
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Marine Engineer (BM) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Marine Engineer (BM) Version 6.10, 1 February 2022.</li> </ul>			
Orders:	<ul> <li>Order on the proof order no. 1611</li> <li>Order on the proof order no. 1349 of order no. 1350 of who were registered (2019-2, 2020-1)</li> <li>Order on the proof order no. 1350 of were registered (2019-2, 2020-1)</li> <li>Order on tests in December 2016</li> <li>Order on gradin 2015, as amend</li> </ul>	ofessional bachelor training programme for Master Marin of 13 December 2016, as amended. ofessional bachelor training programme for Master Marin of 23 November 2018 as amended. ofessional bachelor training programme for Marine Engin 0 1610 of 13 December 2016 as amended. ofessional bachelor training programme for Marine Engin 0. 1348 of 23 November 2018 as amended. This order is for tered in BM1 for first time in the spring of 2019 or later (2 ofessional bachelor training programme for Ship Officer – of 13 December 2016, as amended. ofessional bachelor training programme for Ship Officer – of 23 November 2018 as amended. ofessional bachelor training programme for Ship Officer – of 23 November 2018 as amended. in BJ1, SE1 eller SE2 for first time in the spring of 2019 or ect.). n the maritime training programmes – Danish order no 15 , as amended. g scale and other examination – Danish order no 114 of 3 ed.	her – Danish her - Danish eer – eer - or students 2019-2, - Danish nts who - later 585 of 13 5 February	



STCW:	<ul> <li>STCW Code, as amended: Part A, chapter V - Special training requirements:</li> <li>Section A-V/1-1, paragraph 2</li> <li>Paragraph 2 Advanced training for oil tanker cargo operations as set in tablet A-V/1-1-2</li> <li>Section A-V/1-1, paragraph 3</li> <li>Advanced training for chemical tanker cargo operations as set in tablet A-V/1-1-3</li> </ul>	
Certificate(s):	Course Certificate of Advanced Training for Oil Tanker Cargo Operations is issued upon completion of the training programme prescribed in Regulation V/1-1, paragraph 4.3 of the STCW Convention of 1978, as amended and the Danish order no 1165 3. November 2014, as amended. Danish Maritime Authority can issue <u>Certificate of Proficiency in Advanced Training for</u> <u>Oil Tanker Cargo Operations</u> when experience of at least 3 months relevant seagoing service on an Oil Tanker is proved and completed the specialized training programme prescribed in Regulation V/1-1 paragraph 4 of the STCW Convention of 1978, as amended. <u>Course Certificate of Advanced Training for Chemical Tanker Cargo Operations</u> is issued upon completion of the training programme prescribed in Regulation V/1-1, paragraph 6.3 of the STCW Convention of 1978, as amended and the Danish order on training programme for Tanker Operations and the Danish order no 1165 3. November 2014, as amended. Danish Maritime Authority can issue <u>Certificate of Proficiency in Advanced Training for</u> <u>Chemical Tanker Cargo Operations</u> when experience of at least 3 months relevant seagoing service on Chemical Tankers is proved and completed the specialized training for <u>Chemical Tanker Cargo Operations</u> when experience of at least 3 months relevant seagoing service on Chemical Tankers is proved and completed the specialized training programme prescribed in Regulation V/1-1, paragraph 6 of the STCW Convention of 1970 Advanced Training programme prescribed the specialized training programme prescribed in Regulation V/1-1, paragraph 6 of the STCW Convention of	
Responsible:	Subject Manager	
Valid from:	2022-1	EIN
Expired:		
Remarks:	None	



The overall purpose is to enhance safety of chemical and oil tanker cargo operations on board chemical and oil tankers and thereby reducing the risk of injuries or death to crewmembers and preventing damage to the ship, the cargo and the environment. The course will provide the student the knowledge, skills and competences to safely perform and monitor cargo operations taking cargo hazards into account in relation to occupational health and safety and the environment in compliance with legislative requirements.

