Module Handbook – Nautical Science and Maritime Transport

Date 26/01/2021

**Qualification aims of the study programme Nautical Science and Maritime Transport**

The qualification aims in the study programme Nautical Science and Maritime Transport are drawn up in such a way that as well as receiving the university degree Bachelor of Science, at the end of their studies, students are also awarded the certificate of competence to work as a nautical officer of the watch without limitations for seagoing vessels. The graduates then have broadly based and interdisciplinary knowledge and understanding of the academic interrelationships of the nautical/maritime topics. A binding minimum standard for training seafarers is prescribed by the IMO (International Maritime Organization) and also transferred into German law. Part of the specialist, application, method and social competences are therefore derived from the STCW code in its current applicable version. For the most part, these cover the qualification aims for professional employment.

**Academic competence:**

Academic competences are taught in the modules in the basic course as well as in the modules in the main course and the elective subjects for more in-depth study.

In the individual subject-specific modules, the subject-related and academic requirements are formulated with the aspects: knowledge and understanding (dissemination of knowledge, deepening of knowledge and understanding of knowledge), use, application and generation of knowledge (use and transfer, academic innovation), communication and cooperation as well as academic self-image/personality, and during the Bachelor thesis, the students have the opportunity to demonstrate their subject-related and academic competence.

**Competence for taking up professional employment:**

The graduates have analytical and problem solving skills including the ability to think in an interconnected way – the use, application and generation of knowledge – in the following areas of competence:

* Ship management
	+ Planning and carrying out a journey and determining and evaluating the position,
	+ Undertaking a safe navigational watch,
	+ Using radar equipment and ARPA systems to maintain the safety of the sea journey,
	+ Using radar equipment and sea charting and information systems (ECDIS) to maintain the safety of the sea journey,
	+ Appropriate response to emergency situations and emergency signals at sea,
	+ Using the IMO standard phrases for maritime shipping as well as the use of written and spoken English,
	+ Sending and receiving messages via visual signals,
	+ Ship manoeuvring and understanding basic hydrodynamic relationships,
	+ Understanding and evaluating weather forecasts and oceanographic conditions
* Cargo handling and storage
	+ Monitoring the loading, stowing, securing and clearing as well as looking after cargo during the journey,
	+ Assessing and evaluating storage spaces, hatch covers and ballast tanks as well as reporting defects and damage to these and the cargo,
	+ Knowledge of the regulations governing the transport of dangerous goods,
* Managing shipping operation and welfare of the people on board
	+ Knowledge of the contamination prevention regulations and ensuring that these are adhered to,
	+ Maintaining and evaluating the seaworthiness of the ship,
	+ Planning and managing fire defence,
	+ Using rescue devices,
	+ Using medical first aid on board,
	+ Monitoring legal regulations,
	+ Understanding and applying the fundaments of ship construction as well as the theories and factors which influence trim and stability, and evaluating these,
	+ Knowledge of public maritime law in the shape of international agreements and treaties,
* Radio communication
	+ Sending and receiving messages using GMDSS systems

The qualification aims are taught in a way which corresponds to the level of responsibility (management level and operating level). In the module descriptions, reference is made to the corresponding competence which the module includes in accordance with STCW.

**Competence for social involvement and personal development:**

Learning, social and key competences are integrated into each module to a certain extent. The social credit points must be highlighted here in particular, with reference to the key qualifications and the qualification aims related to personal development. The students are able to take up management positions in shipping operations. Intercultural aspects are also integrated here. Teamworking skills are taught. Based on the distinct international make-up of the shipping sector, an important concern of the faculty is to teach its students how to address different cultures, as well as good English language skills (seminars, elective subjects). The students are instructed in and enabled to have more professional vocational and social action in the future – with an eye on an international environment – and to reflect critically on their own actions.

The Bachelor study programme Nautical Science and Maritime Transport prepares students for nautical management positions on board ships and for management positions in the maritime economy and administration.

The qualifications and learning contents taught during the study programme go well beyond the nautical competences required by STCW and, thanks to the selection of a study profile, intensively prepare the students for later employment in the nautical secondary labour market.

Notes about the handbook

All modules which feature a number in the “Semester” field are offered every semester. The study programme begins in summer semester (SS) and winter semester (WS). This means that all mandatory lectures for all semesters are offered each semester. Profile modules are frequently borrowed from the study programme Maritime Technology and Shipping Management and are offered either in SS or WS. In this case, a note is made in the “Semester” field.

**Index of abbreviations**

|  |  |
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| Abb. | Meaning |
| 1.PS | 1st practical semester |
| 3 Mon. Bachelor thesis | Writing of a Bachelor thesis within 3 months |
| AIS | Automatic Identification System |
| ARPA | Automatic Radar Plotting Aid |
| POE | Practice-oriented exercise |
| B + K2/H | Practice-oriented exercise + written examination (2 hours)/home assignment |
| B2 | Level of foreign language skills |
| BA | Bachelor thesis |
| BEP | Vocational Aptitude Test |
| BGB | Civil Law Code |
| BPO | Bachelor examination rules |
| BRZ | Gross tonnage |
| BSH | Federal Maritime and Hydrographic Agency |
| ECDIS | Electronic Chart Display and Information System |
| ECTS | European Credit Transfer and Accumulation System |
| EEDI | Energy Efficiency Design Index |
| EEOI | Energy Efficiency Operational Indicator |
| ELCD | European Reference Life Cycle Database |
| EMAS | Voluntary participation of organisations in a community system for environmental management and company environmental auditing |
| GEMIS | Global Emission Model for Integrated Systems |
| GENCON | Charter contract form for ships from BIMCO |
| GMDSS | Global Maritime Distress and Safety 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 | International Organization for standardization |
| K1/eA/H/R | Written examination (1 hour)/electronic multiple-choice test/home assignment/presentation |
| K1+H | Written examination (1 hour)/home assignment |
| K1+R | Written examination (1 hour)/presentation |
| K2 / H / R | Written examination (2 hours)/home assignment/presentation |
| K2 + B | Written examination (2 hours)/practice-oriented exercise |
| K2/A | Written examination (2 hours)/multiple-choice test |
| K2/H | Written examination (2 hours)/home assignment |
| K2/H/A | Written examination (2 hours)/homework/?? |
| K2/M | Written examination (2 hours)/oral examination |
| K2/R | Written examination (2 hours)/presentation |
| LVS | Obligatory taught hours |

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| M/A + K2/H | Oral examination/multiple-choice test + written examination (2 hours)/home assignment |
| M/A + K4 | Oral examination/multiple choice test + written examination (4 hours) |
| MariMedV | Ordinance on maritime medicine requirements of merchant ships |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MFAG | Medical First Aid Guide / Guide for medical first aid measures in the case of accidents involving dangerous goods |
| MTSM | Maritime Technology and Shipping Management |
| NEEDS | The NEEDS database contains data for life cycle costs for future energy supply systems, material and transport services |
| P&I | Protection and Indemnity / Transport insurance in shipping |
| PDCA cycle | Loop sequence for a continuous improvement process (Plan Do Check Act) |
| EP | Examination performance |
| PRE + 2 x EP | Prerequisite + 2x examination performance |
| PRE + EP | Prerequisite + examination performance |
| QM | Quality Management |
| QMS | Quality Management System |
| P | Presentation |
| RORO | Roll-on roll-off |
| SAR | Search and Rescue |
| See-BV | Ordinance on seafarers’ qualification |
| SEEMP | Ship Energy Efficiency Management Plan |
| AP | Academic performance |
| AP+EP | Academic performance + examination performance |
| SOLAS | Intern. Convention for the Safety of Life at Sea |
| SOS | Safe Our Souls emergency signal |
| SS/WS | Summer semester / winter semester |
| SSO | Ship Safety Officer |
| STCW Convention | Intern. Convention on Standards of Training, Certification and Watchkeeping for Seafarers |
| SWS | Semester periods per week |
| Table A-II/1 or 2 | Relevant table in STCW |
| TRB | Training Record Book |
| E | Exercise |
| L | Lecture |

Modules for the Bachelor study programme B.Sc. Nautical Science and Maritime Transport

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 1 of 58 |

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| Module |  | Occupational Safety |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Meyer |  |  |  |  |  | SWS | 4 |
| Requirements |  |  |  |  |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Maritime Safety and Quality Management |  |  |
| Examination type | K2/R |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🞎 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can:– Understand and apply the principles of occupational safety– Understand and apply the principles of safety at work– Understand and apply the principles of workplace health promotion– Working with the taught principles on a planning and application level |
| Teaching contents | Teaching of the essential contents of occupational safety, safety at work and health protection, taking into account the special criteria in the maritime economy (=> safety on board ships):– Protecting health and safety– Principles of safety at work– Understanding the roles and tasks of the occupational safety specialist– Risk factors and factors which promote health– Determining and assessing risks – defining targets for safe and healthy work systems– Principles of developing work systems (requirements for working materials and workstations, requirements for arranging workplaces, tasks, work organisation, working hours and breaks, personal protective equipment. Qualification and behaviour, occupational medicine aspects and health promotion measures)– Looking for solutions, implementation of safety at work measures, monitoring effectiveness- Integration of safety at work into the operational organisation- Roles and tasks in a planning and conceptional area- Preventative actions in developing work systems- Safety at work management |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Stalke |  | 4 | Occupational Safety | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 2 of 58 |

