

Module handbook and bibliography Nautical Science and Maritime Transport

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Qualification objectives of the Nautical Science and Maritime Transport degree program

The qualification objectives of the Nautical Science and Maritime Transport degree course are designed in such a way that, in addition to the Bachelor of Science degree, students are also awarded the certificate of competency as an officer of the watch without restrictions for seagoing vessels at the end of their successful studies. Graduates will then have a wide-ranging and interdisciplinary knowledge and understanding of the scientific context of the nautical/maritime subject area. A minimum standard for the training of seafarers is prescribed by the IMO (International Maritime Organization) and has also been transposed into German law. Some of the technical, application, methodological and social skills are derived from the current version of the STCW Convention. These largely cover the qualification objectives for qualified employment.

Scientific qualification:

Academic skills are taught in the modules of the foundation course as well as in the modules of the advanced course and the elective subjects for specialization.

In the individual subject-specific modules, the subject-specific and scientific requirements are addressed with the aspects of knowledge and understanding (dissemination, deepening and understanding of knowledge), use, application and generation of knowledge (use and transfer, scientific innovation), communication and cooperation as well as scientific self-image/professionalism, and in the Bachelor's thesis students have the opportunity to demonstrate their subject-specific and scientific aptitude.

Ability to take up qualified gainful employment:

Graduates have analytical and problem-solving skills, including the ability to think in a networked way - it is about the use, application and generation of knowledge - in the following areas of competence:

- Ship management

- Planning and execution of a trip as well as determination and evaluation of the position,
- working a safe bridge watch,
- Use of radar equipment and ARPA systems to maintain maritime safety,
- Application of electronic chart display and information systems (ECDIS) to maintain maritime safety,
- appropriate response to emergency situations and distress signals at sea,
- Application of IMO standard maritime phrases and use of written and spoken English,
- Sending and receiving messages by optical signaling,

- Ship maneuvering and the understanding of basic hydrodynamic relationships,
 - Understanding and evaluating weather forecasts and oceanographic conditions
- Cargo handling and stowage
- Monitoring the loading, stowing, securing and unloading as well as the supervision of the cargo during the voyage,
 - Inspection and assessment of holds, hatch covers and ballast tanks and reporting of defects and damage to these and the cargo,
 - Knowledge of the regulations governing the transportation of dangerous goods,
- Control of ship operations and care for people on board
- Knowledge of pollution prevention regulations and ensuring compliance,
 - Maintaining and assessing the seaworthiness of the ship,
 - Planning and management of fire defense,
 - Use of rescue equipment,
 - Use of medical first aid on board,
 - Monitoring legal regulations,
 - Understand and apply the fundamentals of shipbuilding and the theories and factors that influence and evaluate trim and stability,
 - Knowledge of international maritime law in the form of international treaties and conventions,
- Radio traffic
- Sending and receiving messages using GMDSS systems

The qualification objectives are taught according to the desired level of responsibility (management level and operational level). In the module descriptions, reference is made to the corresponding qualification that the module contains according to STCW.

Empowerment for social commitment and personal development:

Learning, social and key skills are integrated to a certain extent into each module. With regard to the key qualifications and the qualification objectives relating to personal development, the social credit points are particularly noteworthy. Students are enabled to take on management positions in ship operations. Intercultural aspects are also integrated here. Teamwork skills are taught. Due to the highly international nature of the shipping industry, it is an important concern of the department to provide its students with access to other cultures (seminars, electives) in addition to good English language skills. Students are instructed and enabled to professionalize future professional and social action and communication - with a view to an international environment - and to critically reflect on their own actions.

The Bachelor's degree course in Nautical Science and Maritime Transport prepares students for nautical management positions on board ships and for management positions in the maritime industry and administration.

The qualifications and course content taught in the degree program go far beyond the nautical skills required in the STCW and prepare students intensively for later employment in the nautical secondary labor market by choosing a study profile.

Notes on the manual

All modules with a number in the "Semester" field are offered every semester. The degree program starts in the SoSe and WiSe. **From 2022, the SoSe will start in English and the WiSe in German.** This means that all compulsory lectures will be offered every semester, once in English and once in German. The lecturer will inform students at the start of the semester in which language they will be taught. The following rule applies in the first instance:

Lectures SoSe: 1st semester English (from 2022), 3rd semester English (from 2023), 5th semester English (from 2024)

Lectures winter semester: 4th semester English (from 2023), 6th semester English (from 2024), 8th semester English (from 2025)

In order to reflect German maritime law according to BSH requirements in German, the lectures on Private Commercial Law and Public Maritime Law are always read in German.

Students without German language skills are advised to achieve level B2 in German by the beginning of the sixth semester so that they can take Private Commercial Law in the fourth semester and Public Maritime Law in the sixth semester together.

Participation in these German language lectures is open to students who can prove that they have a German language proficiency of at least B2.

Otherwise, German language skills are required for a lecture that is taught and examined in German:

- German language examination for university entrance level 2 (DSH 2) or
- Test of German as a foreign language level 4 in all four areas (TestDaf)

required.

Profile modules are often borrowed from the Maritime Technology and Shipping Management degree program or the new Maritime Industrial Engineering degree program and are offered either in the summer or winter semester. This is then noted in the "Semester" field.

Bibliography

Following the module handbook is a list of references for each module that teaches STCW skills. In order to keep the list handy, we have omitted references to IMO regulations, scientific publications and journals.

Term papers as examination performance

As a rule, 20 pages and scientific work and citations are expected.

Abbr.	Meaning
1.PS	1st internship semester
3 months Bachelor thesis	Writing the Bachelor thesis within 3 months
AIS	Automatic Identification System
ARPA	Automatic Radar Plotting Aid
B	Practical exercise
B + K2/H	Practical exercise and 2-hour written exam or term paper
B2	Level of the foreign language
BA	Bachelor thesis
BEP	Entrance examination
GERMAN CIVIL CODE	Civil Code
BPO	Bachelor's examination regulations
BRZ	Gross cubic capacity
BSH	Federal Hydrographic Office
ECDIS	Electronic Chart Display and Information System
ECTS	European Credit Transfer and Accumulation System
EEDI	Energie-Effizienz-Design-Index/Energy Efficiency Design Index
EEOI	Energy efficiency operating indicator
ELCD	European Reference Life Cycle Database/ Database from an initiative of the European Commission
EMAS	Voluntary participation of organizations in a Community eco-management and audit scheme
GEMIS	Global Emission Model of Integrated Systems
GENCON	Charter contract form for ships, from BIMCO
GMDSS	Global Maritime Distress and Safety System/worldwide maritime distress and safety radio system
H	Homework
IAMSAR	International Aeronautical and Maritime Search and Rescue Manual
IHM list	Inventory of Hazardous Materials - List
IMARSAT	Intern. Maritime Satellite Organization
IMO	International Maritime Organization
ISM	International Safety Management
ISO	Intern. Organization for Standardization/Intern. Organization for Standardization
K1/eA/H/R	Written exam 1st hour or experimental work or term paper or presentation
K1+H	Written exam 1st hour and term paper
K1+R	Written exam 1st hour and presentation
K2 / H / R	Written exam 2 hours or term paper or presentation
K2 + B	2-hour written exam and practical exercise
K2/A	2-hour written exam or answer choice procedure
K2/H	Written exam 2 hours or term paper
K2/H/A	Written exam 2 hours or term paper or answer choice procedure
K2/M	Written exam 2 hours or oral exam
K2/R	Written exam 2 hours or presentation
M/A + K2/H	Oral exam or answer choice procedure and written exam 2 hours or term paper
M/A + K4	Oral exam or answer choice procedure and written exam 4h.
MariMedV	Maritime Medicine Ordinance
MARPOL	Internal. Convention for the Prevention of Pollution from Ships
MFAG	Medical First and Guide/Guide for medical first aid measures in the event of accidents involving dangerous goods
MTSM	Maritime Technology and Shipping Management
NEEDS	The NEEDS database contains data on the life cycle costs of future energy supply systems, materials and transportation services
P&I	Protection and Indemnity/ marine transportation insurance
PDCA cycle	Control loop of the continuous improvement process (Plan-Do-Check-Act)
PL	Examination performance
PVL + 2 x PL	Preliminary examination performance and 2x examination performance
PVL + PL	Pre-examination performance and examination performance
QM	Quality management
QMS	Quality management system
R	Unit
RORO	Roll on-roll off
SAR	Search and Rescue
See-BV	Seafarers' Competency Ordinance
SEEMP	Schiffmanagement-Plan der Energie-Effizienz /Ship Energy Efficiency Management Plan
SL	Academic achievement
SL+PL	Academic achievement and examination achievement
SOLAS	Intern. Convention for the Safety of Life at Sea/Intern. Convention for the Safety of Life at Sea
SOS	Safe our Souls emergency call
SS/WS	Summer semester and winter semester
SSO	Ship Safety Officer
STCW(-ÜE-)	Intern. Convention on Standards of Training, Certification and Watchkeeping for Seafarers/ Intern. Convention on Standards of Training, Certification and Watchkeeping for Seafarers
SWS	Semester hours per week
Table A-II/1 or /2	relevant table in STCW
TRB	Training Record Book
Ü	Exercise
V	Lecture

Modules for the Bachelor's degree program B.Sc. Nautical Science and Maritime Transport

Semester 1.

Module English

Responsible Walden Type Compulsory module ECTS 5

Prerequisites SWS 4

Self-study hours 53

Profile Attendance hours 72

Exam type K2/H Nautical Science ☒ MTSM ☒ German ☐ English ☒

Type of examination PL Compulsory attendance ☐

Semester 1. Offer SS/WS Basic studies ☒ specialized studies ☐

Qualification goals Students will be able to communicate and cooperate in accordance with competence level B2 of the Common European Framework of Reference for Languages. They can understand and reproduce the main content of complex texts on concrete and abstract topics (e.g. ships and their tasks, cargo and staff, cargo handling, containerization, shipping documents (e.g. bill of lading, charter parties), safety aboard the ship, sickness on board, intercultural awareness) and can also understand and actively participate in specialist discussions in their own specialist field, expressing themselves clearly and in detail on a wide range of topics, explaining a point of view on a current issue and explaining the advantages and disadvantages of various options. Hereby Key skills will be consolidated: Willingness to learn, perseverance, independence, abstract and networked thinking, creativity, communication and cooperation in the foreign language

Teaching content The lecturer teaches the students- grammar- text comprehension- communication skills (oral) - expression skills (written)

Qualification Table A-II/1 A-II/1 Use the IMO Standard Marine Communication Phrases and use English in written and oral form

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer LVS Course Teaching and learning methods

Walden 4 English V + Ü

Semester 1.

Module Mathematics 1

Responsible	Bentin	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	PL			German	☒
				English	☒
				Compulsory attendance	☐
Semester	1.	Offer	SS/WS	Basic studies	☒
				specialized studies	☐
Qualification goals	Students will be able to solve mathematical models of technical, nautical and economic problems, taking into account the logic of statements, functions and number systems, analytical geometry in vector form and linear systems of equations.				
Teaching content	The lecturer teaches the students: - set theory- functions- limits- continuity- elementary functions- coordinate systems- conic sections- numbers (real and complex)- matrix calculation and systems of equations with determinant- vector algebra these areas can be defined and arithmetic problems can be solved.				
Qualification Table A-II/1	no reference to A-II/1				
Qualification Table A-II/2	no relation to A-II/2				
Further remarks					
Certificates					
Lecturer	LVS	Course		Teaching and learning methods	
Fahlke	4	Mathematics 1		V + Ü	

Semester 1.

Module Nautical Basics

Responsible Vahs Type Compulsory module ECTS 10

Prerequisites SWS 8

Self-study hours 92

Profile Attendance hours 148

Exam type K2/A/B; K1/A/B; Nautical Science ☒ MTSM ☐ German ☒ English ☒

Type of examination SL Compulsory attendance ☐

Semester 1. Offer SS/WS Basic studies ☒ specialized studies ☐

Qualification goals

Students will be able to keep a safe navigational watch, taking into account the appropriate procedures and arrangements for watchkeeping, performing deck duties and identifying the relevant conventions, laws and regulations. In addition, they will be able to describe the structure and competencies of the maritime administration, including the investigation of maritime accidents.

They are able to monitor the compliance with legal regulations. In particular, they will be able to identify, understand and apply the relevant legal provisions (international conventions and national legislation), understand the activities of international organizations and their legal and enforcement competencies, determine the structure and competencies of authorities in maritime transport administration and understand the functions of the flag and register. Students will be able to categorize aspects of general ship management and green shipping in particular; they will be able to describe typical processes and identify and evaluate connections with environmental protection, e.g. the advantages of routing methods and the use of particularly environmentally friendly ship propulsion systems with regard to climate protection. In addition, they can develop certain methods in project form, e.g. the collection, processing and interpretation of nautical data.