## Learning objectives

### Advanced Training for Oil and Chemical Tanker Cargo Operations (88145):

### Knowledge:

- Chemical and oil tanker design, cargo systems and equipment including:
  - o Chemical and oil tanker
    - General arrangement and construction
    - Pumping arrangement and equipment
    - Slop management
    - Ballast systems
    - Fire-fighting systems
    - Cargo area venting and accommodation ventilation
    - Vapour recovery systems
  - Chemical tanker specifically
    - Tank construction and arrangement
    - Pipeline and drainage systems
    - Tank and cargo pipeline pressure and temperature control systems and alarms
    - Gas detection equipment
    - Cargo heating and cooling systems
    - Tank cleaning system
    - Cargo tank environment control
    - Tank, pipeline and fittings' material and coating
  - Oil tanker specifically
    - Tank arrangement, pipe system and tank venting arrangement
    - Gauging control systems and alarms
    - Cargo heating systems
    - Tank cleaning, gasfreeing and inerting systems
    - Electric and electronic cargo control systems
    - Environmental protection equipment incl. ODME
    - Cargo pressure and temperature control systems
  - Pump theory, different types of pumps and their operation
  - o Tanker safety culture and SMS
  - Monitoring and safety systems including ESD
  - Monitoring procedures and safety systems initiating immediate action according to procedures for chemical tankers
- Loading, unloading, care and handling of cargo including:
  - $\circ$   $\;$  The cargo's effect on trim, stability and structural integrity
  - Loading and unloading plans

- o Ballast and deballasting
- Tank cleaning operations
- Tank atmosphere control, inerting and gasfreeing
- Specifically for oil tankers
  - COW
  - Load on Top
  - Ship to ship transfer
- Specifically for chemical tankers
  - Inhibition and stabilization requirements
  - Heating and cooling requirements and consequences to adjacent cargo
  - Cargo compatibility and segregation
  - High-viscosity cargoes
  - Cargo residue operations
  - Operational tank entry
- Physical and chemical properties of noxious liquid and oil cargoes including the MSDS chemical cargo information and:
  - Chemical cargoes categories (corrosive, toxic, flammable and explosive)
  - Chemical groups and industrial usage
  - Reactivity of cargoes
- Hazards and the appropriate precautions to counter these during cargo operations including:
- $\circ \quad \mbox{Flammability and explosion}$
- o Toxicity
- Health hazards
- Inert gas composition
- o Electrostatic hazards
- o Reactivity
- o Corrosively
- Low boiling point cargoes
- High density cargoes
- Solidifying cargoes
- Polymerizing cargoes
- o Dangers of non-compliance with relevant rules and regulations
- Occupational health and safety including:
- $\circ \quad \text{Safe work practices} \\$
- Precautions when entering enclosed spaces
- Repair work precautions including cold and hot work
- Electrostatic precautions
- Use of PPE
- Emergency procedures on board chemical and oil tankers
- Precautions to prevent pollution of the environment
- Legislative requirements concerning chemical and oil tanker cargo operations
- Industry requirements concerning chemical and oil tanker cargo operations

### <u>Skills</u>:

- Planning of cargo operations with regards to:
  - $\circ$   $\;$  Ship arrangement, cargo systems and equipment
  - Ship stability, trim and stress
  - Cargo properties and hazards
  - Application of occupational health and safety and safe working practices including risk assessment and personal shipboard safety relevant for chemical and oil tankers



- o Environmental and local legislative requirements
- Industry guidelines
- Perform and monitor cargo operations and react appropriately on failure of systems or services essential to cargo operations
- Cargo measurement and calculations
- Manage and supervise personnel with cargo-related responsibilities
- Calibrate and use gas monitoring and detection systems and equipment
- Responds to emergencies according to MFAG and the SOPEP/SMPEP including ESD, rescue from enclosed spaces and fire fighting
- Take precautions to avoid pollution of the atmosphere and the environment
- Monitor and control compliance with legislative requirements i.e. MARPOL convention, IBC code, other relevant IMO guidelines, industry guidelines and commonly applied port regulations