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| Module |  | Astronavigation |  |  |  |
| Meta module | Navigation 2 |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Vahs |  |  |  |  |  | SWS | 4 |
| Requirements | Basics of Nautical Science, practical semester 1 | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2 | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 4th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Determine the location using the sextant.– Identify celestial bodies important for navigation and their movement.– Depict astronomical coordinate systems.– Apply astronomical localisation methods.– Apply astronomical compass checking methods.– Applying great-circle navigation methods including mixed sailing and recognising the relevance of navigational conditions with regard to weather and ice layers.The following key competences are consolidated: Analytical skills, willingness to learn, perseverance, independence, abstract and interconnected thinking, decision making |
| Teaching contents | The lecturer teaches the students:– Celestial bodies important for navigation and their movement– Astronomical coordinate systems– Astronomical localisation methods– Astronomical compass checking methods– Great-circle navigation methods |
| Competence table A-II/1 | Plan and conduct a passage and determine position, maintain a safe navigational watch |
| Competence table A-II/2 | Plan a voyage and conduct navigation; Determine position and the accuracy of resultant position |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Tomaschek |  | 4 | Astronavigation | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 3 of 58 |

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| Module |  | Auditing |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Knoop |  |  |  |  |  | SWS | 4 |
| Requirements |  |  |  |  |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Maritime Safety and Quality Management |  |  |
| Examination type | K1+R |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | SS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can:– Understand and distinguish between various forms of audit– Plan, conduct and evaluate audits– Analyse audit results, identify problem areas, develop possible solutions– Develop, explain and evaluate corrective measures |
| Teaching contents | The lecturer teaches the students– Concepts and principles as well as the legal aspects of auditing– Forms of audit and their areas of application– Advantages of audits in QM– The audit procedure– Planning and evaluating audits |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Knoop |  | 4 | Auditing | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 4 of 58 |

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| Module |  | Design and Operation of Ship Machines |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Meyer |  |  |  |  |  | SWS | 4 |
| Requirements | Basic course |  |  |  | Self-study hours | 39 |
|  |  |  |  |  |  | Classroom hours | 36 |
| Profile | Green Shipping / Ship and Environmental Engineering |  |  |
| Examination type | K1+H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🞎 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can- Evaluate ship propulsion concepts- Evaluate input variables and framework conditions for designing ship propulsion- Select components for ship propulsion- Apply calculation methods for designing the different propulsion components- Carry out measurements on engine systems, evaluating the measured values, evaluating errors and interpreting the results. |
| Teaching contents | Preparing energy balance sheets for ship’s drafts, editing engine system design parameters, defining engine system design parameters and power generators. Criteria for selecting suitable propulsion and power generation concepts. Calculating/designing individual propulsion components and the associated operating systems.Operating an engine system under instruction. Carrying out engine testing with different load classes and operational statuses. Measuring all relevant operating parameters.Analysing the measurement technology used, assessing the measurement precision that can be achieved, preparing a measurement evaluation, interpreting the measurement results. |
| Competence table A-II/1 | no reference to A-II/1 |
| Competence table A-II/2 | no reference to A-II/2 |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Meyer |  | 4 | Design and Operation of Ship Machines | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 5 of 58 |

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| Module |  | Bachelor thesis |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 12 |
| Coordinator | Bentin |  |  |  |  |  | SWS | 3 mon |
| Requirements | See BPO Nautical Science and Maritime Transport | Self-study hours | 300 |
|  |  |  |  |  |  | Classroom hours |  |
| Profile |  |  |  |
| Examination type | BA |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 8th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Use fundamental scientific methods on a specific task to bring about a targeted solution– Critically assess the course of examination using academic aspects– Interpret the obtained results accurately and evaluate their solution contributions correctly– Evaluate their own competencies regarding organisation and time management in performing more complex tasks– Identify the essential points of their academic work and communicate them in a comprehensive manner |
| Teaching contents | In discussions and meetings with the mentoring professor and during self-study, the students learn the following contents:– Working out problems and dealing with problem analysis– Strategy development with regard to planning and completing an academic paper– Planning and adhering to personal time management– Literature research using the library services, among other things– Structuring the topic– Planning and structuring the project– Interpretation, evaluation and visualisation of data and information– Academic support of methods and procedures in research projects– Formal, linguistics and textual aspects in writing essays and investigation reports– Finding and using the right line of argument |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 6 of 58 |

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| Module |  | BEP – Practical – Ship Management |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 4 |
| Requirements | Intermediate examination; Watchkeeping; Navigation 2; Telecommunications; 1st practical semester; 2nd practical semester, manoeuvring; two modules of the selected profile, practical on-board training according to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) and according to the Ordinance on seafarers’ qualification (SeeBV) | Self-study hours | 53 |
| Classroom hours | 72 |
| Profile |  |  |
| Examination type | B |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | AP |  |  |  |  |  | Attendance is mandatory | 🗹 |
| Semester | 8th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | Through the successful completion of the module, students will achieve the following competencies:– Knowing and implementing the tasks of a WO under normal conditions as well as under conditions which change suddenly– Knowing the safety aspects in all areas of ship management under normal conditions, and being able to list and implement these– Being proficient in ship management in extraordinary situations– Being able to organise work on the bridge in extraordinary situations– Being able to assess what must be done in situations, how it must be done, when exactly things must be done and why you must act in this way in the respective situations– Expanding comprehension and gaining a more precise understanding, and acting accordingly |
| Teaching contents | Using exercises, the lecturer teaches the students:– Controlling various ship types under varying wind and current conditions– Sensing unpredictable events at sea, preparing for these and handling these– Sailing in territories, steering to pilot embark, anchor manoeuvring for various changing visual situations to adjust to new or changing conditions– Controlling the ship under watch duty > emergency procedures including leading SAR manoeuvres– Communication training (bridge resource and bridge team management)– Assisting the ship captain in special situation– Sailing on rough seas– Complex voyage planning |
| Competence table A-II/1 | Plan and conduct a passage and determine position; Maintain a safe navigational watch; Use of radar and ARPA to maintain safety of navigation; Use of sea charging and information systems (ECDIS) to maintain the safety of navigation; Respond to emergencies; Use the IMO Standard Marine Communication Phrases and use of English in written and oral form; Manoeuvre the ship; Application of leadership and teamworking skills |

|  |  |  |
| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 7 of 58 |

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| Module | BEP – Practical Ship Management |

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| Competence table A-II/2 | Plan a voyage and conduct navigation; Determine position and the accuracy of resultant position; Establish watchkeeping arrangements and procedures; Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making; Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making; Forecast weather and oceanographic conditions; Respond to navigation emergencies; Manoeuvre and handle a ship in all conditions; Operate remote controls of propulsion plant and engineering systems and services; Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment; Use of leadership and managerial skill |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications | Bridgeteam; Maritime Resource Management |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Kreutzer |  | 4 | BEP Practical – Ship Management, Simulator | E |  |
| Kreutzer |  | 4 | BEP Practical – Ship Management, Simulator | E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 8 of 58 |

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| Module |  | BEP – Theory \_ Ship Management, Cargo Handling and Stowing |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 8 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 4  |
| Requirements | Intermediate examination; Watchkeeping; Navigation 2; Telecommunications; 1st practical semester; 2nd practical semester; manoeuvring; two modules of the selected profile | Self-study hours | 128 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | M/A + K4 | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | PRE+2xEP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 8th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Understand and use the int. codes and conventions and the stability booklet– Understand the physical phenomena of stability and resistance– Evaluate stability accidents |
| Teaching contents | The lecturer teaches the students– Cargo handling and storage– International codes and conventions– The physical phenomena of stability and resistance– Evaluation of and response to stability accidents |
| Competence table A-II/1 | Monitor the loading, stowage, securing, care during the voyage and the unloading of cargoes; Inspect and report defects and damage to cargo spaces, hatch covers and ballast tanks; Maintain the seaworthiness of the ship; Monitor compliance with legislative requirements |
| Competence table A-II/2 | Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes; Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action; Carriage of dangerous goods; control trim, stability and stress |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Tomaschek |  | 4 | BEP – Theory \_ Ship Management, Cargo Handling and Stowing | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 9 of 58 |

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| Module |  | Business Administration |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Heilmann |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 3rd | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can– Understand, analyse and evaluate fundamental internal economic relationships– Organise, plan and independently carry out management functions in maritime operations– Independently acquire new knowledge and abilities relating to business management– Strengthen the following key competences: Analytical skills, willingness to learn, perseverance, independence, flexibility |
| Teaching contents | The lecturer teaches the students the principles of the following areas:– Accounting– Balancing of accounts– Cost accounting– Finance– Investments– Legal structures– Particularities of maritime enterprises and maritime markets– Main features of economics (formation of prices on markets) |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Heilmann |  | 4 | Business Administration | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 10 of 58 |

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| Module |  | Cargo Care |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Bergmann |  |  |  |  |  | SWS | 4  |
| Requirements | Ship Theory; Loading Techniques | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 6th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Carry out loading planning for dry cargo ships based on specific criteria– Determine the lifting devices and load attachment rigging for cargo handling– Carry out a draft survey once loading is complete to determine the amount of cargo loaded |
| Teaching contents | The lecturer teaches the students– Loading planning for ships with project cargo– Calculating the necessary lifting devices and load attachment rigging for heavy lifting– Handling, planning and monitoring the cargo handling process– Loading planning for container ships– Loading planning and carrying out draft surveys for bulk goods shipping |
| Competence table A-II/1 | Monitor the loading, stowage, securing, care during the voyage and the unloading of cargoes; Inspect and report defects and damage to cargo spaces, hatch covers and ballast tanks |
| Competence table A-II/2 | Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes; Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action; Influence of trim, stability and stress |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Bergmann |  | 4 | Cargo Care | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 11 of 58 |