Teaching content

The lecturer teaches students basic knowledge and impressions in the following areas: knowledge and skills in the areas of navigation and meteorology:- knowledge of buoyage and lighting systems - knowledge of nautical equipment and publications - knowledge of meteorological parameters and units - ability to observe the weather and use meteorological equipment - ability to read and understand weather charts - knowledge of relevant technical terms in German and English - Knowledge and skills in the area of watchkeeping and occupational safety:- know the procedures and structures of watchkeeping in port/at sea- steering a ship - know the tasks of the lookout - know the aspects of a safe bridge watch - know occupational safety/accident prevention regulations - know emergency plans - know the procedures for mooring/launching the ship - know relevant technical terms in German and English - Knowledge and skills in the area of ship technology:- general knowledge of ship technology systems - basic knowledge of shipbuilding

- Basic knowledge of cargo technology - Relevant technical terms in German and English - The lecturer teaches students- History and legal sources of international maritime law

Module

Nautical Basics

Convention on the Law of the Sea - freedom of navigation and flag state principle - dispute settlement by the International Tribunal for the Law of the Sea - structure and tasks of the IMO - legislation by international organizations - international conventions on ship safety and marine environmental protection - flag and registry law, tasks of the flag state - tasks and activities of classification societies - authority structure and competencies in maritime administration - The lecturer teaches students the basic knowledge in the following areas:- project-oriented work- ship management- collection and processing of nautical data- basic principles of voyage planning- green shipping (selected topics) - basic principles of climate-neutral shipping

Qualification Table A-II/1

Maintain a safe navigational watch; monitoring the compliance with legal regulations

Qualification Table A-II/2

Establishing procedures and arrangements for watchkeeping; monitoring and verifying compliance with legal requirements and measures to ensure the safety of life at sea, security and protection of the marine environment

Further remarks

Certificates

Lecturer

LVS Course

Teaching and learning methods

Vahs

2

Maritime Project

Ü

Beelmann

4

Nautical Basics

V + Ü

Münchau

2

Public Shipping Law

V + Ü

Semester 1.

Module	Navigation			
Responsible	Knoop	Type	Compulsory module	ECTS 5
Prerequisites				SWS 4
			Self-study hours	53
Profile			Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM ☒
Type of examination	PL	German	☒	English ☒
		Compulsory attendance	☐	

Semester 1. Offer SS/WS Basic studies ☒ specialized studies ☐

Qualification goals Students will be able to plan and conduct a passage and determine the nautical position by applying and using terrestrial navigation procedures, navigational information systems and control procedures. They will be able to assess the accuracy of position determination.

Teaching content The lecturer teaches the students:- Perform course/bearing charging and terrestrial compass control - Determine ship locations using terrestrial methods- Evaluate accuracy of location determination- Perform coastal navigation in the nautical chart (paper charts and ECDIS)- Perform navigational voyage planning- Know chart designs and geographical coordinate systems- Use charts in Mercator mapping and spherical projection- Use nautical documents (nautical charts, nautical printed publications and their correction)- Determine tidal values and tidal currents, navigation taking into account current and wind.

Qualification Table A-II/1 Plan and conduct a passage and determine the position

Qualification Table A-II/2 Passage planning and maintain safe navigation; positioning and accuracy

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Knoop	4	Navigation	V + Ü

Semester 1.

Module Physics

Responsible	Göken	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
				German	☒
				English	☒
Type of examination	PL			Compulsory attendance	☐

Semester 1.	Offer	SS/WS	Basic studies	☒	specialized studies	☐
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Qualification goals	Students will be able to apply abstract scientific thinking to nautical examples on the basis of a fundamental understanding of forces and movements in nature and technology as well as basic quantitative, problem-solving thinking skills. They will learn to use their knowledge/understanding of physics for their work or profession in order to develop and refine solutions to problems and arguments in their specialist field, to derive scientifically sound judgments, to take social, scientific and ethical findings into account and to exchange information, ideas, problems and solutions with specialist representatives and laypersons and to assume responsibility in a team.
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Teaching content	The lecturer teaches students the basic knowledge in the areas of:- physical quantities and measurement errors- dynamics, concept of force- work and energy- conservation of energy- impacts- potential diagrams- kinematics of translational motion- dynamics of rotational motion- rigid bodies, their center of gravity and moment of inertia- vibrations
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Qualification Table A-II/1	no reference to A-II/1
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Qualification Table A-II/2	no relation to A-II/2
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Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Göken	4	Physics	V + Ü

Semester 2.

Module Practical Training Semester 1

Responsible	Beelmann	Type	Compulsory module	ECTS	30
Prerequisites	Valid certificate of fitness for sea service; valid basic safety course			SWS	26 Weeks
				Self-study hours	750
				Attendance hours	
				German	☐
				English	☐
				Compulsory attendance	☐

Profile

Type of examination Certificate Nautical Science ☒ MTSM ☐

Type of examination SL

Semester 2. Offer Basic studies ☒ specialized studies ☐

Qualification goals The aim of the first practical training semester is to get to know the professional field of shipping. The aim is to gain as much practical professional experience and associated skills as possible, which form the background for the subsequent theoretical training. The qualification goals are specified by the STCW Convention and the Seafarers' Competency Ordinance as amended.

Teaching content The training in the first 6-month internship should serve to familiarize students with the entire ship operation; special emphasis should be placed on practical training during this time. In addition to the usual routine work, students should be given the opportunity to participate in all maintenance and repair work requiring intensive training. Although the first semester should also include training in bridge maintenance, this should not be the sole focus. In particular, students should be familiarized with the work processes on deck and in the engine room, with the handling of systems and equipment, in the area of safety and firefighting as well as with cargo-related activities and activities during bridge and watch duty. These subject areas are recorded by the students during their time on board under the supervision of the master and the training officer in the "On Board Training Record Book for Navigational Officer's Assistant" published by the BSH. The practical training on board is based on §30 See-BV and the "Guidelines for practical training and seagoing service as a Navigational Officer's Assistant".

Qualification Table A-II/1

Qualification Table A-II/2

Further remarks

Certificates

Lecturer	LVS Course	Teaching and learning methods
Beelmann	Practical Training Semester 1, 26 weeks	Internship

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Semester 3.

Module Business Administration

Responsible	Heilmann	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	PL			German	☒
				English	☒
Semester	3.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☒
				specialized studies	☐
Qualification goals	Students will be able to understand, analyze and evaluate the basic internal economic relationships. To this they are able to organize, plan and independently perform management functions in maritime companies and independently acquire new knowledge and skills in the field of business management fundamentals, which strengthens the following key competencies: ability to analyze, willingness to learn, perseverance, independence, flexibility.				
Teaching content	The lecturer teaches students the basics in the areas of:- Accounting- Balance sheet accounting- Cost accounting- Financing- Investment- Legal forms- Specifics of maritime businesses and maritime markets- Basic principles of economics (pricing in markets)				
Qualification Table A-II/1	no reference to A-II/1				
Qualification Table A-II/2	no relation to A-II/2				
Further remarks					
Certificates					
Lecturer	LVS	Course	Teaching and learning methods		
Heilmann	4	Business Administration	V + Ü		

Semester 3.

Module Computer Science

Responsible	Bentin	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	PL			German	☒
				English	☒
Semester	3.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☒
				specialized studies	☐
Qualification goals	Students will be able to describe the hardware and software configurations of a PC and its peripherals. They are able to operate general and specialist user programs and develop and understand simple programs. This strengthens the following key skills: ability to analyze, willingness to learn, perseverance, independence, abstract and networked thinking, creativity.				
Teaching content	The lecturer teaches students the basics from the areas:- History and the sub-areas of computer science - Storage and interpretation of information- Hardware components of a computer- Basic tasks, structure and services of operating systems- Basics of computer networking. In addition the following topics are taught and applied when programming in JAVA: - Data types, operators and loop constructs- Formulation of algorithms- Object-oriented programming- Development of simple maritime application programs				
Qualification Table A-II/1	no reference to A-II/1				
Qualification Table A-II/2	no relation to A-II/2				
Further remarks					
Certificates					
Lecturer	LVS	Course	Teaching and learning methods		
Ostrowitzki	4	Computer Science	V + Ü		

Semester 3.

Module Mathematics 2

Responsible	Bentin	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	PL			German	☒
				English	☒
Semester	3.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☒
				specialized studies	☐

Qualification goals Students will be able to formulate the basics of differential and integral calculus and apply them to specific problems. To this they will be able to adapt discrete data using polynomials, exponential and trigonometric functions, i.e. reconstruct and mathematically interpret the course of physical-technical measurement curves. This strengthens the following key skills: ability to analyze, willingness to learn, perseverance, independence, abstract and networked thinking, creativity

Teaching content The lecturer teaches students arithmetic in the following areas:- Differential calculus for functions of one and more variables (partial differential, total differential, logarithmic differentiation, implicit diff.)- extreme value problems with error analysis- approximation methods- integral calculus (definite and indefinite integral, partial integration, partial fraction decomposition)- improper integrals (area calculations, solids of revolution, arc lengths)- multiple integrals- differential equations (ordinary, partial, linear, complete differential equations, higher-order differential equations, solution methods, etc.) - equations of higher order, solution methods according to Lagrange, Bernoulli, etc.

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Göken	4	Mathematics 2	V + Ü

Semester 3.

Module Meteorology

Responsible	Göken	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	PL			German	☒
				English	☒
Semester	3.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☒
				specialized studies	☐

Qualification goals Students will be able to incorporate meteorological and oceanographic factors into the planning and execution of a voyage, develop a deeper understanding of the physical states and processes of the atmosphere, explain the structure of meteorological instruments and acquire the ability to use and interpret information from shipboard meteorological instruments. In addition, they acquire basic knowledge of the characteristics of the various weather systems, can develop meteorological reporting procedures and recording systems and identify and differentiate meteorological parameters and make route-relevant decisions on this basis. Students can exchange information, ideas, problems and solutions with specialist representatives and laypersons and assume responsibility in a team.

Teaching content The lecturer teaches the students- the basics of meteorology and the functioning of meteorological measuring instruments- the chemical composition of the atmosphere- the thermodynamic properties of the atmosphere- the vertical structure of the atmosphere- the forces in a rotating reference system- the horizontal air movements- the air masses and their classification- the general circulation and the westerly wind drift- the weather of the tropics and the polar region- the reading, understanding and analyzing of weather information- the basics of oceanography- the danger of tropical cyclones and the associated avoidance of affected areas- the meteorological passage planning

Qualification Table A-II/1 Plan and conduct a passage and determine the position

Qualification Table A-II/2 Passage planning and maintain safe navigation; forecasting of meteorological and oceanographic conditions

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning method
Göken	4	Meteorology	V + Ü

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Semester 3.

Module Ship Theory

Responsible	Plawenn	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☐
Type of examination	PL			German	☒
				English	☒
Semester	3.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☒
				specialized studies	☐

Qualification goals

Students will be able to maintain the seaworthiness of the ship by monitoring and complying with legal regulations. In particular by influencing trim, stability and tension. In doing so, they take into account the legal regulations and measures to ensure the protection of human life at sea as well as the prevention of danger and protection of the marine environment. To this students can associate shipbuilding fundamentals, calculate, analyze and evaluate the buoyancy, stability and trim of a ship and apply international regulations for calculating stability. They are able to understand and evaluate the longitudinal strength of a ship in smooth water. This strengthens the following key competencies:

ability to analyze, willingness to learn, perseverance, independence, abstract and networked thinking, creativity, decision-making.

Teaching content

The lecturer teaches the students - how to read line cracks on ship drawings - calculation of buoyancy according to Archimedes - calculation of buoyancy and displacement - determination of the initial stability of a ship - stability of a ship (also with greater inclination) - stability loads such as free surfaces - transfer of cargo - influence of wind - national and international stability regulations - calculation of trim

Qualification Table A-II/1

Maintaining the seaworthiness of the ship; monitoring compliance with legal regulations

Qualification Table A-II/2

Influencing trim; stability and stress; monitoring and verifying compliance with legal requirements and measures to ensure the safety of life at sea, the security and the protection of the marine environment

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Plawenn	4	Ship Theory	V + Ü

Semester 3.

Module System Monitoring

Responsible	Meyer	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	PL			German	☒
				English	☒
Semester	3.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☒
				specialized studies	☐

Qualification goals

Students will be able to understand the remote control of the propulsion system and other engine-driven systems and service equipment to ensure maneuvering and handling of the ship under all conceivable circumstances.

To this they have acquired general knowledge of the operation of technical ship systems and can use their knowledge of the correct use of propulsion and maneuvering systems. In addition they know the basics of ships' auxiliary machinery and can discuss and analyze applied ship operation problems in English.

Teaching content

The lecturer teaches students content from the following areas:1. Diesel engines - two- and four-stroke diesel engines - Working methods and timing of diesel engines - Main engine parameters and performance 2. Design and operation of the ship's technical systems - Power and working machines - Propulsion, propeller and steering gear - Electrical machines and systems - Ship automation - Operating materials – Pumps 3. Operation of a ship propulsion system - Supply systems - Dynamic behavior during maneuvering - Emergency stop, emergency maneuvering and emergency steering 4. Remote engine control - Bridge remote control system - Engine control room and local control system 5. Alarm systems

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2

Maneuvering and handling of a ship in all conceivable circumstances; operation of the remote control for the propulsion plant and for other engine-driven plant and service equipment

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Meyer	4	System Monitoring	V + Ü

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Semester 4.

Module Medical Care

Responsible	Mattausch	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	B + K2/H	Nautical Science	☒	MTSM	☐
		German	☒	English	☒
Type of examination	SL + PL			Compulsory attendance	☐
Semester	4.	Offer	SS/WS	Basic studies	☐
				specialized studies	☒

Qualification goals

Students will be able to provide medical first aid on board and plan and manage medical care on board. They understand and apply basic knowledge of maritime medicine, seek medical advice via radiotelephony and translate this into effective measures, thereby strengthening the following key skills: Ability to act, ability to work in a team, empathy, ability to cooperate, emotional intelligence, independence, networked thinking, decision-making.