### Competencies:

• Conduct safe chemical and oil tanker cargo operations

### **Core literature**

- SOLAS Convention
- MARPOL Convention
- FSS Code
- IBC Code
- ISGOTT
- Tanker Safety Guide Chemicals
- CHRIS Manual

## Examination

### Advanced Training for Oil and Chemical Tanker Cargo Operations (88145):

Examination type:	Ongoing assessment
Grading scale:	Passed or Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	


## Qualification prerequisites for professors/instructors etc.

Associate professors, assistant professors or instructors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:

- have a qualification level that is higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.
   and in accordance with the Danish order no. 1165 of 3 November 2014, as amended
  - have practical experience on board tankers at management level and the instructor shall be
     Associate professor at a maritime academy with specific theoretical and professional knowledge of chemical and oil tankers and their operations acquired as surplus officer on board a chemical and oil tanker
    - or

•

 $\,\circ\,$  Senior ships officer with minimum 2 years of experience on board chemical and oil tankers and trained in teaching.



Subject area:	88000	Subject area (BS/BM/BJ/SE)		
Subject(s):	88100	Elective Subject		
	88146	Human Factors in Safety		5 ECTS
		r		
Admission criteria:				
Criteria to pass subject	These assessment 1. None asse	s make up the subject: essments using the 7-point grade scale.	at 2.0	
	• To (no 2. one asses • All	<ul> <li>Io pass the average of the assessments must be at least 2.0. (no rounding) / To pass the grade must be at least 02.</li> <li>one assessments graded Passed/Not Passed.</li> <li>All assessments must be graded Passed.</li> </ul>		
Semester:	BS5 + BS7 + BM5 ·	+ BM8 + BJ6 + SKF + MCH + SCH		
ECTS credits:	5			
Course Regulations:	<ul> <li>Master M</li> <li>Marine Er</li> <li>Ship Offic</li> <li>Master M</li> <li>Marine Er</li> <li>Ship Offic</li> </ul>	ariner (BS) Version 5.80, 1 February 2021. ngineer (BM) Version 5.80, 1 February 2021. er (BJ+SE) Version 5.80, 1 February 2021. nariner (BS) Version 6.10, 1 February 2022. ngineer (BM) Version 6.10, 1 February 2022. er (BJ) Version 6.10, 1 February 2022.		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended. This order is for students who were registered in BS1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer - Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended.</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>			



STCW:	None		
Certificate(s):	None		
Qualification prerequisites for professors/instru ctors etc.	<ul> <li>Associate professors, assistant professors or instructors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall: <ul> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> </ul> </li> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> </ul>		
Core literature			
Responsible:	Subject Manager		
Valid from:	2022-1	EIN	
Expired:			
Remarks:			

## Purpose

The purpose of the course Human Factors in Safety is to prepare the students to participate in human factor investigations in organisations and give the students insight into the factors in play when working with humans. During the past 100-years, significant changes have been made regarding the view on human factors in safety. The subject will provide a comprehensive background on the progression in the safety science field. The course will enable the students to perform investigations on what role human factors plays in everyday work.

## Human Factors in Safety

### **Content:**

### Learning objectives:

Knowledge:

- Recall and present relevant safety theories, accident models and views on human factors, and their progression over the past decades
- Define phenomena that contribute to the risk of organisational accidents

### Skills

- Explain the advancements in human factors theories and their practical use to risk management and organisations' safety problems.
- Identify and recognise judgmental language and quick fixes in investigations

### Competencies:



- Communicate and present learnings from incidents with effectiveness and wordings to increase safety in organisations
- Assess accidents and incidents in order of enhancing organisational learning