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| Module |  | Energy-Efficient Ship Management |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Vahs |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Green Shipping / Ship and Environmental Engineering; Ship Handling |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in |  |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | Through the successful completion of the module, the students will attain the following competencies:– Understanding the relationships between navigation decisions and energy consumption, weather influences on safety and energy consumption, and the effect of wind propulsion on fuel consumption and other ship parameters. Ship efficiency levels.– Describing the physical effects of the sail and the hull.– Carrying out route optimisation for a ship with sail propulsion.– Ability to plan and monitor a voyage using modern technical processes (particularly ECDIS and weather routing).– Expanded abilities for voyage planning using a sea map and nautical publications.– Ability to assess a voyage plan, taking into account the technical, meteorological and environmentally relevant values (e.g. consumption, EEOI). |
| Teaching contents | The lecturer teaches the students:– Forces and momentums of wind propulsion systems and their effect on the ship.– Manoeuvring behaviour and stability when using sails.– Instruction in route optimisation systems.– IMO conventions and guidelines such as MARPOL, EEDI, SEEMP.– Voyage planning primarily using technical systems (ECDIS, digital publications and weather routing software). |
| Competence table A-II/1 |  |
| Competence table A-II/2 |  |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Vahs |  | 4 | Energy Efficiency in Shipping / Sailing Operations | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 12 of 58 |

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| Module |  | English |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Walden |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🞎 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 1st | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After successful completion of this module, the students canCommunicate and cooperate in (maritime) English according to the competence level B2 of the Common European Reference Framework:1. They can understand and reproduce the main ideas of complex texts on both concrete and abstract topics.2. They can understand and actively take part in technical discussions in their field of specialisation.3. They can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party.4. They can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.The following key competences are consolidated: Willingness to learn, perseverance, independence, abstract and interconnected thinking, creativity, communication and cooperation in the foreign language |
| Teaching contents | The lecturer teaches the students– Grammar (qualification aims 1 – 4)– Text comprehension (qualification aims 1, 2, 4)– Communication skills (oral) (qualification aims 2 – 4)– Expressive skills (written) (qualification aim 4) |
| Competence table A-II/1 | Use of the IMO Standard Marine Communication Phrases and use of English in written and oral form |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Walden |  | 4 | English | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 13 of 58 |

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| Module |  | Enhanced Ship Handling |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Vahs |  |  |  |  |  | SWS | 4  |
| Requirements | Manoeuvring | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Ship Handling |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in |  |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Describe the operation of manoeuvring equipment on various special ships.– Describe the operation of special and new manoeuvring equipment. |
| Teaching contents | The lecturer teaches the students– Manoeuvring various special ships including characteristic manoeuvring behaviour and the typical manoeuvring equipment.– Manoeuvring with special propulsion systems, e.g. Azimuth thruster (pod).– Innovative propulsion concepts and their special features. |
| Competence table A-II/1 |  |
| Competence table A-II/2 |  |
| Further comments |  |  |  |  |  |  |  |  |
| Certifications |  |  |  |  |  |  |  |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Vahs |  | 4 | Enhanced Ship Handling | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 14 of 58 |

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| Module |  | Advanced Training – Oil and Chemical Tankers |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 4  |
| Requirements | Basic Training – Tankers (oil/chemicals) or Tankers (all tanker types) | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Ship Handling |  |  |
| Examination type | K2/H/R |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🗹 |
| Semester | 5th/6th/8th | Offered in | SS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Carry out and monitor all loading processes with confidence– Describe the physical and chemical properties of chemical cargo and cargo containing oil– Explain preventative measures for avoiding hazards– Identify preventative measures relating to health and safety at the workplace– Resolve emergency situations which occur– Identify precautions for preventing environmental pollution– Plan how to supervise and check the adherence to legal requirements |
| Teaching contents | The lecturer teaches the students the following, based on the IMO model courses 1.02 and 1.03 in their current, applicable version– Introduction to the topic– Properties and parameters of oils and chemicals– Hazards when handling oils and chemicals– Rules and regulations– Design and equipment of oil and chemical tankers– Inert gas systems– Cargo and ballast pumps– Safety at work and pollution prevention– Cargo handling and ballasts– Tank cleaning– Crude oil washing– Ship/land interface– Emergency measures |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments | STCW code section A-V / 1-1-2 Advanced training in cargo handling on oil tankersSTCW code section A-V / 1-1-3 Advanced training in cargo handling on chemical tankers |
| Certifications | Advanced Training – Oil and Chemical Tankers |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Kreutzer |  | 4 | Advanced Training – Oil and Chemical Tankers | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 15 of 58 |

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| Module |  | Dangerous Loads |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 4  |
| Requirements | 1st practical semester, Basics of Nautical Science, Mathematics 1, Physics, English | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/A |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Describe dangerous goods and their risks to humans, the environment and the ship– Take appropriate measures when accidents/emergencies occur– The following key competences are consolidated: Analytical skills, willingness to learn, independence, abstract and interconnected thinking, decision making, motivation, taking on responsibilities |
| Teaching contents | The lecturer teaches the students– Classification and properties of dangerous goods– International regulations, standards, codes and recommendations concerning the transport of dangerous goods, in particular the International Maritime Dangerous Goods (IMDG) code and the International Maritime Solid Bulk Cargoes (IMSBC) code– Design and equipment of oil, chemical and liquid tankers |
| Competence table A-II/1 | Ensure compliance with pollution-prevention requirements; Prevent, control and fight fires on board |
| Competence table A-II/2 | Respond to navigational emergencies; Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes; Carriage of dangerous goods |
| Further comments | We recommend participating in the subject “Loading Techniques” in the same semester as this will allow you to follow the module more easily. |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Luik |  | 4 | Dangerous Loads | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 16 of 58 |

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| Module |  | Medical Care |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Graven |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | B+K2/H |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | AP+EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 4th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Understand and use shipping-related medical basic knowledge– Carry out and manage the provision of medical first aid on board– Make use of medical radio consultations and implement these in effective measures– The following key competences are consolidated: Ability to act, teamworking skills, empathy, cooperation skills, emotional intelligence, independence, interconnected thinking, decision making |
| Teaching contents | The lecturer teaches the students the following, in accordance with appendix 4 of the “Großer Lehrgang” (advanced course) of MariMedV (Ordinance on maritime medical requirements):– Ability to use the first aid box– Knowledge about the structure and functions of the human body– Knowledge about toxic hazards on board, including, in particular, knowledge of the “Medical First Aid Guide for accidents with dangerous goods” (MFAG) or the corresponding national publication– Ability to carry out a reasonable physical examination of an injured or ill person– Knowledge of spinal injuries– Knowledge of burns and scalds as well as the effects of heat and cold on the human body– Knowledge about broken bones, dislocations and muscular injuries– Ability to provide medical care to rescued persons– Ability to make use of medical radio consultations along with the associated clinical examination– Pharmacological knowledge– Ability to sterilise medical equipment– Knowledge of cardiac arrest, drowning and respiratory arrest and difficulty breathing– Ability to care for injured persons with diverse injury characteristics– Knowledge of various aspects of medical care– Knowledge of illnesses– Ability to identify the misuse of medications, addictive substances and alcohol– Knowledge of dental care– Knowledge of gynaecology, antenatal care and obstetrics– Ability to provide medical care to persons rescued from the water– Knowledge of death at sea– Hygiene knowledge– Knowledge of health protection |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 17 of 58 |

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|  | – Ability to manage records and archive relevant sets of rules– Ability to make use of external assistance– Ability to assess a hazardous situation– Ability to rescue patients with minimal strain– Ability to take immediate measures for accidents and illnesses, while taking into account anatomical and physiological basic knowledge– Ability to transfer and transport a patient with minimal strain– Ability to perform treatment of specific illnesses in accordance with the medical instructions in Section 107 SeeArbG (code for work at sea) and the MFAG– Knowledge of further treatment measures, e.g. pain management and nursing– Basic knowledge of the layout of the ship’s pharmacy and administering the medicines it contains– Basic knowledge of the medical instructions in accordance with Section 107 SeeArbG– Basic knowledge of the forms and records– Basic knowledge of the relevant legal regulationsA hospital internship of at least 80 hours (14 days) must be completed. Here (as recommended by MariMedV and the STCW Convention), the student is to gain insights into the following areas:Rescue, consciousness, circulatory arrest, respiratory disruptions / airway obstruction, ventilating / clearing the airways, storage during respiratory disruptions, external / internal bleeding, eye injuries, burns/scalds/injuries caused by electricity/frostbite, transfer/transport, examination techniques, spinal injuries, treating broken bones, dislocations, muscular injuries, sprains and strains, wound care, minor surgical operations, treating acute abdominal illnesses, treating dental conditions, pain management. |
| Competence table A-II/1 | Apply medical first aid on board the ship |
| Competence table A-II/2 | Organize and manage the provision of medical care on board |
| Further comments | Qualifications acc. to STCW Convention, tables:A-VI/4-1: Apply immediate first aid in the event of an accident or illness on boardA-VI/4-2: Provide medical care to the sick and injured while they remain on board; participate in coordinated schemes for medical assistance to ships |
| Certifications | Medical-Care |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
|  |  | 2 W | Hospital internship | Internship |  |
| Winter |  | 4 | Medical Care | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 18 of 58 |