Teaching content

The lecturer teaches the students in accordance with Annex 4 "Large course" of the MariMed decree: - ability to use the first aid kit - Knowledge of the structure and functions of the human body - Knowledge of toxicological hazards on board and in particular knowledge of the "Guide to Medical First Aid Measures in the Event of Accidents Involving Dangerous Goods" (MFAG) or the corresponding national publication in this regard - ability to carry out an informed physical examination of an injured or sick person - knowledge of injuries to the spine - knowledge of burns and scalds and the effects of heat and cold on the human body - knowledge of broken bones, dislocations and muscle injuries - ability to provide medical care for rescued persons - ability to obtain medical advice via radiotelephony and the associated clinical examination - pharmacological knowledge - ability to sterilize medical instruments - knowledge of cardiac arrest, drowning, respiratory arrest and respiratory distress - ability to care for injured persons with various types of injuries - knowledge of various aspects of health care - knowledge of diseases - ability to recognize drug, narcotic and alcohol abuse - knowledge of dental care - knowledge of gynecology, antenatal care and obstetrics - ability to provide medical care for persons rescued from the water - knowledge of death at sea - knowledge of hygiene - knowledge of health protection - ability to keep records and archive relevant regulations - ability to call on external assistance - ability to assess the hazardous situation - ability to rescue patients under low stress - ability to carry out immediate measures in the event of accidents and illnesses taking into account basic anatomical and physiological knowledge - ability to reposition and transport under low stress - ability to carry out treatment for special illnesses in accordance with the medical instructions in accordance with §107 Maritime Labor Act and the MFAG guidelines - knowledge of further treatment measures e.g. pain treatment and nursing - thorough knowledge of the structure of the ship's pharmacy and the administration of the medication it contains - thorough knowledge of the medical instructions in accordance with the medical instructions under §107 Maritime Labor Act - thorough knowledge about the Forms and records - thorough knowledge of the relevant legislation

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A hospital internship of at least 80 hours (14 days) must be completed. This should provide an insight into the following areas (recommended according to MariMed decree and STCW Convention): Rescue, Consciousness, circulatory arrest, respiratory failure / measures in the event of obstruction of the airway, ventilation / keeping the airway open, positioning in the event of respiratory failure, external / internal bleeding, eye injuries, burns / scalds / electrical injuries / frostbite, repositioning / transportation, examination techniques, spinal injuries, treatment of bone fractures, dislocations, muscle injuries, sprains and strains, wound care, minor surgical procedures, treatment of acute abdominal diseases, treatment of dental diseases, pain treatment. The form "Hospital internship form (nautical science)" must be signed by the internship provider as proof.

Qualification Table A-II/1

Application of medical first aid on board

Qualification Table A-II/2

Planning and management of medical care on board

Further remarks

Qualifications according to STCW-Convention, Tables: A-VI/4-1: Application of immediate first Assistance in the event of an accident or illness on board, A-VI/4-2: Provision of medical care for sick and injured persons while they remain on board; participation in coordinated medical assistance measures for ships

Certificates

Medical Care

Lecturer

LVS Course

Teaching and learning methods

Winther

4 Medical Care
2 Wk Hospital Internship

V + Ü
Internship

Semester 4.

Module Maritime English

Responsible	Walden	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	M/A + K2/H	Nautical Science	☒	MTSM	☒
				German	☐
Type of examination	PVL + PL			English	☒
				Compulsory attendance	☐
Semester	4.	Offer	SS/WS		
				Basic studies	☐
				specialized studies	☒

Qualification goals

Students will be able to use the IMO Standard Marine Communication Phrases and their usage in spoken and written form and will be able to communicate and cooperate at level C1 according to the Common European Framework of Reference for Languages: 1. They will be able to understand a wide range of demanding, longer texts on maritime topics (e.g. The Weather, Pilot on Board, Leaving and Entering Ports, Radio and Telex Messages, The Note of Protest, Port Regulations, Cargo Damage Reports) and also grasp implicit meanings 2. They can express themselves spontaneously and quite fluently without having to search for words in a clearly recognizable way. They can use the language effectively and flexible in social and professional life 3. They can express themselves clearly in a structured and detailed manner. They can express themselves on complex issues and use various means of text linking appropriately 4. They can understand and use the Standard Marine Communication Phrases (SMCP) and consolidate the following key skills: Willingness to learn, perseverance, independence, abstract and networked thinking, creativity, communication and cooperation in the foreign language.

Teaching content

The lecturer teaches the students: - Grammar (qualification objectives 1 - 4) - Text comprehension (qualification objective 1) - Communication skills (oral) (qualification objectives 2 - 4) - Expressiveness (written) (qualification objective 3) - Standard Marine Communication Phrases (qualification objective 4)

Qualification Table A-II/1

Use of IMO Standard Marine Communication Phrases and use of written and spoken English

Qualification Table A-II/2

no relation to A-II/2

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Walden	4	Maritime English	V + Ü

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Semester 4.

Module Human Resources Management

Responsible	Beilmann	Type	Compulsory module	ECTS	5
Prerequisites				SWS	4
Profile				Self-study hours	53
Exam type	K2/H	Nautical Science	☒ MTSM ☐	Attendance hours	72
Type of examination	PL			German	☒ English ☒
Semester	4.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☐ specialized studies ☒

Qualification goals

Students will be able to apply leadership skills and teamwork paired with business management skills. To this they can lead employees on board appropriately and apply human resource management elements from the areas of leadership, teamwork, managerial skills and communication, cultural awareness, recognize and evaluate psychological processes and relationships between people and recognize, evaluate, analyze and adequately resolve conflicts and conflict potential. In addition, they can apply relevant regulations on maritime labor law in relation to personnel management, which consolidates the following key competencies: ability to analyze, willingness to learn, perseverance, independence, abstract and networked thinking, decision-making, willingness to perform, ability to deal with conflict, rhetoric, ability to work in a team, assuming social responsibility and dealing with intercultural aspects.

Teaching content

- Leading employees - Leading people in emergencies - Team building and working in a team - Personnel assessment - Vocational training and instruction techniques on board - Adequate conflict behavior and conflict resolution strategies - Aspects of communication - Measures for alcohol abuse and addictive behavior - Establishing and maintaining shipboard hygiene and a humane working environment - Basic concepts and principles of general psychology and sociology - Special features of shipping sociology and psychology - Knowledge of labor law in relation to personnel management (Maritime Labor Act) - Intercultural skills

Qualification Table A-II/1 Application of leadership and teamwork skills

Qualification Table A-II/2 Leadership and business management skills

Further remarks

The module is also assigned the Social Credit Point

Certificates

Lecturer	LVS	Course	Teaching and learning methods
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Beilmann	4	Human Resources Management	V + Ü
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Social Credit Point

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Semester 4.

Module Technical Navigation 1 & Radar Technology

Responsible	Vahs	Type	Compulsory module	ECTS	5
Prerequisites	Nautical Basics, Practical Training Semester 1			SWS	4
Profile				Self-study hours	53
Exam type	K1 + B	Nautical Science	☒	MTSM	☐
Type of examination	PL/ SL	German ☒ English ☒			Compulsory attendance ☐
Semester	4.	Offer	SS/WS	Basic studies	☐ specialized studies ☒
Qualification goals	Students will be able to maintain safe navigation by using data from navigation equipment and systems to support the watchkeeping officer's decision-making, using radar equipment for navigation and collision avoidance, including the use of common plotting techniques, which supports the planning and execution of a voyage and the determination of the position, keeping a safe bridge watch and using radar equipment to maintain safety of navigation.				
Teaching content	Structure and mode of operation of radar systems, radar image evaluation in various display types, methods for position determination and path monitoring with the aid of radar equipment (stationary lines, PI, synthetic image information and overlays), Methods of collision avoidance with radar/plotting methods, performance limits and errors				
Qualification Table A-II/1	Planning and execution of a voyage and determination of position; keeping a safe bridge watch; use of radar and ARPA equipment to maintain the safety of navigation				
Qualification Table A-II/2	safe navigation by using data from navigational equipment and facilities to support the watchkeeping officer's decision-making				
Further remarks	Attendance is compulsory for the exercises on the radar simulator (radar simulator course).				
Certificates					
Lecturer	LVS	Course	Teaching and learning methods		
Knoop	2	Technical Navigation 1	V		
Plawenn	2	Radar Technology	Ü		

Semester 4.

Module

Watchkeeping

Responsible	Kreutzer	Type	Compulsory module	ECTS	5
Prerequisites	Nautical Basics, Practical Training Semester 1			SWS	4
Profile				Self-study hours	53
Exam type	K2/M	Nautical Science	☒	MTSM	☒
Type of examination	PL	German	☒	English	☒
Semester	4.	Offer	SS/WS	Compulsory attendance	☐
		Basic studies	☐	specialized studies	☒
Qualification goals	Students will be able to keep a safe navigational watch by defining procedures and precautions for the watch, interpreting a traffic situation and taking measures for safe navigation by applying the Collision Prevention Regulations (COLREGs) and the Maritime Waterways Regulations, thus consolidating the following key skills: ability to analyze, willingness to learn, perseverance, independence, abstract and networked thinking, decision-making, willingness to perform.				
Teaching content	The lecturer teaches the students the content, application and purpose of the - international rules for the prevention of collisions at sea - the national rules for the prevention of collisions at sea and the navigation regulations for national waterways – Watchkeeping principles and the resulting effective cooperation of a bridge team				
Qualification Table A-II/1	Maintaining a safe navigational watch				
Qualification Table A-II/2	Determining watchkeeping procedures and arrangements				
Further remarks					
Certificates					
Lecturer	LVS	Course	Teaching and learning methods		
Plawenn	4	Watchkeeping	V + Ü		

Semester 4.

Module Private Commercial Law

Responsible	Münchau	Type	Compulsory module	ECTS	5
Prerequisites	You need to proof German on level B2			SWS	4
Profile				Self-study hours	53
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	SL				German ☒ English ☐
Semester	4.	Offer	SS/WS	Compulsory attendance ☐	
		Basic studies ☐		specialized studies ☒	

Qualification goals

Students will be able to monitor and check compliance with legal regulations and measures to ensure the protection of human life at sea, security and the protection of the marine environment, develop an understanding of the structure and functioning of the legal system, understand the basics of civil and public law, have general knowledge of labor law and specific knowledge of maritime labor law and can apply them in practice (on shore/on board), thereby consolidating the following key competencies: ability to analyze, willingness to learn, perseverance, independence, abstract and networked thinking, motivation.

Teaching content

The lecturer teaches the students 1. Fundamentals of public law: constitutional law; administrative law; international and European law; criminal law. 2. Fundamentals of civil law: organization and structure of the German Civil Code (BGB); formation and content of contracts; default and damages; types of contracts; possession and ownership. 3. Fundamentals of individual labor law and collective labor law. 4. legal bases of maritime labor law: Maritime Labor Act, international conventions, collective agreements; rights and obligations of the master and crew; employment relationship and employment contract; rights and obligations arising from the employment relationship; working time regulations and occupational health and safety; welfare obligations of the shipowner (food, accommodation, leave, sickness care); termination of the employment relationship; order on board, complaints procedure; control of working conditions on board by flags and port state control. 5. Basic features of commercial and company law: merchant, commercial register, company name and power of attorney; special features of commercial transactions; partnerships and corporations.

Qualification Table A-II/1 Monitoring compliance with legal requirements

Qualification Table A-II/2 Monitoring and verification of compliance with legal requirements and measures to ensure the safety of life at sea, security and protection of the marine environment

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Münchau	4	Private Commercial Law	V + Ü

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Semester 5.

Module Astronomical Navigation

Responsible	Kreutzer	Type	Compulsory module	ECTS	5
Prerequisites	Nautical Basics, Practical Training Semester 1			SWS	4
Profile				Self-study hours	53
Exam type	K2	Nautical Science ☒	MTSM ☒	German ☒	English ☒
Type of examination	PL				Attendance hours 72
Semester 5.	Offer	SS/WS	Compulsory attendance ☐		
			Basic studies ☐	specialized studies ☒	

Qualification goals Students will be able to carry out navigation and voyage planning by determining their position using a sextant and will be familiar with important celestial bodies and their movement. In addition, they can represent astronomical coordinate systems, apply methods of astronomical positioning, apply methods of astronomical compass control, apply methods of great circle navigation including mixed sailing and recognize the relevance of navigational conditions in relation to weather and ice conditions. In addition, the following key skills are consolidated: ability to analyze, willingness to learn, perseverance, independence, abstract and networked thinking, decision-making

Teaching content The lecturer teaches the students: - Navigationally important celestial bodies and their movement - Astronomical coordinate systems - Methods of astronomical position determination - Methods of astronomical compass control - Compass calculation according to mean latitude and magnified latitude - Methods of great circle navigation

Qualification Table A-II/1 Plan and conduct a voyage and determining the position; keeping a safe navigational watch

Qualification Table A-II/2 Voyage planning and execution of navigation; positioning and accuracy

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Tomaschek	4	Astronomical Navigation	V + Ü

Semester 5.