### Learning activities:

- Situation: Large class. Large class activities take place in the classroom setting and consist of a varying mix of lecturing, tutorials and student activity.
- Student centered activities. The student centered activities are aimed at the study groups. The function of the groups may vary during the course such as buzz groups, learning cells, etc.. For student centered activities the assistant or associate professor(s) are available for tutoring, professional guidance, and formative feedback.
  - Individual reading and answering of study questions
  - o Role play action in various situations that the master can face
  - Course documentation. The course documentation is the student's reflection on how the learning objectives are reached and is a compliation of theory, workplace practice and context. Some core topics of the course documentation are counting activities and are mandatory to hand in.

Examination		
Examination name:	Human Factors in Safety	
Examination type:	Ongoing assessment	
Grade scale:	Passed/Not Passed	
Preparation time:		
Duration:		
Aids allowed:		
Important information:		
Prerequisites for		
examination:		



Subject area:	88000	Subject area (BS/BM/SE)		
Subject(s):	88100	Elective Subject		
	88150	Cross-Cultural Leadership		3 ECTS
Admission criteria:	Completed the subject Human Ressource Management (HRM) or attending the subject.			
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessments using the 7-point grade scale.</li> <li>To pass the average of the assessments must be at least 2.0. (no rounding) / To pass the grade must be at least 02.</li> <li>2. One assessments graded Passed/Not Passed.</li> <li>All assessments must be graded Passed.</li> </ul>			
Semester:	BS5 + BS7 + BM5 + BM8 + SE(SKF) +SE(SCH) BM5 (Specialization: Management) + BM5 (Specialization: Automation)			
ECTS credits:	3			
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Marine Engineer (BM) Version 5.80, 1 February 2021.</li> <li>Ship Officer (SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Marine Engineer (BM) Version 6.10, 1 February 2022.</li> </ul>			



Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended. This order is for students who were registered in BS1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no 1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1350 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> <li>Order on grading scale and other examination – Danish order no 114 of 3 February 2015, as amended.</li> </ul>
STOW	None
Certificate(s):	None
Qualification prerequisites for professors/instru ctors etc.	<ul> <li>Associate professors, assistant professors or instructors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:</li> <li>have a qualification level that is the same or higher than the level of learning objectives for the subject and</li> <li>have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.</li> </ul>
Core literature	
Responsible:	Subject Manager
Valid from:	2022-1 EIN
Expired:	
Remarks:	The course replaces "88108 Change Management" from 2021-2.



## Purpose

The purpose of the course Cross-Cultural Leadership is to prepare the students to become leaders in a complex and multinational environment. The focus will be on raising awareness of cultural differences and promoting/supporting collaboration in diverse groups.

## **Cross-Cultural Leadership:**

### Content:

### Learning objectives:

Knowledge:

Recall and present relevant cultural research

Skills

- Apply cultural theory to build relationships, and to improve personal leadership development
- Set up a work culture that respect and promote individual and cultural differences

Competencies:

- Create a work culture that foster integration and collaboration
- Assess effective use of ressources

### Learning activities:

- Large class: Large class activities take place in the classroom setting and consist of a varying mix of lecturing, classroom dialogue and student activity.
- Student centered activities: The student-centered activities are aimed at the study groups. The student shall expect group activities
  - $\circ$  Case studies and analysis

 $\,\circ\,$  Role play and presentations

Examination				
Examination name:				
Examination type:	Ongoing assessment			
Grade scale:	Passed/Not Passed			



Preparation time:	
Duration:	
Aids allowed:	
Important information:	
Prerequisites for examination:	Completed the subject Human Ressource Management (HRM) or attending the subject.