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| Module |  | Green Shipping |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Bentin |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Green Shipping / Ship and Environmental Engineering  |  |  |
| Examination type | H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in |  |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | Knowledge:The student has advanced knowledge of:– The contents of the IMO and EU regulation on CO2 monitoring and ship recycling– Various systems of how CO2 can be measured and calculated in accordance with the regulations– The different dangerous materials which can be found in the ship’s structure, and knows where they could be found on the ship– The advantages of different CO2 monitoring concepts– Measurement principles, systems and technologies for monitoring the ship propulsion and the ship operation equipmentSkills:The student– Is capable of planning a concept for CO2 monitoring.– Is capable of assisting in a process for preparing an IHM list. |
| Teaching contents | When the EU regulation on the monitoring of carbon dioxide emissions from maritime transport (MRV regulation) was passed, it became mandatory to measure, document and verify the CO2 emissions. From 1 January 2018, shipping companies which have ships who dock at EU ports are subject to report. A similar rule has been discussed at IMO level and was implemented in 2019. The constant monitoring and regular evaluation of the operating data can make the ship operation equipment more efficient.Another important environmental regulation on an international level is the HONG KONG CONVENTION, which sets new requirements for ship recycling as well as the new European ordinance from the European Council which renders the European ship recycling regulation applicable to all ships over 500 gross tonnage which dock at an EU port. An IHM list is necessary for this. |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Bentin |  | 4 | Green Shipping Loads | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 19 of 58 |

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| Module |  | Computer Science |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Klußmann |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 3rd | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After successful completion of this module, the students can– Describe hardware and software configurations of a PC and its peripherals– Operate general and specialist user programmes– Develop and understand simple programmes– Strengthen the following key competences: Analytical skills, willingness to learn, perseverance, independence, abstract and interconnected thinking, creativity |
| Teaching contents | The lecturer teaches the students the principles of the following areas:– History and branches of computer science– Storing and interpreting information– Hardware components of a computer– Basic tasks, structure and tasks of operating systems– Principles of networking computersIn addition, the following subjects are taught and applied when programming in JAVA:– Data types, operators and looping constructs– Formulating algorithms– Object-oriented programming– Developing simple maritime application programmes |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Klußmann |  | 4 | Computer Science | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 20 of 58 |

|  |  |  |  |  |  |
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| Module |  | Cruise Shipping |  |  |  |
| Meta module |  |  |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 4  |
| Requirements | 1st PS, Ship Theory, Safety and Emergency Management | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Ship Handling |  |  |
| Examination type | K2/H/A |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🗹 |
| Semester | 5th/6th/8th | Offered in | WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can:– Describe the safe handling of vehicles and passengers when boarding and disembarking– Explain the organisation of emergency measures– Explain the use of resources– Monitor the passengers and other personnel in emergency situations– Explain the measures for cargo securing and hull integrity and describe the monitoring and control of the atmosphere in cargo space |
| Teaching contents | The lecturer teaches the students the following, based on the IMO model courses 1.28, 1.29 and 1.41 in their current, applicable version– Ship design, layout– Rules and regulations (STCW, SOLAS, applicable codes)– The use of resources– Conduct and responses of people in emergencies– Developing and maintaining effective communication– Practical exercises (drills)– Loading and embarking processes– Transporting dangerous goods– Cargo securing– Stability, trim and stress calculations– Opening, closing and securing hull openings– Safety at work– Emergency plans, processes and drills |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments | STCW code section A-V/2-2 Safety training for persons performing direct service to passengers in passenger spaces; STCW code section A-V/2-3 Passenger ship crowd management training, STCW code section A-V/2-4 Crisis management and human behaviour training, STCW code section A-V/2-5 Passenger safety, cargo safety and hull integrity training |
| Certifications | Crowd and Crisis |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 21 of 58 |

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| Module | Cruise Shipping |

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| Kreutzer |  | 4 | Cruise Shipping | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 22 of 58 |

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| Module |  | Loading Techniques |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Bergmann |  |  |  |  |  | SWS | 4  |
| Requirements | Basics of Nautical Science, practical semester 1, Mathematics 1, Physics, English | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Plan and monitor the loading process, taking into account the freeboard, stability, trim and integrity of the ship, applying the relevant loading-specific international regulations (IMO regulations)– Cargo handling, stowing and securing, applying the relevant IMO regulations– Safely operating and evaluating the load calculation software and interpreting the results appropriately– The following key competences are consolidated: Communication skills, analytical skills, perseverance, decision-making, interconnected thinking, performance, independence |
| Teaching contents | The lecturer teaches the students– International Convention on Load Lines– IMSBC code (bulk cargoes)– BLU code (load planning)– Grain code (grain as a bulk product)– Timber code (timber as deck cargo)– CSS code (cargo securing)– Standard cargo (containers, barges)– Half-standard cargo (RORO)– Non-standard cargo (heavy goods/project cargo, forestry products, steel products, cold cargo)– Tank cargo– Claims handling (behaviour to defend against claims of damages to the cargo before and after shipping asserted against the shipping company/carrier) |
| Competence table A-II/1 | Monitor the loading, stowage, securing, care during the voyage and the unloading of cargoes; Inspect and report defects and damage to cargo spaces, hatch covers and ballast tanks; Maintain the seaworthiness of the ship |
| Competence table A-II/2 | Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes; Assess reported defects and damage to cargo spaces, hatch covers and ballast tanks and take appropriate action |
| Further comments |  |
| Certifications |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 23 of 58 |

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| Module | Loading Techniques |

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| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Bergmann |  | 4 | Loading Techniques | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 24 of 58 |

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| Module |  | Manoeuvring |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Vahs |  |  |  |  |  | SWS | 4  |
| Requirements | Intermediate examination, AP Maritime English, AP Navigation 2, Watchkeeping | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 6th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Define manoeuvres in maritime operations and describe their technical and physical connections.– Analyse maritime and external factors which influence manoeuvring.– Describe complex manoeuvre processes, their planning and implementation. |
| Teaching contents | The lecturer teaches the students– Basic definitions of manoeuvring.– Manoeuvring devices: Propeller, rudder, broadside array, pod, etc.– Manoeuvre characteristics and values: Course stability, turning ability, pivot point, capability of stopping.– Standard manoeuvres: Turning circles, stopping, crash stop, sea trials, person overboard, berthing/departing, anchoring, taking over navigation.– Influence of environmental factors: Wind, swell, current, hydrodynamic effects during ship-to-ship interactions and in narrow shipping channels, low keep freedom, ice.– Chosen special scenarios: Collision prevention, non-varying radius curve sailing, SAR, towing, adverse weather.– Principles of propulsion and energy efficiency. |
| Competence table A-II/1 | Manoeuvre the ship |
| Competence table A-II/2 | Manoeuvre and handle a ship in all conditions |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Vahs |  | 4 | Manoeuvring | L |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 25 of 58 |

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| Module |  | Maritime English |  |  |  |
| Meta module |  |  |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Walden |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | M/A+K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🞎 | English | 🗹 |
| Examination form | PRE+EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 4th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can communicate and cooperate in maritime English according to the competence level C1 of the Common European Reference Framework:1. They can understand a wide range of demanding, longer texts and recognise implicit meaning2. They can express themselves fluently and spontaneously without much obvious searching for expressions. They can use the language flexibly and effectively for social and professional purposes.3. They can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices.4. They can understand and use the Standard Marine Communications Phrases (SMCP).The following key competences are consolidated: Willingness to learn, perseverance, independence, abstract and interconnected thinking, creativity, communication and cooperation in the foreign language |
| Teaching contents | The lecturer teaches the students– Grammar (qualification aims 1 – 4)– Text comprehension (qualification aim 1)– Communication skills (oral) (qualification aims 2-4)– Expressive skills (written) (qualification aim 3)– Standard Marine Communication Phrases (qualification aim 4) |
| Competence table A-II/1 | Use of the IMO Standard Marine Communication Phrases and use of English in written and oral form |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Walden |  | 4 | Maritime English | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 26 of 58 |

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| Module |  | Maritime project |  |  |  |
| Meta module | Basics of Nautical Science |  | Type | Mandatory module | ECTS | 2 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 2  |
| Requirements |  | Self-study hours | 0 |
|  |  |  |  |  |  | Classroom hours | 50 |
| Profile |  |  |  |
| Examination type | B |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | AP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 1st | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can– Acquire fundamental skills when handling the electronic nautical chart (ECDIS)– Learn fundamental methods and principles which are required when preparing a voyage plan– Understand the meaning of the symbols on the electronic nautical chart– Identify potential hazards for ship operations based on information on the nautical chart |
| Teaching contents | The lecturer teaches the students the principles of the following areas:– Background knowledge on nautical charts and the electronic nautical chart (ECDIS)– Using ECDIS, especially for planning a voyage– Preparing an “Under Keel Clearance” plan– Obtaining and interpreting additional map-specific information– Preparing a voyage plan |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Knoop |  | 2 | Maritime project | E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 27 of 58 |