Module Dangerous Goods

Responsible	Kreutzer	Type	Compulsory module	ECTS	5
Prerequisites	Practical Training semester 1, Nautical Basics, Mathematics 1, Physics, English			SWS	4
Profile				Self-study hours	53
				Attendance hours	72
Exam type	K2/A	Nautical Science	☒	MTSM	☒
Type of examination	PL				German ☒ English ☒
					Compulsory attendance ☐
Semester	5.	Offer	SS/WS	Basic studies	☐ specialized studies ☒

Qualification goals	Students will be able to transport dangerous goods and describe dangerous goods and their risks for people, the environment and ships. In the event of accidents / emergencies, they can take the appropriate measures, classify dangerous goods and identify the correct technical name, describe the correct packaging of dangerous goods and apply packaging regulations as well as correctly label, placard and stow packages and cargo transport units (CTUs). In addition, they can apply regulations for transportation, in particular stowage regulations and separation regulations, apply precautions during loading and unloading as well as on cargo care during the journey, apply exceptions and special regulations and distinguish and determine exempted and limited quantities. The following key competences are consolidated: ability to analyze, willingness to learn, independence, abstract and networked thinking, decision-making, willingness to perform, acceptance of responsibility
Teaching content	- Classification and characteristics of dangerous goods - International regulations, standards, codes and recommendations relating to the transportation of dangerous goods, in particular the International Maritime Dangerous Goods (IMDG) Code, the International Maritime Solid Bulk Cargoes (IMSBC) Code and Annex III of the Marpol Convention - Construction and equipment of oil, chemical and liquefied gas tankers
Qualification Table A-II/1	Ensuring compliance with pollution prevention regulations; preventing, containing the spread of and fighting fires on board
Qualification Table A-II/2	Responding to emergency situations when managing the ship; planning and ensuring the safe loading, stowing, securing and discharging of cargo and the safe care of cargo during the voyage; transportation of dangerous goods
Further remarks	It is recommended also to take the subject "Cargo Operations" in the same semester in order to be able to follow the module better.
Certificates	

Lecturer	LVS	Course	Teaching and learning methods
Kreutzer	4	Dangerous Goods	V + Ü

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Semester 5.

Module Cargo Operation

Responsible	Plawenn	Type	Compulsory module	ECTS	5
Prerequisites	Nautical Basics, Practical Training Semester 1, Mathematics 1, Physics, English			SWS	4
Profile				Self-study hours	53
				Attendance hours	72
Exam type	K2/H	Nautical Science ☒	MTSM ☒	German ☒	English ☒
Type of examination	PL				Compulsory attendance ☐
Semester	5.	Offer	SS/WS	Basic studies ☐	specialized studies ☒

Qualification goals Students will be able to monitor loading, stowing, securing and discharging as well as supervise the cargo during the voyage. They will be able to check cargo holds, hatch covers and ballast tanks and, if necessary, report defects and damage to them, plan and monitor loading taking into account freeboard, stability, trim and strength of the ship using the relevant cargo-specific international regulations (IMO regulations), carry out cargo handling, stowage and securing using the relevant IMO regulations, operate and assess the cargo computer software safely and interpret the results appropriately, as well as consolidate the following key skills: communication skills, analytical skills, perseverance, decision-making, networked thinking, efficiency, independence.

Teaching content The lecturer teaches the students- Freeboard convention- IMSBC code (bulk cargoes)- BLU code (stowage planning)- Grain code (grain as bulk cargo)- Timber code (timber as deck cargo)- CSS code (cargo securing);- Standard cargoes (containers, barges)- Semi-standard cargoes (RORO);- Non-standard cargoes (heavy lift/project cargoes, forest products, steel products, refrigerated cargoes)-Tank cargoes- Claims handling (behavior to defend against claims from pre- and post-shipment damage to the cargo against the shipowner/carrier)

Qualification Table A-II/1 Supervision of loading, stowing, securing, discharging and care of cargo during the voyage; inspection of cargo holds, hatch covers and ballast tanks and reporting of defects and damage to these; maintaining the seaworthiness of the ship

Qualification Table A-II/2 Planning and ensuring the safe loading, stowage, securing and discharging of cargo and the safe care of cargo during the voyage; assessing reported defects and damage to holds, hatch covers and ballast tanks and taking appropriate action in such cases

Further remarks

Certificates

Lecture	LVS Course	Teaching and learning methods
Plawenn	4 Cargo Operation	V+Ü

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Semester 5.

Module Maritime Law

Responsible	Münchau	Type	Compulsory module	ECTS	5
Prerequisites	Nautical Basics, Practical Training Semester 1			SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science	☒	MTSM	☒
Type of examination	PL			German	☒
				English	☒
Semester	5.	Offer	SS/WS	Compulsory attendance	☐
				Basic studies	☐
				specialized studies	☒

Qualification goals

Students will be able to understand and apply the content and essential regulations of sea freight contracts and the associated documents.

To this end, they can recognize liability risks and assess their consequences as well as decide on the correct behavior in emergency situations (accidents, salvage, collisions), thereby strengthening the following key skills: ability to analyze, willingness to learn, perseverance, independence, networked thinking, motivation

Teaching content

The lecturer teaches the students: - History and legal sources of maritime law - Persons of maritime law: shipowner, Chandler, ship operator, master, pilot, broker/agent - Concept and types of maritime contract of carriage - Parties involved in the maritime freight business - Content of the maritime contract of carriage - Documents of the maritime freight business: Bill of lading, charter party - Liability of the carrier and the charterer under the sea freight contract - Contents of a voyage charter contract using GENCON as an example - Determination of cargo quantity and loading/ laytime - Vessel transfer contracts: Time charter and bareboat charter - Non-contractual liability of the shipowner and the master - Liability for oil pollution damage - Voyage emergencies: collisions, salvage and general average - Maritime procedural law: ship creditors' rights, attachment, arbitration - Maritime property law: ship register, acquisition of ownership of seagoing vessels, mortgage - Maritime insurance law: cargo insurance, hull insurance, P&I

Qualification Table A-II/1

Qualification Table A-II/2

Response to emergency situations in the navigation of the ship; carriage of dangerous goods; monitoring and verification of compliance with legal requirements and measures to ensure the safety of life at sea, security and protection of the marine environment

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Münchau	4	Maritime Law	V + Ü

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Semester 5.

Module Technical Navigation 2 & ECDIS

Responsible	Vahs	Type	Compulsory module	ECTS	5
Prerequisites	Technical Navigation 1 & Radar Technology, Nautical Basics, Practical Training Semester 1			SWS	4
Profile				Self-study hours	53
				Attendance hours	72
Exam type	K1/H + B	Nautical Science ☒	MTSM ☒	German ☒	English ☒
Type of examination	PL / SL	Compulsory attendance ☐			

Semester 5. Offer SS/WS Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to maintain safe navigation by using ECDIS and related navigation equipment to support the watchkeeping officer's decision-making by using compass equipment, satellite navigation equipment, speed measurement equipment and echo sounders, Integrated Navigation Systems including ECDIS for safe and efficient navigation in typical scenarios. This supports the planning and execution of a voyage as well as determining the position and maintaining a safe navigational watch by using the Electronic Nautical Chart Display and Information Systems (ECDIS) to maintain navigational safety.

Teaching content Design, functionality and practical use, considering the respective performance limits of navigation systems, in particular: - Magnetic and gyro compass - Course and track controllers - Satellite navigation systems - Integrated navigation systems – ECDIS – AIS - Echo sounders - speed measuring systems (logger)

Qualification Table A-II/1 Planning and execution of a voyage and determination of position; keeping a safe navigational watch; use of Electronic Chart Display and Information Systems (ECDIS) to maintain the safety of navigation

Qualification Table A-II/2 Voyage planning and execution of navigation; positioning and accuracy; determining and accounting for compass errors; maintaining safe navigation by using data from navigational equipment and facilities to support watchkeeping and decision-making; maintaining safe navigation by using ECDIS and related navigational facilities to support watchkeeping and decision-making.

Further remarks Attendance is compulsory for the exercises in the ECDIS laboratory (ECDIS course).

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Plawenn	2	ECDIS	Ü
Knoop	2	Technical Navigation 2	V

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Semester 6.

Module Cargo Care

Responsible	Kreutzer	Type	Compulsory module	ECTS	5
Prerequisites	Ship Theory; Cargo operation			SWS	4
				Self-study hours	53
Profile				Attendance hours	72
Exam type	K2/H	Nautical Science ☒	MTSM ☐	German ☒	English ☒
Type of examination	PL			Compulsory attendance	☐
Semester	6.	Offer	SS/WS	Basic studies ☐	specialized studies ☒

Qualification goals Students will be able to supervise loading, stowing, securing and discharging, inspect holds, hatch covers and ballast tanks and look after the cargo during the voyage, carry out loading planning for dry cargo ships on the basis of specific criteria, determine the lifting gear and slings required for cargo handling and carry out a draft survey at the end of the voyage to determine the amount of cargo loaded.

Teaching content The lecturer teaches the students - Loading planning of ships with project cargo - calculation of the necessary lifting gear and slings for the Heavylift- Handling, planning and monitoring of the handling process - Loading planning of container ships and bulk carriers - Draught Survey

Qualification Table A-II/1 Supervision of loading, stowing, securing, discharging and care of the cargo during the voyage; inspection of holds, hatch covers and ballast tanks and reporting of defects and damage to these

Qualification Table A-II/2 Planning and ensuring the safe loading, stowage, securing and discharging of cargo and the safe care of cargo during the voyage; assessing reported defects and damage to holds, hatch covers and ballast tanks and taking appropriate action in such cases; Influencing trim, stability and stress

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Kreutzer	4	Cargo Care	V + Ü

Semester 6.

Module Maneuvering

Responsible	Vahs	Type module	Compulsory	ECTS	5
Prerequisites	Intermediate examination, Maritime English, Navigation 2, Watchkeeping			SWS	4
Profile				Self-study hours	53
Exam type	K2/H	Nautical Science ☒	MTSM ☒	German ☒	English ☒
Type of examination	PL				Compulsory attendance ☐
Semester 6.	Offer	SS/WS			
			Basic studies	☐	Specialized studies ☒

Qualification goals

Students will be able to describe the safe maneuvering of a ship, taking into account the ship-specific and external conditions (environment).
They will be able to define manoeuvres in ship operation and describe the technical-physical relationships, analyze ship-side and external factors that influence manoeuvring and describe complex manoeuvre sequences, their planning and execution.

Teaching content

The lecturer teaches the students: - basic definitions of maneuvering; - maneuvering devices, their operating principle and performance limits: propellers, rudders, transverse thrusters, pods, etc.; - maneuvering characteristics and their parameters: course stability, turning ability, pivot point position, stopping ability; - standard maneuvers (including MSC.137): Turning maneuvers incl. turning circles, course behavior incl. test (zig-zag, pull- out), stopping incl. crash stop maneuver, sea trials (sea trials), person over board, mooring/ unmooring, anchoring, pilot transfer.- Influence of environmental factors: wind, swell, current, hydrodynamic effects in ship - ship interactions and in narrow fairways, low keel clearance, ice.- Selected special scenarios: collision avoidance, constant radius cornering, SAR, towing, bad weather.- Basics of propulsion and energy efficiency.

Qualification Table A-II/1

Maneuvering the vessel

Qualification Table A-II/2

Maneuvering and ship handling in all conceivable circumstances

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Vahs	4	Maneuvering	V

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Semester 6.

Module

Emergency Management

Responsible

Kreutzer

Type Compulsory
module

ECTS

10

Recommendation/
prerequisites1st practical
semesterYou need to prove German on level B2 for "Public
maritime law"

SWS

9

Self-study hours

106

Profile

Classroom study hours
144

Exam type

K3(PL) + K1(SL)

Nautical



MTSM

German ☒ English ☒

Exam form

PL + SL

Attendance



Semester 6

Offered

SS/WS

Basic

Specialized studies ☒

Qualification

Students will be able to respond to emergency situations.

To this end, they acquire problem-solving skills in emergency management and are able to apply the relevant national and international regulations for ensuring marine environmental protection and ship safety.

Students can ensure compliance with pollution prevention regulations.

To this end, they can identify, understand, and apply the relevant (international and national) legal provisions relating to ship safety and marine environmental protection, name the relevant certificates and documents that must be carried on board, apply their ability to comply with the relevant provisions for the prevention of pollution in connection with ship operations, and apply the knowledge required to prepare and conduct flag state, port state, and classification society inspections. In addition, they understand the structure of the authorities and have expertise in maritime administration, including marine accident investigation.

Students can identify and assess hazards and risks to ships and crews in the area of security and carry out appropriate risk assessments (SSAs).

They are aware of global threats to shipping and assess the threat potential for their ship.

They can initiate and coordinate security measures in accordance with the security plan (SSP).

They can apply national and international regulations relating to security on board.

And you will be able to:

- plan and ensure the organization of security on board.
- Prevent fires on board, contain their spread, and organize firefighting.
- Use rescue equipment appropriately and in accordance with the situation.
- Respond to general emergencies in a manner appropriate to the situation.
- Describe the life-saving, fire-extinguishing, and other safety systems required to maintain the safety of ship operations.
- Act within the scope of hazard prevention and organize appropriate measures.
- Develop plans for emergencies and damage control, and handle emergencies.
- Plan and ensure the organization of safe ship operations (ISM Code).

ensure that it is implemented.

Course content

Based on model course 3.19 and ISPS Code Element 12.2, the following knowledge in particular will be imparted.