Subject area:	88100	Elective Subjects (BS+BM+SE)	
Subject(s):	88100	Elective Subject	
	88 149	How to Start a Business and Private Legislation	5 ECTS
Admission criteria:			
Criteria to pass subject	<ul> <li>These assessments make up the subject:</li> <li>1. None assessment using the 7-point grade scale. <ul> <li>To pass the average of the assessments must be at least 2.0. (no rounding).</li> </ul> </li> <li>2. One assessment graded Passed/Not Passed. <ul> <li>This assessment must be graded Passed.</li> </ul> </li> </ul>		
Semester:	BS5 + BS7 + BM8 + SE(SKF) + SE(MCH) + SE(SCH) BM8 (Specialization: Management)		
ECTS credits:	5		
Course Regulations:	<ul> <li>Master Mariner (BS) Version 5.80, 1 February 2021.</li> <li>Marine Engineer (BM) Version 5.80, 1 February 2021.</li> <li>Ship Officer (BJ+SE) Version 5.80, 1 February 2021.</li> <li>Master Mariner (BS) Version 6.10, 1 February 2022.</li> <li>Marine Engineer (BM) Version 6.10, 1 February 2022.</li> </ul>		
Orders:	<ul> <li>Order on the professional bachelor training programme for Master Mariner – Danish order no. 1611 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Master Mariner - Danish order no. 1349 of 23 November 2018 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no 1610 of 13 December 2016 as amended.</li> <li>Order on the professional bachelor training programme for Marine Engineer – Danish order no. 1348 of 23 November 2018 as amended. This order is for students who were registered in BM1 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on the professional bachelor training programme for Ship Officer – Danish order no. 1612 of 13 December 2016, as amended.</li> <li>Order on the professional bachelor training programme for Ship Officer - Danish order no. 1350 of 23 November 2018 as amended. This order is for students who were registered in BJ1, SE1 eller SE2 for first time in the spring of 2019 or later (2019-2, 2020-1 ect.).</li> <li>Order on tests in the maritime training programme for Ship Officer no 1585 of 13 December 2016, as amended.</li> <li>Order on tests in the maritime training programmes – Danish order no 1585 of 13 December 2016, as amended.</li> </ul>		



STCW:			
Certificate(s):			
Responsible:	Subject Man	nager	
Valid from:	2022-1	EIN	
Expired:			
Remarks:	Replaces "88	8142 How to sta	art a busines and Private Legislation" (4 ECTS) from 2021-2.

## Purpose

The purpose of this subject is to give the students an understanding of how to start a company. This subject will present methods and concepts that will help the student to select relevant assets and competencies and to develop strategies in branding, advertising, distribution, manufacturing and finance.

## Learning objectives

#### How to Start a Business and Private Legislation (88142):

#### Knowledge:

- The 4 P's
- Industry and competitor analysis
- Consumer analysis and behavior
- Consumer in the marketplace
- Market analysis
- Environmental analysis
- Cost analysis
- Basic principles of commercial law
- Contracts when buying or selling

#### <u>Skills</u>:

- Develop an outline of a business plan for a new concept or business idea and analyze the same
- Asses the profitability and risk of a business model, including legal issues
- Understand the Contracts Act
- Understand the principles behind the Sale of Goods and Supply of Services Act (the Danish Sale of Goods Act)
- Understand the principles of liability law
- Apply knowledge of the Construction Act and AB92
- Apply knowledge of national and international private law
- Understand the principles behind insurance

#### Competencies:

- Evaluate the business value and feasibility of a new business idea or concept
- Prepare an outline of an implementation plan on how to start a new business based on a given business model



### **Core literature**

N/A

## Examination

### How to Start a Business and Private Law (88142)

Examination type:	Ongoing assessment
Grading scale:	Passed/Not Passed
Preparation time:	None
Duration:	N/A
Aids allowed:	N/A
Important Information:	None
Prerequisites for	None
Examination:	

## Qualification prerequisites for professors/instructors etc.

Associate professors or assistant professors intended to be used in qualifying for certification under the STCW convention of 1978 as amended shall:

- have a qualification level that is the same or higher than the level of learning objectives for the subject and
- have a full understanding of the subject-training programme and the specified objectives for each type of training being conducted.