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| Module |  | Mathematics 1 |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Bentin |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 1st | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After successful completion of this module, the students can– Associate essential mathematical models with technical, nautical and economic issues– Calculate mathematical tasks relating to propositional logic, functions and number systems– Use analytical geometry in vector form with confidence for nautical and technical issues– Solve linear equation systems and evaluate the results, as well as use the matrix style of writing |
| Teaching contents | The lecturer teaches the students:– Set theory– Functions– Limits– Continuity– Elementary functions– Coordinate systems– Conic sections– Numbers (real and complex)– Matrix calculations and equation systems with determinants– Vector algebraThese areas can be defined and arithmetic problems can be solved. |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Stern |  | 4 | Mathematics 1 | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 28 of 58 |

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| Module |  | Mathematics 2 |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Bentin |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 3rd | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can– Formulate the fundamentals of differential and integral calculations and use them to solve problems,– Adjust, i.e. reconstruct, discrete data through polynomials, exponential and trigonometric functions,– Interpret mathematically the course of physical and technical measurement curves.– Strengthen the following key competences: Analytical skills, willingness to learn, perseverance, independence, abstract and interconnected thinking, creativity |
| Teaching contents | The lecturer teaches the students calculations in the following areas:– Differential calculation for functions of one or more variables (partial differential, total differential, logarithmic differentiation, implicit diff.)– Extreme value tasks with error analysis– Approximation method– Integral calculus (definite and indefinite integral, partial integration, solving partial fractions)– Improper integrals (area calculations, solids of revolution, arc lengths)– Repeated integrals– Differential equations (standard, partial, linear, complete differential equations, higher order diff. equations, solution process according to Lagrange, Bernoulli, among others) |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Göken |  | 4 | Mathematics 2 | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 29 of 58 |

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| Module |  | Oceanographic internship |  |  |  |
| Meta module |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Strybny |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Green Shipping / Ship and Environmental Engineering |  |  |
| Examination type | K1/eA/H/R |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🞎 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | SS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Plan, implement and evaluate engineering and scientific measurement activities on the sea and when at sea independently. |
| Teaching contents | Preparatory lectures on physics, chemistry and biology relating to the sea and on the principles of research shippingPreparing the students for oceanographic investigations in the lab:– Technical preparation, calibration and verification of instruments– Preparations for obtaining samples– Planning measurement tripsCarrying out measurement trips around river estuaries and the southern North Sea– Recording measurement values or obtaining samples, e.g. with– Integrating hydrocasts, bottom grab samplers, a plankton net– Multi-parameter prob, Secchi disk– Current meters for measuring current speed– Sonar system, underwater cameraAnalysis of results in the lab–e.g. drying, screening–Microscopy, stereoscopy–Digital photogrammetry processes in microscopy and stereoscopyMathematical and graphic/text-based analysis and interpretation of the results |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Strybny |  | 4 | Oceanographic internship | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 30 of 58 |

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| Module |  | Meteorology |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Göken |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Green Shipping / Ship and Environmental Engineering |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 3rd | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can– Develop a profound understanding of physical states and atmospheric processes– Explain the structure of meteorological instruments– Gain the ability to use and interpret information from ship-based meteorological instruments– Develop fundamental knowledge on the characteristics of the various weather systems, reporting procedures and recording systems– Identify and differentiate meteorological parameters and use them to make route-relevant decisions– Use the meteorological knowledge/understanding for their task or job to draft and further develop problem solutions and arguments in their field– Analyse and evaluate hydrometeorological conditions for voyage planning– Exchange with specialists and laypersons about information, ideas, problems and solutions, and take on responsibility within a team |
| Teaching contents | The lecturer teaches the students– The principles of meteorology and the function of meteorological measuring equipment– The chemical composition of the atmosphere– The thermodynamic properties of the atmosphere– The vertical structure of the atmosphere– The forces in a rotating frame of reference– The horizontal air movements– The air masses and their classification– The general circulation and westerlies– The weather of the tropical regions and polar region– Reading, understanding and analysing weather information– The principles of oceanography– The hazards of tropical hurricanes and the related bypassing of the affected regions– Meteorological voyage planning |
| Competence table A-II/1 | Plan and conduct a passage and determine position |
| Competence table A-II/2 | Plan a voyage and conduct navigation; Forecast weather and oceanographic conditions |
| Further comments |  |
| Certifications |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 31 of 58 |

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| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Göken |  | 4 | Meteorology | L + E |  |

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| Module | Meteorology |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 32 of 58 |

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| Module |  | Basics of Nautical Science |  |  |  |
| Meta module | Basics of Nautical Science |  | Type | Mandatory module | ECTS | 4 |
| Coordinator | Tomaschek |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 28 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/A |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | AP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 1st | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can:– Perform the tasks involved in deck service– Act as a member of the bridge team– Define the relevant conventions, legislation and legal requirements– Present the structure of authorities and their competences in maritime management, including investigations into accidents at sea |
| Teaching contents | The lecturer teaches the student basic knowledge and impressions in the following areas:Knowledge and skills in navigation and meteorology:– Understanding the maritime buoyage and combustion systems– Understanding the devices and publications used in navigation– Understanding meteorological state variables and units– The ability to observe weather patterns and use meteorological equipment– The ability to read and understand weather maps– Understanding the relevant specialist terms in German and EnglishKnowledge and abilities in watchkeeping and occupational safety:– Understanding the watchkeeping procedures– Steering the ship– Lookout– Safe navigational watch– Understanding occupational safety / accident prevention– Using emergency plans– Safe harbour watch– Mooring and unmooring the ship– Understanding the relevant specialist terms in German and EnglishKnowledge of and abilities in the ship’s technology:– General knowledge of the ship’s technical systems– Basic knowledge of ship construction– Basic knowledge of loading techniques– The relevant specialist terms in German and English |
| Competence table A-II/1 | Maintain a safe navigational watch |
| Competence table A-II/2 | Establish watchkeeping arrangements and procedures |
| Further comments |  |
| Certifications |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 33 of 58 |

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| Module | Basics of Nautical Science |

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| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Tomaschek |  | 4 | Basics of Nautical Science | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 34 of 58 |

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| Module |  | Navigation 1 |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Tomaschek |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 1st | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After successful completion of this module, the students can– Use terrestrial navigation procedures,– Use navigator information systems,– Use navigator control procedures– Use tide calculation procedures |
| Teaching contents | The lecturer teaches the students:– Identifying navigation features– Combustion and ships’ routing– Performing course / direction-finding conversions and terrestrial compass checks– Determining a ship’s location using terrestrial procedures– Accuracy of determining a position– Coastal navigation on the nautical chart– Navigational voyage planning– Great-circle navigation (orthodrome)– Account based on mid-latitude and high latitude– Map drafts and geographical coordinate systems– The use of Mercator projection and conical projection– Nautical documents (nautical maps, nautical publications and their amendment)– Principles of tides (tide values and tidal currents, navigation taking into account current and wind)– The use of tide tables and tidal current documents |
| Competence table A-II/1 | Plan and conduct a passage and determine position |
| Competence table A-II/2 | Plan a voyage and conduct navigation; Determine position and the accuracy of resultant position |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Tomaschek |  | 4 | Navigation 1 | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 35 of 58 |

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| Module |  | Safety and Emergency Management |  |  |  |
| Meta module | Emergency Management |  | Type | Mandatory module | ECTS | 7 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 6  |
| Requirements | Dangerous Loads, Ship Theory, Intermediate examination | Self-study hours | 67 |
| Profile |  |  |  |  |  | Classroom hours | 108 |
| Examination type | K3 |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 6th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Obtain problem solving competences relating to emergency management.– Apply the national and international provisions relevant to ensuring the protection of the marine environment and ship safety.And achieve the competence:– To plan and ensure the organisation of hazard prevention on board.– To prevent fires on board, stop these fires from spreading and to organise the fire-fighting measures.– To use rescue equipment appropriately and as required by the situation.– To react appropriately to general emergencies as required by the situation.– To describe the safety, fire-extinguishing and other safety systems prescribed for maintaining safety during ship operation.– To act correctly to prevent hazards and to organise the appropriate measures.– To draft plans for emergencies and damage containment, as well as how to act in emergencies.– To plan and ensure the organisation of a Safety Management System (ISM code). |
| Teaching contents | The lecturer teaches the students– Regulations on rescue equipment– Maintaining the operation condition of safety, fire-extinguishing and other safety systems– International agreements and recommendations as well as national legislation regarding environmental protection, ship safety and hazard prevention– Measures to protect and keep every person on board safe in emergencies– Emergency plans– Management, organisation and training of personnel on board– Hazard prevention on board– “International Aeronautical and Maritime Search and Rescue Manual” (IAMSAR)– Measures in the case of oil pollution damage |
| Competence table A-II/1 | Respond to emergencies; Respond to a distress signal at sea; Ensure compliance with pollution-prevention requirements; Prevent, control and fight fires on board; Operate life-saving appliances; Monitor compliance with legislative requirements, Application of leadership and teamworking skills; Contribute to the safety of personnel and ship |
| Competence table A-II/2 | Respond to navigational emergencies; Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment; Maintain safety and security of the ship’s crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems; Develop emergency and damage control plans and handle emergency situations; Use of leadership and managerial skill |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 36 of 58 |