- Updating and monitoring the implementation of the ship security plan
- Assessing risks, threats, and hazards relating to security
- Conducting regular inspections of the ship to ensure that appropriate security measures have been implemented and are being maintained
- Coordinating the implementation of the ship security plan with the company security officer and the relevant port facility security officer
- Coordinating the security aspects of the handling of cargo and ship's stores on board
- Ensuring that security equipment and installations are properly operated, tested, and calibrated
- Promoting awareness of the importance of security and vigilance
- Legal basis (in particular ISPS Code, Maritime Security Ordinance)
- International agreements and recommendations as well as European and national legislation relating to environmental protection, ship safety, and security
- Measures to protect and ensure the safety of all persons on board in emergencies (firefighting, lifesaving equipment)
- Maintenance of the operational condition of rescue, firefighting, and other safety systems
- Safe ship operation (risk management, emergency plans)
- Management, organization, and training of personnel on board
- "Search and Rescue Manual" (IAMSAR)
- Measures in the event of oil pollution damage
- Security on board (maritime security procedures, responsibilities, risk assessment, security plan, detection and identification of threats and their prevention)

In addition, the lecturer teaches students

- Legislation by international organizations
- International conventions on ship safety
- International agreements on marine environmental protection
- Measures and responsibilities in the event of oil pollution damage
- Legal basis and implementation of port State control
- Flag State control, certificates, and inspections
- Classification and class surveys
- Structure and tasks of maritime administration
- Maritime police powers and marine accident investigation
- Tasks and responsibilities of pilots

Qualification Table A-II/1

Reactions to emergency situations, reactions to distress signals at sea, ensuring compliance with pollution prevention regulations, prevention, containment and control of fires on board, use of life-saving appliances, monitoring compliance with legal regulations, application of leadership skills and teamwork, personal contribution to the safety of the ship

Reactions to emergency situations in the operation of the ship, monitoring and checking compliance with legal requirements and measures to ensure the safety of human life at sea, security, and the protection of the marine environment, Maintaining the safety of the ship's crew and passengers, security, and the proper working order of life-saving appliances, firefighting equipment, and other safety equipment and devices, preparing emergency and damage control plans and dealing with emergency situations, leadership skills and business management abilities

After successful completion of the module and proof of 12 months' seagoing service, the BSH will issue the certificate of competency as a security officer in accordance with STCW A-VI/5 on the ship.

Woltron

5

Emergency Management

V

Woltron

2

Public maritime Law

V+ Ü

Woltron

1

SSO, Ship Security Officer

V+ Ü

Semester 6.

Module Telecommunications

Responsible	Woltron	Type	Compulsory module	ECTS	5
Prerequisites	Nautical Basics, Practical Training Semester 1, Maritime English			SWS	4
				Self-study hours	53
				Attendance hours	72
Profile				German ☒	English ☒
Exam type	K2 / A+B	Nautical Science ☒	MTSM ☐		Compulsory attendance ☒
Type of examination	PVL + PL				

Semester 6. Offer WS/SS Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to send and receive messages using GMDSS equipment and devices and comply with the functional regulations for the GMDSS. To this end, they will have knowledge of the content of the International Airborne and Maritime Search and Rescue Manual (IAMSAR), the ability to use the International Code of Signals, the ability to send and receive the distress signal SOS in accordance with the representation in Annex IV of the Collision Prevention Regulations of 1972 as amended and in Annex I of the International Code of Signals in the Morse code with light signals and to send and receive single-letter signals in accordance with the representation in the International Code of Signals with optical signaling.

Teaching content By successfully completing this module, students will acquire: - the ability to send and receive messages using GMDSS equipment and devices - knowledge of the contents of the International Airborne and Maritime Search and Rescue Manual (IAMSAR) - the ability to use the International Code of Signals - knowledge of the functional regulations for the GMDSS - the ability to transmit and receive the distress signal SOS as described in Annex IV of the Collision Prevention Regulations of 1972 as amended and in Annex I of the International Code of Signals in Morse code with light signals and transmit and receive one-letter signals as described in the International Code of Signals with optical signaling. The instructor teaches the students: - to read and transmit SOS and single-letter signals visually - Knowledge of the structure and use of the Code of Signals - Exercises using the Code of Signals with the correct operating procedure - Emergency/urgency/safety communications- Means of preventing false alarms and procedures to cancel them, - knowledge of ship reporting systems and requesting medical and radio medical assistance - Basic knowledge of the mobile marine radio service (including satellite communications) - Practical knowledge and skills to operate a marine radio station and GMDSS equipment – In depth application of previously learned IMO Standard Marine Communication Phrases, in particular related to the protection of human life at sea- protective measures for ship safety and personal safety related to the hazards of radio equipment, including electrical and non-ionizing radiation in addition to the knowledge and application of the provisions of the Radio Regulations:- Knowledge of the procedures outlined in the International Airborne and Maritime Search and Rescue Manual (IAMSAR) and their application in SAR situations - Ability to handle radio traffic in emergency situations including, but not limited to, abandon ship, fire on board, partial or total failure of radio equipment - Knowledge and application of the skills of the Operation of a marine radio station

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Semester 6.

Module	Telecommunications		
	including the GMDSS equipment through exercises on the simulator		
Qualification Table A-II/1	Reactions to emergency situations; reactions to distress signals at sea; sending and receiving messages by optical signaling		
Qualification Table A-II/2	Coordination of search and rescue operations		
Further remarks	The module additionally refers to qualifications according to Table- A-IV/2 of the STCW Convention: Binding minimum requirements for the issue of certificates of competency as GMDSS radio operator (GOC).		
Certificates			
Lecturer	LVS	Course	Teaching and learning methods
Woltron	4	Telecommunications	V + Ü

Semester 7.

Module		Practical Training Semester 2				
Responsible	Beelmann		Type module	Compulsory	ECTS	30
Prerequisites	Practical Training Semester 1; valid certificate of fitness for sea service; valid Basic Safety Course				SWS	26 Weeks
				Self-study hours	750	
				Attendance hours		
				German	☐	English ☐
				Compulsory attendance ☐		
Profile						
Type of examination			Nautical Science ☒	MTSM ☐	Basic studies ☐ specialized studies ☒	
Type of examination	SL					
Semester	7.		Offer			
Qualification goals	The aim of the second practical semester is to apply the theoretical knowledge acquired so far in practice and to further expand and deepen the practical knowledge applied on board. In particular, the student should be familiarized with the tasks of a nautical officer of the watch. Through the practical and theoretical knowledge acquired so far, the student should be able to assess his/her own abilities and skills and carry them out in depth on board.					
Teaching content	The subject areas listed in the "On Board Training Record Book for Navigational Officer's Assistant" should be completed and the students should further deepen their chosen profile on board. The following topics are therefore covered: Work procedures on deck and in the engine room, handling of plant and equipment, safety and fire-fighting as well as cargo-related activities and activities during bridge and watch duty. In addition, greenshipping/ship and environmental technology, maritime safety and quality management or ship handling. It is particularly important that the students are given sufficient opportunity to gain further, additional experience in bridge and watch duty. These subject areas will be documented by the students during the time on board under the supervision of the master and the training officer in the "On Board Training Record Book for Navigational Officer's Assistant" published by the BSH. The practical training on board is based on §30 See-BV and the "Guidelines for practical training and seagoing service as a nautical officer's assistant".					
Qualification Table A-II/1						
Qualification Table A-II/2						
Further remarks						
Certificates						
Lecturer	LVS		Course		Teaching and learning methods	
Beelmann	Practical Training Semester 2, 26 weeks				Internship	

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Semester 8.

Module Bachelor Thesis

Responsible Bentin Type Compulsory module ECTS 12

Prerequisites see BPO Nautical Science and Maritime Transport SWS 3 Month

Self-study hours 300

Profile Attendance hours

Exam type BA Nautical Science ☒ MTSM ☐ German ☒ English ☒

Type of examination PL Compulsory attendance ☐

Semester 8. Offer SS/WS Basic studies ☐ specialized studies ☒

Qualification goals By successfully completing this module students will be able to: - apply basic scientific methods to a specific task and thus produce a targeted solution - critically evaluate the course of the investigation from a scientific perspective - correctly interpret the results obtained and correctly assess their contribution to the solution - assess their self-management and time management skills when working on more complex tasks - identify the key points of their scientific work and communicate them in a comprehensible manner

Teaching content The following contents will be learned in discussions and conferences with the supervising professor and in self-study:- Identifying the problem and dealing with it through a problem analysis - Strategy development with regard to the development and completion of a scientific paper - Planning and adhering to personal time management - Literature research, including through the services offered by the library - Outline of the topic - Planning and structuring of the project - Interpretation, evaluation and visualization of data and information - Scientific support on methods and procedures in the research projects - Formal, linguistic and content-related aspects for writing papers and research reports - Finding and using the right argumentation culture

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no reference to A-II/2

Further remarks

Certificates

Lecturer LVS Course Teaching and learning methods
3 month Bachelor Thesis

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Semester 8.

Module BEP Practice Ship handling, Simulator

Responsible	Kreutzer	Type	Compulsory module	ECTS	5
Prerequisites	see §10 BPO and Type specific Training ECDIS "NaviSailor 4000"			SWS	4
Profile				Self-study hours	53
Exam type	B	Nautical Science	☒ MTSM ☐	German	☒ English ☒
Type of examination	SL				Compulsory attendance ☒
Semester	8.	Offer	SS/WS	Basic studies	☐ specialized studies ☒

Qualification goals Students will be able to apply the principles of a safe navigational watch in the context of their work as an officer of the watch under normal conditions as well as under rapidly changing conditions. To this end, they will be able to apply the requirements for safe voyage planning, have knowledge of ship handling in exceptional situations and be able to apply emergency procedures (person over board, SAR). In addition, they are able to apply the HELM (Human Element Leadership and Management) principles in the bridge team.

Teaching content - Navigating different types of ships in different wind and current conditions - Ship handling as part of a navigational watch - Navigating in the estuary, anchor maneuvers, mooring and casting off maneuvers - Emergency procedures including leading SAR maneuvers - Working in a bridge team (bridge resource and bridge team management, leadership) - Complex voyage planning

Qualification Table A-II/1 Planning and conducting a voyage and determining position; keeping a safe navigational watch; use of radar and ARPA equipment to maintain the safety of navigation; use of electronic chart display and information systems (ECDIS) to maintain the safety of navigation; responding to distress signals at sea; use of IMO Standard Marine Communication Phrases and use of written and spoken English; maneuvering the ship; application of leadership and teamwork skills.

Qualification Table A-II/2 Voyage planning and execution of navigation; positioning and accuracy; establishing procedures and arrangements for watchkeeping; maintaining safe navigation by using data from navigational equipment and facilities to support watchkeeping decision-making; maintaining safe navigation by using ECDIS and related navigational facilities to support watchkeeping decision-making; forecasting meteorological and oceanographic conditions; responding to emergency situations in the course of navigation; maneuvering and handling a ship under all conceivable circumstances; operating the remote control for the propulsion plant and for other engine-driven systems and service equipment; monitoring and checking compliance with legal regulations and measures to ensure the protection of human life at sea, security and protection of the marine environment; leadership and business management skills

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Semester 8.

Module BEP Practice Ship handling, Simulator

Certificates Bridge Team Management

Lecturer LVS Course

Kreutzer 4 BEP Practice Ship handling, Simulator

Teaching and learning
methods
Ü

Semester 8.

Module BEP Theory Ship handling, Cargo handling and Stowage

Responsible	Kreutzer	Type	Compulsory module	ECTS	8
Prerequisites	see §10 BPO			SWS	4
Profile				Self-study hours	128
Exam type	M/A + K4	Nautical Science ☒	MTSM ☐	Attendance hours	72
Type of examination	PVL + 2 x PL			German ☒	English ☒
				Compulsory attendance	☐
Semester	8.	Offer	SS/WS	Basic studies	☐
				specialized studies	☒

Qualification goals Students will be able to analyze and evaluate ship operations on board a seagoing vessel. To this end, they can understand the physical phenomena in the area of stability and ship management and apply solution strategies to avoid them, evaluate complex situations, develop solution strategies and implement these in operational ship management. In addition, they can plan the loading of a ship, prepare and ensure safe transportation, operate the cargo computer, knowing the limits and approval conditions, and carry out and evaluate complex voyage planning as well as apply navigation procedures and describe their limits.

Teaching content - Physical phenomena in the area of stability and strength - Loading planning and cargo care - Cargo computer - Complex relationships of ship behavior and maneuvering in bad weather, especially with regard to stability - Maneuvering and navigation strategies/methods in safety-critical situations - Navigation procedures - Voyage planning

Qualification Table A-II/1 Supervision of loading, stowing, securing, discharging and care of cargo during the voyage; inspection of cargo holds, hatch covers and ballast tanks and reporting of defects and damage to these; maintaining the seaworthiness of the ship; monitoring compliance with legal regulations

Qualification Table A-II/2 Planning and ensuring the safe loading, stowage, securing and discharging of cargo and the safe care of cargo during the voyage; assessing reported defects and damage to holds, hatch covers and ballast tanks and taking appropriate action in such cases; carriage of dangerous goods; influencing trim, stability and stress

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Kreutzer	2	BEP Theory Cargo handling and Stowage	V + Ü
Vahs	2	BEP Theory Ship handling	V + Ü

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Semester W 1.-8.