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| Further comments | The module forms the qualification aims for the SSO in accordance with table A-VI/5 of the STCW Convention. |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Kreutzer |  | 6 | Safety and Emergency Management | L |  |

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| Module | Safety and Emergency Management |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 37 of 58 |

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| Module |  | Public Shipping Law |  |  |  |
| Meta module | Basics of Nautical Science |  | Type | Mandatory module | ECTS | 4 |
| Coordinator | Münchau |  |  |  |  |  | SWS | 2  |
| Requirements |  | Self-study hours | 64 |
|  |  |  |  |  |  | Classroom hours | 36 |
| Profile |  |  |  |
| Examination type | K1 |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🞎 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 1st | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After successful completion of this module, the students can1. Define, understand and apply the relevant legal requirements (international agreements and national legal requirements);2. Understand the tasks of international organisation and their legal and enforcement powers;3. Define the structure of authorities and their competences in maritime management;4. Understand the function of flags and register. |
| Teaching contents | The lecturer teaches the students– History and legal sources of international maritime law– Spatial planning according to the United Nations Convention on the Law of the Sea– Freedom of navigation and flag-state principle dispute resolution by the International Tribunal for the Law of the Sea– Structure and tasks of the IMO– Regulation by international organisations– International Agreement on Ship Safety and Maritime Environmental Protection– Flag and register law, tasks of the flag state– Tasks and activities of classification societies– The structure of authorities and their competences in maritime management |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Münchau |  | 2 | Public Shipping Law | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 38 of 58 |

|  |  |  |  |  |  |
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| Module |  | Public Maritime Law |  |  |  |
| Meta module | Safety and Emergency Management |  | Type | Mandatory module | ECTS | 3 |
| Coordinator | Münchau |  |  |  |  |  | SWS | 2  |
| Requirements | Intermediate examination | Self-study hours | 39 |
|  |  |  |  |  |  | Classroom hours | 36 |
| Profile |  |  |  |
| Examination type | K1 |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🞎 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 6th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After successful completion of this module, the students can1. Define, understand and use the (international and national) legal regulations relevant to ship safety and marine environmental protection;2. Name the relevant reports and documents which must be kept on board;3. Use the competence of adhering to the relevant provisions for the prevention of contamination in connection with the ship operations;4. Obtain and apply the knowledge required to prepare for and conduct inspections of the flag and port state as well as classification societies;5. Understand the structure of authorities and their competences in maritime management, including maritime casualty investigation. |
| Teaching contents | The lecturer teaches the students– Regulation by international organisations– International Convention for the Safety of Life at Sea– International Convention for Marine Environmental Protection– Measures and responsibility in the event of oil pollution damage– Legal principles of and conducting a port state control– Flag state control, reports and inspections– Classification and class inspections– Structure and tasks of maritime management– Maritime police powers and maritime casualty investigation– Tasks and the responsibility of navigators |
| Competence table A-II/1 | Ensure compliance with pollution-prevention requirements; Monitor compliance with legislative requirements |
| Competence table A-II/2 | Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Münchau |  | 2 | Public Maritime Law | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 39 of 58 |

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| Module |  | Human Resources Management |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 4 |
| Coordinator | Beelmann |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 28 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 4th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Manage employees on board appropriately– Recognise, evaluate, analyse and adequately solve conflicts and conflict potential– Recognise specific concepts of perception, thinking, feeling and acting when working with people from other cultures– The following key competences are consolidated: Analysis skills, willingness to learn, perseverance, independence, abstract and interconnected thinking, creativity, decision making, performance, conflict management, rhetoric, teamworking skills, taking on social responsibility and (if possible) dealing with intercultural aspects. |
| Teaching contents | The lecturer teaches the students– Managing employees– Management people in emergencies– Staff assessment– Vocational training and instruction techniques on board– Adequate conflict handling and conflict resolution strategies– Measures in the case of alcohol misuse and addiction– Establishing and maintaining hygiene on board and a humane working environment– Basic terms and concepts of general psychology and sociology– Features of shipping sociology and psychology– General knowledge of employment law (maritime labour law) |
| Competence table A-II/1 | Application of leadership and teamworking skills |
| Competence table A-II/2 | Use of leadership and managerial skill |
| Further comments | The social credit point is also allocated to the module |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
|  |  |  | Social Credit Point |  |  |  |
| Beelmann |  | 4 | Human Resources Management | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 40 of 58 |

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| Module |  | Physics |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 5 |
| Coordinator | Göken |  |  |  |  |  | SWS | 4  |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 1st | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can:– Gain understanding for technically oriented specialist modules in the Nautical Science and Maritime Transport study programme– Develop a basic understanding of forces and movements in nature and technology– Build basic skills in quantitative and problem solving thinking– Apply abstract scientific thinking to nautical examples– Use physical knowledge/understanding for their task or job to draft and further develop problem solutions and arguments in their field– Derive scientifically grounded advantages which take into account societal, scientific and ethical insights– Exchange with specialists and laypersons about information, ideas, problems and solutions, and take on responsibility within a team |
| Teaching contents | The lecturer teaches the students the principles of the following areas:– Physical variables and measurement errors– Dynamics, concept of force– Work and energy– Energy conservation– Impacts– Potential diagrams– Kinematics of the translatory motion– Dynamics of rotation– Fixed bodies, centre of gravity and moment of inertia– Fluctuations |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Göken |  | 4 | Physics | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 41 of 58 |

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| Module |  | Practical semester 1 |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 30 |
| Coordinator | Beelmann |  |  |  |  |  | SWS | 26 w |
| Requirements | Valid fitness for sea service, valid basic safety course | Self-study hours | 750 |
|  |  |  |  |  |  | Classroom hours |  |
| Profile |  |  |  |
| Examination type | Certification |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🞎 | English | 🞎 |
| Examination form | AP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 2nd | Offered in |  |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | The aim of the first practical semester is to get to know the nautical line of work. Students are expected to gain as much practical work experience and as many related skills as possible, which will form the basis of subsequent theoretical education. The qualification aims are prescribed by the STCW convention and Seafarers’ Competencies and Proficiencies Regulations as amended. |
| Teaching contents | The training in the first 6-month-long internship should help you gain overall knowledge of the nautical career path; during this time, particular value should be placed on the practical training. Aside from the usual routine work, students should also be given the opportunity to collaborate on training-intensive maintenance and repair work in particular. In the first semester, bridge duties should also be taught; however not as the only focus. In particular, students should familiarise themselves with the work processes on deck and in the engine room, with handling systems and devices, regarding safety and fire fighting and with cargo-related tasks and tasks during bridge duties and watchkeeping. These topics are laid down in the Training Record Book (TRB) published by the BSH and adhered to by the students during their time on board under the supervision of the captain and the training officer. The basis for the practical training on board is Section 30 SeeBV and the guidelines for the practical training and seafaring time as an assistant nautical officer. |
| Competence table A-II/1 |  |
| Competence table A-II/2 |  |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
|  |  |  | Practical semester 1, 26 weeks | Internship |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 42 of 58 |

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| Module |  | Practical semester 2 |  |  |  |
| Meta module |  |  | Type | Mandatory module | ECTS | 30 |
| Coordinator | Beelmann |  |  |  |  |  | SWS | 26 w |
| Requirements | 1st practical semester; valid fitness for sea service, valid basic safety course | Self-study hours | 750 |
|  |  |  |  |  |  | Classroom hours |  |
| Profile |  |  |  |
| Examination type | Certification |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🞎 | English | 🞎 |
| Examination form | AP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 7th | Offered in |  |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | The aim of the second practical semester is to put previously gained knowledge into practice and to expand and deepen previously gained practical knowledge on board. In particular, it is intended to familiarise students with the tasks of a nautical officer of the watch. Owing to the previously gained practical and theoretical knowledge, the student should be able to assess their own competences and skills and deepen these on board. |
| Teaching contents | The topics listed in the TRB should be completed and the student should deepen their knowledge of their selected profile on board. Here, the following topics are addressed: Work processes on deck and in the engine room, handling systems and devices, safety and fire fighting and cargo-related tasks and tasks during bridge duties and watchkeeping. In addition to these topics, green Shipping / ship and environmental engineering, maritime safety and quality management or ship handling. It is particularly important for students to be given sufficient opportunities to gather further, additional experience of bridge duties and watchkeeping.These topics are laid down in the Training Record Book (TRB) published by the BSH and adhered to by the students during their time on board under the supervision of the captain and the training officer. The basis for the practical training on board is Section 30 SeeBV and the guidelines for the practical training and seafaring time as an assistant nautical officer. |
| Competence table A-II/1 |  |
| Competence table A-II/2 |  |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
|  |  |  | Practical semester 2, 26 weeks | Internship |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 43 of 58 |

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| Module |  | Quality Management Systems |  |  |  |
| Meta module |  |  | Type | Elective module | ECTS | 5 |
| Coordinator | Knoop |  |  |  |  |  | SWS | 4 |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Maritime Safety and Quality Management |  |  |
| Examination type | R |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🞎 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Compare different QM models– Assess costs and benefits of a QMS– Use a QMS for a specific purpose– Develop and optimise a QMS– Plan the integration of a QMS into an existing management system– Select a QMS depending on the application |
| Teaching contents | The lecturer teaches the students– Concepts and definition in conjunction with QMS– Principles, tasks and aims of the QMS, particularly in a maritime environment– Tools and methods of controlling and improving quality– Requirements for the successful use of a QMS– Overarching aspects such as standardisation and certification |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Knoop |  | 4 | Quality Management Systems | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 44 of 58 |

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| Module |  | Safety and Security |  |  |  |
| Meta module |  |  | Type | Elective module  | ECTS | 5 |
| Coordinator | Knoop |  |  |  |  |  | SWS | 4 |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Maritime Safety and Quality Management |  |  |
| Examination type | K2 |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | SS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Identify and use accident investigation methods– Understand the PDCA cycle– Understand hazard prevention and its implementation– Plan operative deployment and measures– Identify and assess hazards and risks for the ship / crew– Develop an awareness for threat potentials– Perform and evaluate risk assessments for ships– Evaluate accident reports |
| Teaching contents | The lecturer teaches the students– An overview of the legal principles, definitions and responsibilities in hazard prevention– Handling safety-related information– Information about the safety equipment– Accident investigation methods– Hazard assessment methods |
| Competence table A-II/1 |  |
| Competence table A-II/2 |  |
| Further comments |  |
| Certifications | CSO Safety and Security |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Knoop |  | 4 | Safety and Security | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 45 of 58 |

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| Module |  | Ship Design |  |  |  |
| Meta module |  |  | Type | Elective module  | ECTS | 5 |
| Coordinator | Bentin |  |  |  |  |  | SWS | 4 |
| Requirements | Ship Theory | Self-study hours | 78 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Green Shipping / Ship and Environmental Engineering |  |  |
| Examination type | K1+H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🞎 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | SS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After successful completion of this module, the students can– Interpret the composition of the ship resistance and explain the function of the propeller, and forecast the smooth resistance of the ship’s hull using empirical methods,– Identify the design requirements of a ship based on its transport task and roughly develop a ship which can meet these requirements,– Evaluate the environmental influences on the ship’s system and its efficiency,– Determine relevant contract figures.– Strengthen the following key competences: Interconnected thinking, creativity, analytical skills, willingness to learn, decision making |
| Teaching contents | Resistance and propulsion: Principles of current mechanics, numeric prognosis processes, model test technology for the ship design of the hull and propellor: Shipbuilding design process, profitability assessments, main parameters of the ship and effects if these are changed, system engineering |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications | CSO Safety and Security |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Bentin |  | 4 | Ship Design | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 46 of 58 |

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| Module |  | Ship Theory |  |  |  |
| Meta module |  |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Bergmann |  |  |  |  |  | SWS | 4 |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 3rd | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can– Associate principles of ship construction– Calculate, analyse and assess the buoyancy, stability and trip of a ship– Use international regulations to calculate stability– Understand and evaluate the longitudinal strength load of a ship in calm water– Strengthen the following key competences: Analytical skills, willingness to learn, perseverance, independence, abstract and interconnected thinking, creativity, decision making |
| Teaching contents | The lecturer teaches the students– Reading lines on ship drawings– Calculating the buoyancy according to Archimedes– Calculating the uplift and suppression– Determining the initial stability of a ship– Stability of a ship (also with greater inclination)– Stability loads such as free surfaces– Transfer of cargo– Wind influence– National and international stability regulations– Calculating the trim |
| Competence table A-II/1 | Maintain seaworthiness of the ship; Monitor compliance with legislative requirements |
| Competence table A-II/2 | Influence of trim, stability and stress; Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Bergmann |  | 4 | Ship Theory | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 47 of 58 |

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| Module |  | Maritime Law |  |  |  |
| Meta module |  |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Münchau |  |  |  |  |  | SWS | 4 |
| Requirements | Basics of Nautical Science, 1st practical semester | Self-study hours | 53 |
| Profile |  |  |  |  |  | Classroom hours | 72 |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Understand and use the contents and essential regulations of maritime freight contracts and their associated documents,– Recognise liability risks and assess their consequences,– Decide on the correct behaviour in emergency situations (accidents, rescue, collisions)– The following key competences are consolidated: Analytical skills, willingness to learn, perseverance, independence, interconnected thinking, performance |
| Teaching contents | The lecturer teaches the students– History and legal source of maritime law– Maritime law persons: shipping company, outfitter, ship manager, captain, pilots, agents– Concept and types of maritime freight contracts– Participants in maritime freight business– Content of maritime freight contracts– Maritime freight business documents: bill of lading, charter party– Responsibilities of the carrier and the charterer in the maritime freight contract– Contents of a journey charter contract based on the GENCON example– Determining load quantity and loading/layover time– Ship surrender contracts: time charter and bare boat charter– Non-contractual liability of the shipping company and the captain– Liability for oil pollution damage– Journey emergency situations: collisions, rescue and general average– Maritime procedural law: rights of maritime lienor, arrest, arbitration procedures– Maritime property law: ship’s register, property acquisition of seagoing vessels, mortgage– Maritime insurance law: Insurance of goods, hull insurance, P&I |
| Competence table A-II/1 |  |
| Competence table A-II/2 |  |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Münchau |  | 4 | Maritime Law |  | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 48 of 58 |

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| Module |  | System Monitoring |  |  |  |
| Meta module |  |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Meyer |  |  |  |  |  | SWS | 4 |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 3rd | Offered in | SS/WS |  |  | Basic course | 🗹 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can– Gain general knowledge of a ship’s technical systems– Use knowledge about the correct use of propulsion and manoeuvring systems– Gain the ability to operate the machine and technical systems remotely– Identify the principles for operating machine systems on board ships– Identify the principles of the auxiliary machines on ships– Discuss and analyse applied operational problems on ships in English |
| Teaching contents | The lecturer teaches the students contents from the following areas:1. Diesel engines– Two-stroke and four-stroke diesel engines– Working processes and timing of diesel engines– Engine main parameters and power2. Structure and function of ship technical systems– Engines and machines– Propulsion, propeller and rudder machine– Electrical machines and systems– Ship automation– Operating materials– Pumps3. Operating a ship propulsion system– Supply systems– Dynamic behaviour during manoeuvres– Emergency stop, manoeuvre and steering4. Remote steering of the machine– Bridge remote steering system– Machine control room and local steering system5. Alarm systems |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | Manoeuvre and handle a ship in all conditions; Operate remote controls of propulsion plant and engineering systems and services |
| Further comments |  |
| Certifications |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 49 of 58 |

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| Module | System Monitoring |

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| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Meyer |  | 4 | System Monitoring Law |  | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 50 of 58 |

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| Module |  | Basic Training – Tankers (oil/chemicals/LPG) |  |  |  |
| Meta module |  |  | Type | Elective | ECTS | 3 |
| Coordinator | Kreutzer |  |  |  |  |  | SWS | 2 |
| Requirements | Valid fitness for sea service, valid basic safety course | Self-study hours | 35 |
| Profile |  |  |  |  |  | Classroom hours | 40 |
| Examination type | K2/H/R |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | AP |  |  |  |  |  | Attendance is mandatory |  |
| Semester | 1st-8th | Offered in | WS |  |  | Basic course | 🞎 | Subject course | 🞎 |
| Qualification aims | After the successful completion of this module, the students can– List all the cargo processes connected with the loading and unloading of cargo– State the physical and chemical properties of chemical cargo and cargo containing oil– Explain preventative measures for avoiding hazards– Identify preventative measures relating to health and safety at the workplace– State emergency situations which occur– State emergency precautions for preventing environmental pollution– Reproduce the most important legal requirements |
| Teaching contents | The lecturer teaches the students the following, based on the IMO model courses 1.01 and 1.04 in their current, applicable version– Basic knowledge of the various types of tankers– Physical and chemical properties of oil, chemicals and LPG– Safety culture and maintaining a safe ship operation on tankers– The risks of having oil, chemicals and LPGs as cargo– Safety at work, fire safety and fire fighting– Cargo operation– Emergency situations for oil, chemical and LPG tankers– Avoiding environmental pollution |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments | STCW A V/1-1-1 Basic training in cargo handling on oil andChemical tankersSTCW A V/1-2-1 Basic training in cargo handling on LPG tankers |
| Certifications | Basic Training – Tankers |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Kreutzer |  | 2 | Basic Training – Tankers (oil/chemicals/LPG) |  | L + E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 51 of 58 |

|  |  |  |  |  |  |
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| Module |  | Technical Navigation 1 / Radar |  |  |  |
| Meta module | Navigation 2 |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Vahs |  |  |  |  |  | SWS | 4 |
| Requirements | Basics of Nautical Science, practical semester 1 | Self-study hours |  |
| Profile |  |  |  |  |  | Classroom hours |  |
| Examination type | K1/B |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | EP/AP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 4th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After successful completion of this module, the students can:– Use radar equipment to navigate and prevent collisions, including the use of current plotting processes; |
| Teaching contents | Structure and modes of action of radar equipment,Radar image evaluation in various display formats, Position determination and route monitoring methods using radar equipment (position lines, PI), Methods of collision prevention with radar/ARPA,Radar limits and false echoes |
| Competence table A-II/1 | Plan and conduct a passage and determine position; Maintain a safe navigational watch; Use of radar equipment and ARPA systems to maintain safety of navigation; |
| Competence table A-II/2 | Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making; |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Beelmann |  | 2 | Radar |  |  E |  |
| Knoop |  | 2 | Technical Navigation 1 |  | L |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 52 of 58 |