Module Tanker Basic (oil/chemicals/liquid gas)

Responsible	Kreutzer	Type Elective subject	ECTS	3
Prerequisites	valid fitness for sea service, valid basic safety training			SWS 2
Profile				Self-study hours 35
Exam type	K2 / H (20) / R	Nautical Science ☒ MTSM ☐	German ☒ English ☒	Attendance hours 40
Type of examination	SL	Compulsory attendance ☒		
Semester	W 1.-8.	Offer WS	Basic studies ☐ specialized studies ☐	

Qualification goals By successfully completing this module students will be able: - to list all loading and unloading operations associated with loading and unloading - state the physical and chemical properties of chemical and oily cargoes - list precautions to avoid hazards - recognize precautions related to health and safety in the workplace - name emergencies that may occur - name precautions to avoid environmental pollution

Teaching content Based on the IMO model courses 1.01 and 1.04: - Basic knowledge of the different types of tankers - Physical and chemical properties of oil, chemicals and liquefied gases - Safety culture and compliance with safe ship operation on tankers - Hazards of oil, chemicals and liquefied gases as cargo - Occupational safety, fire protection and fire-fighting - Cargo operation - Emergencies for oil, chemical and liquefied gas tankers - Prevention of environmental pollution

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no reference to A-II/2

Further remarks after successful module participation and participation in the course "Fire-fighting measures for service on all tankers and for service on ships subject to the IGF-Code" Issue of certificates of competency by the BSH STCW A V/1-1-1 "Basic training in cargo handling on oil and chemical tankers" and STCW A V/1-2-1 "Basic training in cargo handling on liquefied gas tankers"

Certificates

Lecturer	LVS Course	Teaching and learning methods
Kreutzer	2 Tanker Basic (oil/chemicals/liquid gas)	V + Ü

Semester W 5./6./8.

Module Occupational Safety

Responsible Meyer Type Compulsory elective module ECTS 5

Prerequisites SWS 4

Self-study hours 53

Attendance hours 72

Profile Maritime Safety and Quality Management

Type of examination K2/R Nautical Science ☒ MTSM ☒ German ☒ English ☐

Type of examination PL

Compulsory attendance ☐

Semester W 5./6./8. Offer WS

Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to understand and apply the fundamentals of occupational health and safety, including the basics of workplace health promotion, and will be able to apply these at planning and application level.

Teaching content Teaching the essential contents of occupational safety, occupational health and health protection, taking into account the special criteria in the maritime industry (=> safety on board ships): - Safety and health protection - Fundamentals of occupational safety - Understanding the role and tasks of the occupational safety specialist - Hazard factors and health-promoting factors - Identification and assessment of hazards - Determination of objectives for safe and healthy work systems - Fundamentals of work system design (requirements for work equipment and workplaces, workplace design, work tasks, work organization, working hours and breaks, personal protective equipment. Qualification and behaviour, occupational health aspects and health promotion measures) - Search for solutions, implementation and execution of occupational health and safety measures, effectiveness monitoring - Integration of occupational health and safety into the company organization - Role and tasks in the planning and conceptual field - Preventive action for work system design - Occupational health and safety management

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no reference to A-II/2

Further remarks

Certificates

Lecturer LVS Course Teaching and learning methods
Meyer 4 Occupational Safety V + Ü

Semester W 5./6./8.

Module Auditing

Responsible Knoop Type Compulsory elective module ECTS 5

Prerequisites SWS 4

Self-study hours 53

Profile Maritime Safety and Quality Management Attendance hours 72

Type of examination K1+R Nautical Science ☒ MTSM ☒ German ☒ English ☒

Type of examination PL Compulsory attendance ☐

Semester W 5./6./8. Offer SS Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to plan, carry out and evaluate audits, classify and differentiate between various forms of audits, analyze audit results, identify problem areas, develop proposals for solutions and develop, explain and evaluate corrective measures.

Teaching content The lecturer teaches the students: - terms and basics as well as legal aspects in the field of auditing - forms of auditing and their areas of application - benefits of audits in the QM-process of an audit - planning and evaluation of audits

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer LVS Course Teaching and learning methods
Knoop 4 Auditing V + Ü

Semester W 5./6./8.

Module Design and Operation of Marine Engine Systems

Responsible Meyer Type Compulsory elective module ECTS 5

Prerequisites Basic studies SWS 4

Self-study hours 53

Profile Green Shipping/ Ship and Environmental Engineering Attendance hours 72

Exam type K1 + H Nautical Science ☒ MTSM ☒ German ☒ English ☐

Type of examination PL Compulsory attendance ☐

Semester W 5./6./8. Offer WS Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to apply calculation methods to design the various drive components, carry out measurements on engine systems, evaluate the measured values, assess errors and interpret the results, evaluate ship propulsion concepts as well as input variables and boundary conditions for the design of ship propulsion systems and select components for ship propulsion systems.

Teaching content - Creating energy balances for ship designs, - working on design parameters for engine systems, - determining the design parameters for propulsion systems and power generators, - Criteria for selecting suitable propulsion and power generator concepts, - Calculation/design of individual propulsion components and associated operating systems, - Operation of an engine system under supervision, - Carrying out engine tests with different load levels and operating conditions, - Measurement of all relevant operating parameters, - Analysis of the measurement technology used, - estimation of the achievable measurement accuracies, - preparation of an evaluation of the measured values, - interpretation of the measurement results.

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer LVS Course Teaching and learning methods Meyer 4 Design and Operation of Marine Engine Systems V + Ü

Semester W 5./6./8.

Module Energy-efficient Ship Management

Responsible	Vahs	Type	Compulsory elective module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile	Green Shipping/ Ship and Environmental Engineering			Attendance hours	72
	Ship handling			German ☒	English ☒
Type of examination	K2/H	Nautical Science ☒	MTSM ☐		
Type of examination	PL			Compulsory attendance	☐
Semester	W 5./6./8.	Offer	WS/SS	Basic studies ☐	specialized studies ☒

Qualification goals

Students will be able to understand the relationships between navigational decisions and energy consumption, the influence of weather on safety and energy consumption, the effect of wind propulsion on fuel consumption and other ship parameters and efficiency levels as well as the physical effects on the ship's performance. They are able to describe physical effects on sails and hull, carry out route optimization for a ship with sail propulsion and monitor voyage planning using modern technical procedures (in particular ECDIS and weather routing). In addition, they have advanced skills in voyage planning using nautical charts and nautical publications and can evaluate a voyage plan taking into account technical, meteorological and environmentally relevant parameters (e.g. consumption, EEOI).

Teaching content

The lecturer teaches the students: - Forces and moments of wind propulsion and their effect on the ship - Maneuvering behavior and stability under sail - Introduction to route optimization systems - IMO conventions and guidelines, such as MARPOL, EEDI, SEEMP - Voyage planning, especially using technical systems (ECDIS, digital publications and weather routing software).

Qualification Table A-II/1

Qualification Table A-II/2

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Vahs	4	Energy-efficiency in Ship Operation/Sailing Propulsion	V + Ü

Semester W 5./6./8.

Module Enhanced Ship handling

Responsible Vahs Type Compulsory elective module ECTS 5

Prerequisites Maneuvering SWS 4

Self-study hours 53

Profile Ship handling Attendance hours 72

Exam type K2/ H Nautical Science ☒ MTSM ☐ German ☒ English ☒

Type of examination PL Compulsory attendance ☐

Semester W 5./6./8. Offer Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to operate maneuvering equipment on various special types of ships and will be able to describe the operation of special and innovative maneuvering equipment.

Teaching content The lecturer teaches the students: - maneuvering of various special types of ships including the characteristic maneuvering behavior and the typical maneuvering devices - maneuvering with special propulsion systems e.g. azimuth thrusters (pods) - innovative propulsion concepts and their characteristics.

Qualification Table A-II/1

Qualification Table A-II/2

Further remarks

Certificates

Lecturer Vahs LVS Course 4 Enhanced Shiphandling Teaching and learning methods V + Ü

Semester W 5./6./8.

Module

Advanced Training for Oil and Chemical Tankers

Responsible	Kreutzer	Type	Compulsory elective module	ECTS	5
Prerequisites	Certificate of competence in Basic Tanker Training (oil/chemicals or all tanker types) or Basic Tanker Training module (all tanker types and proof of "fire-fighting measures for service on all tankers and for service on ships subject to the IGF-Code"), valid certificate of fitness for sea service; valid Basic Safety Course			SWS	4
Profile	Ship handling			Self-study hours	53
Exam type	K2 / H / R	Nautical Science	☒ MTSM ☐	Attendance hours	72
Type of examination	PL			German	☒ English ☒
				Compulsory attendance	☒
Semester	W 5./6./8.	Offer	SS	Basic studies	☐ specialized studies ☒
Qualification goals	By successfully completing this module students will be able: - to perform and monitor all cargo operations safely – to describe the physical and chemical properties of chemical and oily cargoes – to explain precautions to avoid hazards – to recognize health and safety precautions in the workplace – to resolve emergencies that arise – to identify precautions to avoid environmental pollution				
Teaching content	based on the IMO model courses 1.02 and 1.03: - Introduction to the subject - Properties and characteristics of oils and chemicals - Hazards in handling oils and chemicals - Rules and regulations - Design and equipment of oil and chemical tankers - Inert gas systems - Cargo and ballast pumps - Occupational safety and pollution prevention - Cargo handling and ballast - Tank cleaning - Crude oil washing - Ship/shore interface - Emergency measures				
Qualification Table A-II/1	no reference to A-II/1				
Qualification Table A-II/2	no reference to A-II/2				
Further remarks	STCW Code Section A-V / 1-1-2 "Advanced training in cargo handling on oil tankers", STCW Code Section A-V / 1-1-3 "Advanced training in cargo handling on chemical tankers"				
Certificates					
Lecturer	LVS	Course			Teaching and learning methods
Kreutzer	4	Advanced Training for Oil and Chemical Tankers			V + Ü

Semester W 5./6./8.

Module Green Shipping

Responsible	Bentin	Type	Compulsory elective module	ECTS	5	
Prerequisites				SWS	4	
				Self-study hours	53	
Profile	Green Shipping/ Ship and Environmental Engineering				Attendance hours	72
Exam type	H	Nautical Science	☒	MTSM	☒	German ☒ English ☒
Type of examination	PL			Compulsory attendance	☐	
Semester	W 5./6./8.	Offer		Basic studies	☐	specialized studies ☒

Qualification goals

Students will be able to create a concept for CO2-monitoring and assist in the process of creating an IHM list, they have advanced knowledge of the content of the IMO and EU regulations on CO2-monitoring and ship recycling, know different systems for measuring CO2 and calculating it according to the regulations. They know the different hazardous substances that can be found in the ship structure and know where this could be on the ship. Furthermore, they know the advantages of different concepts of CO2-monitoring, their measuring principles, systems and techniques for monitoring ship propulsion and ship operating systems.

Teaching content

With the adoption of the EU Regulation on the monitoring of CO2 emissions at sea (MRV Directive), it is mandatory to measure, document and certify CO2 emissions. From 01.01.2018, shipowners whose ships call at EU ports are required to report. A similar rule was also discussed at IMO level and was implemented in 2019. The constant monitoring and regular evaluation of operating data can make ship operations more efficient.

Other important environmental regulations at international level are the HONKONG CONVENTION, which sets new requirements for ship recycling, and the new European Council Regulation, which makes the European Ship Recycling Regulation applicable to all ships over 500 GT that call at an EU port. For those an IHM list is required.

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Bentin	4	Green Shipping	V

Semester W 5./6./8.

Module Marine Science Internship

Responsible	Strybny	Type	Compulsory elective module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile	Green Shipping/ Ship and Environmental Engineering			Attendance hours	72
Exam type	K1/eA/H/R	Nautical Science	☒	MTSM	☒
		German	☒	English	☐
Type of examination	PL			Compulsory attendance	☐
Semester	W 5./6./8.	Offer	SS		
				Basic studies	☐
				specialized studies	☒

Qualification goals Students will be able to independently plan, carry out and evaluate engineering and scientific measurement campaigns at and on the sea.

Teaching content Preparatory lectures on the physics, chemistry and biology of the sea and on the basics of research navigation. Preparation of students for marine research in the laboratory: - Technical preparation, calibration and verification of instruments - Preparations for obtaining samples - Planning of measurement cruises - Carrying out measurement cruises in the area of the river estuaries and the southern North Sea - Recording of measured values and obtaining samples, e.g. with integrated water sampler, bottom grab, plankton net - Multi-parameter probe, Secchi disk -measuring wings for current velocity - sonar system, underwater camera - Evaluation of the results in the laboratory e.g. drying, sieving, microscopy, stereoscopy - digital photogrammetry methods in microscopy and stereoscopy - calculative and graphic/textual evaluation and interpretation of the results.

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Strybny	4	Marine Science Internship	V + Ü

Semester W 5./6./8.

Module Quality Management Systems

Responsible Knoop Type Compulsory elective module ECTS 5

Prerequisites SWS 4

Self-study hours 53

Attendance hours 72

Profile Maritime Safety and Quality Management

Type of examination R Nautical Science ☒ MTSM ☒ German ☒ English ☐

Type of examination PL Compulsory attendance ☐

Semester W 5./6./8. Offer WS Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to apply, develop and optimize QMS in a purpose-oriented manner, compare different QM-models, estimate the costs and benefits of a QMS and plan and select the integration of a QMS into an existing management system in an application-oriented manner.

Teaching content The lecturer teaches the students: - terms and definitions in connection with QMS basics, - tasks and objectives of QMS, - especially in the maritime environment tools and methods of quality control and quality improvement, - Prerequisites for successful use of QMS, - Overarching aspects such as standardization and certification.

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer LVS Course Teaching and learning methods
Knoop 4 Quality Management Systems V + Ü

Semester W 5./6./8.