|  |  |  |  |  |  |
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| Module |  | Technical Navigation 2 / ECDIS |  |  |  |
| Meta module | Navigation 2 |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Vahs |  |  |  |  |  | SWS | 4 |
| Requirements | Technical Navigation 1/ Radar Technology, Basics of Nautical Science, practical semester 1 | Self-study hours | 53 |
| Profile |  |  |  |  |  | Classroom hours | 72 |
| Examination type | K1 |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After successful completion of this module, the students can:– Use compass systems, satellite navigation systems, voyage measuring systems and echo sounders– Use integrated navigation systems including ECDIS to navigate safely and efficiently in various scenarios |
| Teaching contents | Structure, function and performance limits of compass systems,Satellite navigation systems, voyage measuring systems and echo soundersStructure and function of the following navigation systems and their practical use in navigation:– Magnetic and gyrocompass– Course and route controller– Integrated navigation systems– ECDIS– AIS |
| Competence table A-II/1 | Plan and conduct a passage and determine position; Maintain a safe navigational watch; Use of sea charting and information systems (ECDIS) to maintain the safety of navigation |
| Competence table A-II/2 | Plan a voyage and conduct navigation; Determine position and the accuracy of resultant position; Determine and allow for compass errors; Maintain safe navigation through the use of information from navigation equipment and systems to assist command decision making; Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Knoop |  | 2 | Technical Navigation 2 |  | L |  |
| Luik |  | 2 | ECDIS |  | E |  |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 53 of 58 |

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| Module |  | Telecommunication |  |  |  |
| Meta module |  |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Graven |  |  |  |  |  | SWS | 4 |
| Requirements | Basics of Nautical Science, 1st practical semester, Maritime English | Self-study hours | 53 |
| Profile |  |  |  |  |  | Classroom hours | 72 |
| Examination type | K2+B |  | Nautical Science | 🗹 | MTSM | 🞎 | German | 🗹 | English | 🗹 |
| Examination form | PRE+EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 6th | Offered in | WS/SS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students have:– The ability to send and receive messages using GMDSS systems and equipment as well as fulfilling the functional requirements for the GMDSS– Knowledge of the contents of the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR)– The ability to use the international signal book– The ability to send and receive the SOS emergency signal in morse code with light signals according to the depiction in appendix IV of the 1972 collision prevention regulations in their current version, and in appendix I of the international signal book, and to send and receive single-letter signals with visual signalling according to the depiction in the international signal book |
| Teaching contents | The lecturer teaches the students– Reading and giving visual SOS and single-letter signals– Knowledge of the structure and use of the code of signals– Practicing and using the signal book with the correct operational method– Emergency/urgency/safety communication including knowledge of the IAMSAR– Devices to prevent error alarms and procedures used to override these– Knowledge of ship reporting systems and requests for medical assistance– Basic knowledge about the maritime mobile service (including satellite radio)– Practical knowledge and abilities for operating a marine radio station and GMDSS equipment– More in-depth use of the IMO Standard Marine Communications Phrases which were previously learned, especially with regard to the safety of life at sea– Protection measures for ship and personnel safety in relation to the hazards of radio equipment, including electrical and non-ionising radiationIn addition to the knowledge and use of the ITU Radio Regulations:– Knowledge of processes presented in the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR) and the ability to use these with confidence in SAR radio communications– Knowledge of the options for preventing the discharge of false emergency alarms and the confident use of the processes for reducing the effects of such false alarm– Knowledge of ship alarm systems and the ability to participate in these– The ability to make use of medical radio services– The ability to apply the processes for emergency, urgent and safety communication with confidence– Confident use of the international signal book and more in-depth use of the IMO |

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| --- | --- | --- |
| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 54 of 58 |

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| Module | Telecommunication |
| Module |  |

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|  | standard phrases in writing and orally to communicate messages which are important for the safety of life at sea–The ability to handle radio communication in emergency situations, such as:1) Abandoning ship2) Fire on board3) Partial or complete failure of radio systems– Knowledge of measures for the safety of the ship and the persons on board for preventing hazards in connection with radio equipment, in particular relating to electrical and non-ionising radiation– The ability to read and give visual SOS and single-letter signals– Practicing and using the signal book with the correct operational method– More in-depth knowledge about the maritime mobile service (including satellite radio)– Practical knowledge and abilities for operating a marine radio station and GMDSS equipment with and by way of simulator exercises |
| Competence table A-II/1 | Respond to emergencies; Respond to a distress signal at sea; Transmit and receive information by visual signalling |
| Competence table A-II/2 | Coordinate search and rescue operations |
| Further comments | The module also refers to competences in accordance with table A-IV/2 of the STCW Convention: Mandatory minimum requirements for certification of GMDSS radio operators |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Graven |  | 4 | Telecommunications |  | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 55 of 58 |

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| Module |  | Environment Protection Management Systems |  |  |  |
| Meta module |  |  | Type | Elective module  | ECTS | 5 |
| Coordinator | Strybny |  |  |  |  |  | SWS | 4 |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile | Green Shipping / Ship and Environmental Engineering; Maritime Safety |  |  |
| Examination type | K2/R |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🞎 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 5th/6th/8th | Offered in | WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Add environmental awareness within a company to a structured development.– Understand the relationships between environmentally friendly products and services and responsible company management. |
| Teaching contents | The subject concentrates on examining the environmental influences of a company as a whole. The focuses are the business management instruments for the structured development of operational environmental awareness. Working out the connection between ecology and economy. Introduction of the concept of eco-efficiency.– Introduction to the ISO 14000 group of standards– Establishing ecological balances for companies, differentiating between inventory balance and the impact balance– Using inventory balance databases such as Ecoinvent, ProBas, GEMIS, NEEDS– Impact indicators such as cumulative energy consumption, material intensity, carbon footprint, ecological footprint– The company’s individual responsibility with regard to environmental protection and its documentation by way of the eco-audit with the aim of attaining an environmental certification, taking into account the EMAS regulation– Introduction of core indicators for assessing and improving operational environmental management |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
|  |  | 4 | Environmental Management Systems / Environmental Protection M |  | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 56 of 58 |

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| Module |  | Watchkeeping |  |  |  |
| Meta module |  |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Tomaschek |  |  |  |  |  | SWS | 4 |
| Requirements | Basics of Nautical Science, practical semester 1 | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/M |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 4th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Complete a watch duty with confidence– Interpret the traffic conditions– Take measures for a safe ship management by applying the collision prevention rules (COLREGs) and the German collision regulations– The following key competences are consolidated: Analytical skills, willingness to learn, perseverance, independence, abstract and interconnected thinking, decision making, performance |
| Teaching contents | The lecturer teaches the students the content, application and purpose of the following:– International Regulations for Preventing Collisions at Sea– The national rules of for preventing collisions at sea and the navigation rules for national waters– Principles of bridge duty and the effective cooperation of a bridge crew |
| Competence table A-II/1 | Maintain a safe navigational watch |
| Competence table A-II/2 | Establish watchkeeping arrangements and procedures |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Tomaschek |  | 4 | Watchkeeping |  | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 57 of 58 |

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| Module |  | Private Economic Law |  |  |  |
| Meta module |  |  | Type | Mandatory module  | ECTS | 5 |
| Coordinator | Münchau |  |  |  |  |  | SWS | 4 |
| Requirements |  | Self-study hours | 53 |
|  |  |  |  |  |  | Classroom hours | 72 |
| Profile |  |  |  |
| Examination type | K2/H |  | Nautical Science | 🗹 | MTSM | 🗹 | German | 🗹 | English | 🗹 |
| Examination form | EP |  |  |  |  |  | Attendance is mandatory | 🞎 |
| Semester | 4th | Offered in | SS/WS |  |  | Basic course | 🞎 | Subject course | 🗹 |
| Qualification aims | After the successful completion of this module, the students can– Develop and understanding of the structure and function of the legal system– Understand the principles of civil and public law– Gain general knowledge of labour law and specific knowledge of maritime labour law and apply this in practice (on land / on board)– The following key competences are consolidated: Analytical skills, willingness to learn, perseverance, independence, abstract and interconnected thinking, performance |
| Teaching contents | The lecturer teaches the students1. Main features of public law: Constitutional law, administrative law, public international and European law, criminal law.2. Basics of civil law: Layout and structure of the federal legislation; occurrence and contents of contracts; defaults of performance and damage compensation; ownership and property.3. Principles of individual labour law and collective labour law.4. Legal basis of maritime labour law: Maritime labour law, international conventions, collective labour agreements; rights and responsibilities of the captain and crew; seamen employment and contract; rights and responsibilities from the seamen employment contract; working time regulations and occupational safety; shipping company duty of care (food, accommodation, holiday, welfare); terminating the seamen employment contract; rules on board; complaints process; monitoring working conditions on board by flag and port state control.5. Main features of commercial law and corporate law: Trader, commercial register, company and authorised signatories; special features of commercial transactions; partnerships and incorporated companies. |
| Competence table A-II/1 | No reference to A-II/1 |
| Competence table A-II/2 | No reference to A-II/2 |
| Further comments |  |
| Certifications |  |
| Lecturer |  | LVS | Course |  |  |  | Teaching & learning methods |  |
| Münchau |  | 4 | Maritime Private Economic Law |  | L + E |  |

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| Version number | 202101 |  |
| Wednesday, 27 January 2021 | Page 58 of 58 |