Module Ship Design

Responsible Bentin Type Compulsory elective module ECTS 5

Prerequisites Ship Theory SWS 4

Self-study hours 53

Profile Green Shipping/ Ship and Environmental Engineering Attendance hours 72

Exam type K1 + H Nautical Science ☒ MTSM ☒ German ☒ English ☐

Type of examination PL Compulsory attendance ☐

Semester W 5./6./8. Offer SS Basic studies ☐ specialized studies ☒

Qualification goals Students will be able to recognize the design requirements for a ship based on a transport task and roughly develop a ship that meets these requirements, interpret the composition of the ship's resistance and explain the operation of the propeller and predict the smooth water resistance of the hull using empirical methods, assess the environmental impact of the ship system and its efficiency and determine relevant contract figures. Thereby strengthening the following key competencies: thinking in context, creativity, analytical skills, willingness to learn, decision-making.

Teaching content Resistance and propulsion: Fundamentals of fluid mechanics, numerical prediction methods, model test technology for both the hull and propeller
Ship design: Shipbuilding design process, economic considerations, main parameters of the ship and effects of their change, system engineering

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning methods
Bentin	2	Resistance and Propulsion	V + Ü
Wilkendorf	2	Ship Design	V + Ü

Semester W 5./6./8.

Module Environment Protection Management Systems

Responsible	Strybny	Type	Compulsory elective module	ECTS	5
Prerequisites				SWS	4
				Self-study hours	53
Profile	Green Shipping/ Ship and Environmental Engineering Maritime Safety and Quality Management			Attendance hours	72
Exam type	K2 / R	Nautical Science ☒ MTSM ☒		German ☐ English ☒	
Type of examination	PL			Compulsory attendance	☐
Semester	W 5./6./8.	Offer	WS	Basic studies ☐ specialized studies	☒

Qualification goals Students will be able to develop environmental awareness in a company in a structured manner. To this end, they will have understood the connections between environmentally friendly products and services and responsible corporate management.

Teaching content The subject focuses on the consideration of the environmental impact of a company in its entirety. The focus is on management tools for the structured development of corporate environmental awareness. Working out the connection between ecology and economy. Introduction to the concept of eco-efficiency. Introduction to the ISO 14000 standards. Preparation of life cycle assessments for companies, differentiation between the life cycle inventory and the impact balance. Use of life cycle inventory databases such as Ecoinvent, ProBas, ELCD, GEMIS, NEEDS. Impact indicators such as cumulative energy consumption, material intensity, carbon footprint, ecological footprint. Own responsibility of companies with regard to environmental protection and its documentation through the eco-audit with the aim of environmental certification, consideration of the so-called EMAS regulation, Introduction of core indicators for the review and improvement of operational environmental management.

Qualification Table A-II/1 no reference to A-II/1

Qualification Table A-II/2 no relation to A-II/2

Further remarks

Certificates

Lecturer	LVS	Course	Teaching and learning method
Strybny	4	Environment Protection Management Systems	V + Ü

Semester W 8.

Module Cruise Shipping

Responsible	Woltron	Type	Compulsory elective module	ECTS	5
Prerequisites	Practical Training Semester 1, Ship Theory, Emergency Management			SWS	4
				Self-study hours	53
				Attendance hours	72
Profile	Ship handling			German ☒	English ☒
Exam type	K2/ H / A	Nautical Science ☒	MTSM ☐		Compulsory attendance ☒
Type of examination	PL				
Semester	W 8.	Offer	WS	Basic studies ☐	specialized studies ☒

Qualification goals	By successfully completing this module students will be able to: - describe the safe handling of passengers when boarding and disembarking survival crafts - contribute to the organization of emergency measures on board - explain the use of resources - control and instruct persons on board in emergency situations - explain the measures for cargo safety and hull integrity - describe the monitoring and control of the atmosphere in cargo holds				
Teaching content	The lecturer teaches the students on the basis of the IMO model courses 1.41,1.42, 1.44, 1.39, 1.40 in the respective valid version: - ship design, - layout, - rules and regulations (SOLAS, STCW, relevant codes, national and regional laws and industry standards), - use of resources, -human behavior in emergencies, - Establishing and maintaining effective communication, - Practical exercises, - Loading and embarkation procedures, - Transport of dangerous goods, - Cargo securing, - Stability, trim and stress calculations, - Opening, closing and securing hull openings, - Occupational health and safety, - Emergency plans, procedures and drills.				
Qualification Table A-II/1	no reference to A-II/1				
Qualification Table A-II/2	no reference to A-II/2				
Further remarks	STCW Code Section A-V/2-2 "Safety training for persons who carry out immediate Provide services to passengers in passenger compartments", STCW Code Section A-V/2-3 "Training in crowd management", STCW Code Section A-V/2-4 "Training in crisis management and human behavior", STCW Code Section A-V/2-5 "Passenger safety, cargo safety and hull integrity".				
Certificates					
Lecturer	LVS	Course	Teaching and learning methods		
Woltron	4	Cruise Shipping	V + Ü		

Semester W 8.

Module Safety and Security

Responsible	Knoop	Type	Compulsory elective module	ECTS	5
Prerequisites	At least taken: Emergency Management or ISM/QM			SWS	4
				Self-study hours	53
Profile	Maritime Safety and Quality Management			Attendance hours	72
Exam type	K1 + H (10)/ A	Nautical Science ☒	MTSM ☒	German ☒	English ☒
Type of examination	PL	Compulsory attendance ☒			
Semester	W 8.	Offer	SS	Basic studies ☐ specialized studies ☒	

Qualification goals

After successfully completing this module, students will be familiar with different methods for investigating accidents and will be able to apply them. They can evaluate accident reports and are able to determine improvement measures from the evaluation. They are familiar with the importance of accident investigations for the company's CIP and the classification of these investigations in the PDCA cycle and can identify and assess hazards and risks for ships and crews in both areas (safety and security) and carry out corresponding risk assessments or SSAs. They have an awareness of global threats (terrorism, piracy, smuggling, cybercrime, etc.) to shipping, independently obtain information and assess the threat potential of individual ships. They are able to create SSPs on the basis of an SSA and initiate the approval process. They can take precautions for the effective implementation of SSPs on board and train the crew accordingly. They are aware of the necessity and manner of carrying out security inspections and implementing the SSP. The participants are familiar with the correct use, maintenance and servicing of security equipment and are familiar with security-relevant documents and how to handle them. In general, their knowledge of threats to shipping is increased and they are able to pass this on and increase general safety.

Teaching content

The lecturer achieves the above-mentioned qualification goals of the students by teaching the legal basics. In addition, definitions and responsibilities that are relevant in the areas of safety and security are explained. Small exercises and repetition tasks are used to consolidate what has been learned, accident investigation methods are discussed in theory and practiced in practice. This is then practiced using practical examples. The students work in groups. The SSA and the SSP are also first discussed in theory and then an SSA is carried out for an example ship. To do this, the students carry out their own research for selected sea areas. Based on the SSA created, the creation, implementation and possible modification of the SSP is discussed. This includes explaining to the students how to handle safety-relevant information and documents. Identifying of dangers and threats is learned in the lecture and how to deal with them is discussed. The effective implementation of drills and training is therefore also a topic of the lecture. In the course of the lecture, the various security measures and equipment are explained. This includes a detailed discussion of searches of ships, people and luggage, which are also shown in videos. Searches of persons and luggage are practiced in practice.

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Module Safety and Security

Qualification Table A-II/1

Qualification Table A-II/2

Further remarks

Certificates Company Security Officer (CSO); Shipboard Security Officer (SO)

Lecturer	LVS	Course	Teaching and learning methods
Knoop	4	Safety and Security	V + Ü

Modul Literatur

Modul Englisch

Autor	Jahr	Buch Titel	Auflage	Ort
Van Dokkum, Klass	2016	Ship Knowledge	9	Enkhuizen, NL
Vince, Michael	2009	Intermediate Language Practice	1	Oxford
Vince, Michael	2009	Advanced Language Practice	1	Oxford

Modul Navigation

Autor	Jahr	Buch Titel	Auflage	Ort
Berking, Bernhard; Huth, Werner	2016	Handbuch Nautik	2	Hamburg
DSV-Verlag (Hrsg)	2008	Begleitheft – Hilfsmittel für Ausbildung und Prüfung	2	Bielefeld
International Hydrographic Organisation (Hrsg)	2008	Symbols and abbreviations used on Admiralty	4	Taunton
Wallin, Börje	2021	Ship Navigation	2	Vlissingen

Modul Nautische Grundlagen

Autor	Jahr	Buch Titel	Auflage	Ort
Baudu, Herve	2014	Ship Handling		Enkhuizen
BG-Verkehr (Hrsg)	2012	Handbuch See: Arbeitssicherheit und Gesundheitsschutz in der Seeschifffahrt und Fischerei		Hamburg
Clissold, Peter	1998	Basic Seamanship	7	Glasgow
Deutscher Wetterdienst (Hrsg)	1993	Wolkenatlas für die Wetterbeobachtung auf See	2	Hamburg
Kropp, Björn; Peters, Reinhard; Wand, Christoph	2012	Leben und Lernen an Bord: Lehrbuch zur Ausbildung von Praktikanten (Nautik), Schiffsmechanikern, NOA und SBTA	2	Herne
Sakautzky, Detlev	2006	Schiffssicherung Grundwissen, Lernhilfe		Berlin
Sakautzky, Detlev; Geitmann, Peter	2012	Arbeits- und Sozialrecht Grundwissen, Lernhilfe	2	Berlin

	Sakautzky, Detlev; Geitmann, Peter; MacDonald, James	2014	Arbeiten mit Tauwerk Grundwissen für den Schiffsmechaniker, Lernhilfe	Berlin
	Sakautzky, Detlev; Geitmann, Peter; Ruhnke, Gisbert; Falke, Thorsten; Seidel, Karl-Heinz; Benecke, Friedrich Wilhelm	2008	Schiff und Ladung Grundwissen, Lernhilfe	Berlin
	Sakautzky, Detlev; Geitmann, Peter; Wullekopf, Harm; Falke, Thorsten	2007	Brücken- und Wachdienst Grundwissen, Lernhilfe	Berlin
	Seewetteramt (Hrsg)	2002	Seewetter	2 Hamburg
	Van Dokkum, Klass	2016	Ship Knowledge	9 Enkhuizen, NL
	Verband Deutscher Reeder e.V.; Zentralverband Deutscher Schiffsmakler e.V. (Hrsg)	2013	See-Schiff-Ladung: Fachbuch für Schifffahrtskaufleute	Lüneburg
	Verband für Schiffbau und Meerestechnik (Hrsg)	2006	Schiffstechnik und Schiffbautechnologie	2 Hamburg
Modul	Meteorologie			
	Autor	Jahr	Buch Titel	Auflage Ort
	Bock, Karl-Heinz, Brauner, Ralf, Dentler Frank-Ulrich	2009	Seewetter	2 Hamburg
	Häckel, Hans	2021	Meteorologie	9 Stuttgart
	Liljequist, Gösta H., Cehak, Konrad	2006	Allgemeine Meteorologie	3 Berlin
	Malberg, Horst	2007	Meteorologie und Klimatologie	5 Berlin
	Salby, Murry L.	1996	Fundamentals of atmospheric physics	San Diego
	Scharnow, Ulrich, Berth, Werner, Keller, Werner	1990	Maritime Wetterkunde	7 Berlin
	Watts, Alan	2002	Das Wetter in Bildern: Wettervorhersage nach Wolkenfotos	Bielefeld
Modul	Schiffstheorie			
	Autor	Jahr	Buch Titel	Auflage Ort
	Barrass, C. Bryan; Derrett, D.R.	2012	Ship stability for master and mates	7 Amsterdam/Boston/Heidelberg

Clark, Ian C.	2002	The Management of Merchant Ship Stability, Trim and Strength	London
Dokkum, Klaas van	2008	Ship stability	3 Enkhuizen, NL
Dokkum, Klaas van	2012	Ship knowledge	7 Enkhuizen, NL
Verband für Schiffbau und Meerestechnik (Hrsg)	2006	Schiffstechnik und Schiffbautechnologie	2 Hamburg
Modul Betriebswirtschaftslehre			
Autor	Jahr	Buch Titel	Auflage Ort
Biebig, Peter; Althof, Wolfgang; Wagener, Norbert	2008	Seeverkehrswirtschaft	4 München/Wien
Büter, Clemens	2013	Außenhandel – Grundlagen internationaler Handelsbeziehungen	3 Berlin/Heidelberg
Däumler, Klaus-Dieter; Grabe, Jürgen	2009	Kostenrechnung 2	8 Herne/Berlin
Eckardt, Gordon H.	2011	Business Management – Angewandte Unternehmensführung (Begrifflich-methodische Grundlagen und Fallstudien)	3 Göttingen
Stopford, Martin	2009	Maritime Economics	3 New York
Verband Deutscher Reeder (Hrsg)	2008	Gemeinschaftskontenrahmen für die deutsche Handelsschifffahrt	Hamburg
von Känel, Siegfried	2008	Betriebswirtschaft für Ingenieure	Herne
Wöltje, Jörg	2009	Betriebswirtschaftliche Formelsammlung	4 München
Modul Wachdienst			
Autor	Jahr	Buch Titel	Auflage Ort
International Chamber of Shipping (Hrsg)	2022	Bridge Procedures Guide	6 London
Modul Personalführung			
Autor	Jahr	Buch Titel	Auflage Ort

Berthel, Jürgen; Becker, Fred G.	2010	Personal-Management: Grundzüge für Konzeptionen betrieblicher Personalarbeit	9	Stuttgart
BG-Verkehr (Hrsg)	2018	Leitfaden zur Umsetzung Seearbeitsgesetze unter deutscher Flagge		Hamburg
Covey, Stephen R.	1997	Principle-centered leadership		London
Dekker, Sidney	2015	Safety Differently, Human Factors for a New Era		London
Diestel, Hans-Hermann	2005	Compendium on Seamanship & Sea accidents: A practical guide to improve Seamanship and prevent Sea Accidents		Hamburg
Gregory, Dik; Shanahan, Paul	2017	Being Human in Safety-Critical Organisations		London
Hentze, Joachim; Graf Andrea; Kammel, Andreas; Lindert Klaus	2005	Personalführungslehre	4	Wien
International Labour Office (Hrsg)	2008	Compendium of Maritime Labour Instruments		
Jeffery, Richard	2007	Leadership Throughout: how to create successful enterprise		London
Le Goubin, Andre L.	2012	Mentoring at Sea: The 10 Minute Challenge		London
Reason, James	1997	Managing the Risks of Organizational Accidents		London
Weber, Emma	2014	Turning Learning into Action. A Proven Methodology for Effective Transfer of Learning		London

Modul Maritimes Englisch

Autor	Jahr	Buch Titel	Auflage	Ort
Bundesamt für Seeschifffahrt und Hydrographie (Hrsg)	2014	IMO Standard Marine Communication Phrases (IMO SMCP), IMO-Standardredewendungen für die Seefahrt: Englisch – Deutsch		Hamburg/ Rostock
Dr. Mercedes Herrera Arnaiz	2014	Use of English for Maritime Students	1	Almeria, Spain
Van Kluijven, P.C.	2013	The International Maritime Language Programme	5	Alkmaar, NL

Modul Wirtschaftsprivatrecht

Autor	Jahr	Buch Titel	Auflage	Ort
Ahlens & Vogel (Hrsg)	2019	Basistexte Seerecht	2	Bremen/Hamburg

Beck-Texte (Hrsg)	2022	Arbeitsgesetze	100	München
Beck-Texte (Hrsg)	2022	Bürgerliches Gesetzbuch	89	München
Benedict, Knuth; Wand, Christoph	2018	Handbuch Nautik II	2	Hamburg
Führich, Ernst	2017	Wirtschaftsprivatrecht	13	München
Jörgens, Runa; Bubenzer, Christian	2015	Praxishandbuch Seearbeitsrecht		Berlin/ New York
Mallach, Esther; Noltin, Jörg; Bubenzer, Christian; Preetz, Robert	2015	SeearbG		München
Schnauder, Franz	2020	Grundzüge des Privatrechts für den Bachelor	5	Heidelberg

Modul Technische Navigation 1 & Radartechnik

Autor	Jahr	Buch Titel	Auflage	Ort
Alan Bole; Alan Wall; Andy Norris	2013	Radar and ARPA Manual	3	Amsterdam

Modul Technische Navigation 2 & ECDIS

Autor	Jahr	Buch Titel	Auflage	Ort
Becker-Heins, Ralph	2014	ECDIS basics : a guide to the operational use of electronic chart display and information systems	1	Lemmer, NL
Berking, Bernhard; Huth, Werner	2016	Handbuch Nautik	2	Hamburg
Broster, Mark	2018	ECDIS procedures guide	2	Livingston, Scotland
Broster, Mark	2020	ECDIS procedures guide	4	Livingston, Scotland
Gale, Harry	2009	From paper charts to ECDIS : a practical voyage plan ; guidance to the shipping industry on the transition from paper chart navigation to an electronic chart display and information system (ECDIS)		London
Hecht, Horst	2011	The electronic chart : fundamentals, functions, data and other essentials ; a textbook for ECDIS use and training	3	Lemmer, NL
Merchant Navy Training Board (Hrsg)	2018	Electronic chart display and information systems (ECDIS) simulator training	2	Livingston, Scotland
Thornton, Peter	2019	The ECDIS Manual	2	Livingston, Scotland

Wallin, Börje	2021	Ship Navigation	2	Vlissingen
Weintrit, Adam	2009	The Electronic Chart Display and Information System (ECDIS) : an operational handbook		Boca Raton, Fl
Witherby Publishing Group Ltd (Hrsg)	2021	ECDIS passage planning and watchkeeping	7	Livingston, Scotland
Witherby Publishing Group Ltd. (Hrsg)	2019	ECDIS CPD : a personal record of qualifications, service and training including preparation for ECDIS exams and assessments		Livingston, Scotland
Witherby Publishing Group Ltd. (Hrsg)	2020	ECDIS passage planning and watchkeeping	6	Livingston, Scotland
Witherby Publishing Group Ltd. (Hrsg)	2020	ECDIS Safety Settings and UKC Management		Livingston, Scotland
Witherby Seamanship International Ltd. (Hrsg)	2019	ECDIS passage planning and watchkeeping	5	Livingston, Scotland
Modul Gefährliche Ladung				
Autor	Jahr	Buch Titel	Auflage	Ort
Bundesministerium für Verkehr und Digitale Infrastruktur (Hrsg)	2016	IMDG-Code 2016 : inklusive Amendment 38-16 : amtliche deutsche Übersetzung		Dortmund
Storck GmbH (Hrsg)	2019	EmS und MFAG : ergänzende Vorschriften für Gefahrguttransporte auf See		Hamburg
Modul Ladungstechnik				
Autor	Jahr	Buch Titel	Auflage	Ort
Benedict, Knuth; Wand, Christoph	2018	Handbuch Nautik II	2	Hamburg
Modul Seehandelsrecht				
Autor	Jahr	Buch Titel	Auflage	Ort
Ahlers & Vogel (Hrsg)	2019	Basistexte Seerecht	2	Bremen/Hamburg
Beck-Texte (Hrsg)	2022	Handelsgesetzbuch	67	München
Benedict, Knuth; Wand, Christoph	2018	Handbuch Nautik II	2	Hamburg
Drews, Kai-Holger	2020	Seehandelsrecht	5	Hagen
Geisler, Alexander; Johns, Dirk Max	2018	See- Schiff – Ladung	2	Lüneburg

Herber, Rolf	2016	Seehandelsrecht	2	Berlin/ New York
Münchener Kommentar zum HGB (Hrsg)	2020	Band 7, Transportrecht (2020)	4	München
Rabe, Dieter; Bahnsen, Kay Uwe	2018	Seehandelsrecht	5	München
Ramming, Klaus	2017	Seehandelsrecht, Band 1		Berlin/Boston

Modul	Telekommunikation			
Autor	Jahr	Buch Titel	Auflage	Ort
Bergmann, Michael; Brauner, Ralf; Callsen-Bracker, Hans-Heinrich; Hilmer, Hartmut H.; Korte, Holger; Majohr, Jürgen et al.	2016	Handbuch Nautik 1: Navigatorische Schiffsführung	2	Hamburg
Braun, Andreas	2011	Seefunk (LRC): Mit Fragen- und Antwortenkatalog	4	Bielefeld

Modul	Manövrieren			
Autor	Jahr	Buch Titel	Auflage	Ort
Benedict, Knuth; Wand, Christoph	2018	Handbuch Nautik II	2	Hamburg
Bertram, V.	2012	Practical Ship Hydrodynamics	2	Oxford
Groenhuis, S.	2018	Ship Manoeuvring	1	Rotterdam
Molland, A.	2007	Marine Rudders and Control Surfaces: Principles, Data, Design and Applications		
Rowe, R.	1997	Shiphandler's Guide for Masters and Navigating Officers, Pilots and Tug Masters		London

Modul	Notfallmanagement			
Autor	Jahr	Buch Titel	Auflage	Ort
Benedict, Knuth; Wand, Christoph	2018	Handbuch Nautik II	2	Hamburg

Modul	Cargo Care			
Autor	Jahr	Buch Titel	Auflage	Ort
Benedict, Knuth; Wand, Christoph	2018	Handbuch Nautik II	2	Hamburg

Taylor, Leslie G.	1992	Cargo work: the care, handling and carriage of cargoes; including the management of marine cargo transportation	12	Glasgow
Modul BEP Theorie Schiffsführung, Ladungsumschlag und Stauung				
Autor	Jahr	Buch Titel	Auflage	Ort
Bergmann, Michael; Brauner, Ralf; Callsen-Bracker, Hans-Heinrich; Hilmer, Hartmut H.; Korte, Holger; Majohr, Jürgen et al.	2016	Handbuch Nautik 1: Navigatorische Schiffsführung	2	Hamburg
Modul BEP Praxis Schiffsführung Simulator				
Autor	Jahr	Buch Titel	Auflage	Ort
Baudu, Herve	2014	Ship Handling		Enkhuizen
Bergmann, Michael; Brauner, Ralf; Callsen-Bracker, Hans-Heinrich; Hilmer, Hartmut H.; Korte, Holger; Majohr, Jürgen et al.	2016	Handbuch Nautik 1: Navigatorische Schiffsführung	2	Hamburg
Bundesamt für Seeschifffahrt und Hydrographie (Hrsg)	2014	IMO Standard Marine Communication Phrases (IMO SMCP), IMO-Standardredewendungen für die Seefahrt: Englisch – Deutsch		Hamburg/ Rostock
Culjak, Anna	2015	Organisation und Devianz, Eine empirische Fallrekonstruktion der Havarie der Costa Concordia		Hamburg
Groenhuis, S.	2018	Ship Manoeuvring	1	Rotterdam
Hecht, Horst	2011	The electronic chart : fundamentals, functions, data and other essentials ; a textbook for ECDIS use and training	3	Lemmer, NL
Rowe, R.	1997	Shiphandler's Guide for Masters and Navigating Officers, Pilots and Tug Masters		London
Witherby Publishing Group Ltd (Hrsg)	2021	ECDIS passage planning and watchkeeping	7	Livingston, Scotland
Witherby Publishing Group Ltd. (Hrsg)	2020	ECDIS Safety Settings and UKC Management		Livingston, Scotland
Witherby Publishing Group Ltd. (Hrsg)	2020	ECDIS passage planning and watchkeeping	6	Livingston, Scotland

Modul		Qualitätsmanagementsysteme		
Autor	Jahr	Buch Titel	Auflage	Ort
Chauvel, Alain-Michel	1997	Managing safety and quality in shipping; the key to success; a guide to ISM, ISO 9002; TQM		London
Modul		Kreuzschiffahrt		
Autor	Jahr	Buch Titel	Auflage	Ort
Covey, Stephen R.	1997	Principle-centered leadership		London
Culjak, Anna	2015	Organisation und Devianz, Eine empirische Fallrekonstruktion der Havarie der Costa Concordia		Hamburg
Dekker, Sidney	2015	Safety Differently, Human Factors for a New Era		London
Gregory, Dik; Shanahan, Paul	2017	Being Human in Safety-Critical Organisations		London
Hopkins, Andrew	2012	Disastrous decisions. The human and organisational causes of the Gulf of Mexico blowout		North Ryde
Kristiansen, Svein	2013	Maritime transportation. Safety management and risk analysis		Oxon
Reason, James	1997	Managing the Risks of Organizational Accidents		London
Weber, Emma	2014	Turning Learning into Action. A Proven Methodology for Effective Transfer of Learning		London
Modul		Tanker Basis (Öl/Chemikalien/Flüssiggas)		
Autor	Jahr	Buch Titel	Auflage	Ort
Chemical Distribution Institute (Hrsg)	2018	Chemical Tanker Operations for the STCW Advanced Training Course : A Practical Guide to Chemical Tanker Operations	1	Livingston, Scotland
Druckerei Paul Moehlke OHG (Hrsg)	2018	Öltagebuch : gemäß Internationalem Übereinkommen von 1973 zur Vehütung der Meeresverschmutzung durch Schiffe und dem Protokoll von 1978 zu diesem Übereinkommen (MARPOL 73/78)...		Hamburg

International Association of Independent Tanker Owners (Hrsg)	2014	A guide for correct entries ... / P. 2, Cargo/ballast operations	1	
International Association of Independent Tanker Owners (Hrsg)	2014	A guide for correct entries ... / P. 1, Machinery space operations	3	
International Association of Independent Tanker Owners (Hrsg)	2016	Safety Management Initiatives in Shipping	1	London
International Association of Independent Tanker Owners (Hrsg)	2017	A guide to the vetting process	12	London
International Chamber of Shipping (Hrsg)	2020	ISGOTT International safety guide for oil tankers and terminals	6	Livingston, Scotland
Merchant Navy Training Board (Hrsg)	2015	Tanker Training Courses Criteria : Basic Training for Oil and Chemical, and Liquefied Gas Tanker Cargo Operations : Advanced Training for Oil, Chemical and Liquefied Gas Tanker Cargo Operations		Edinburgh
Oil Companies International Marine Forum (Hrsg)	2017	Recommendations for Oil and Chemical Tanker Manifolds : and Associated Equipment	1	Livingston, Scotland
Oil Companies International Marine Forum (Hrsg)	2017	Tanker Management and Self-Assessment : a Best Practice Guide	1	Livingston, Scotland
Oil Companies International Marine Forum (Hrsg)	2018	Guidelines for offshore tanker operations	1	Livingston, Scotland
Oil Companies International Marine Forum (Hrsg)	2018	Guidelines for offshore tanker operations	1	Livingston, scotland
Society of International Gas Tanker and Terminal Operators Ltd. (Hrsg)	2018	Ship / shore for interface for LNG / chemical gas carriers and terminals	1	Livingston, Scotland
Society of International Gas Tanker and Terminal Operators Ltd. (Hrsg)	2019	SIGTTO Information Papers (2019)	1	Livingston, Scotland