

## *RTU Latvian Maritime Academy*

### *Available Study courses in English 2023/2024\**

Code	Study courses in English	Short Annotation	Autumn Semester	Spring semester	Provisional Teaching Staff
VPB A-1,4 (navigators)	History of Latvian Shipping	In the course of history of Latvian navigation the main navigation development stages are reviewed; the main achievements in the field of ship construction are characterized; the main sources in the historiography – the history of Latvian navigation are analysed in the course. The basic problems of the course are the issues of the oldest navigation, economic system of Livonia and navigation of Hanseatic Union, achievements of Kurzeme Duchy ship construction, navigation of the period of Republic of Latvia and politics of the Soviet Union in the field of navigation.	3 ECTS	-	H. Šimkuva
VPB A-1,5	Personnel, Bridge Team and Resource Management <i>(for navigators)</i> <i>Only 3 vacancies</i>	In this course students and future deck officers get an insight into the management and control principles of subordinated personnel, as well as maintaining of a good relationship, including interpersonal relationship and relationship within a certain group of people; formation of a leader and his/her role and impact on relationship on board a ship. Particular attention is paid to organisation of safety and emergency operations, bridge team and resource management. It is also essential to master organisation of daily routine, chairing of briefings and meetings, methods of practical instructions, a ship's mandatory documentation and record-keeping.	-	3 ECTS	A.Jansons J.Pempers
VPB A-1,6 (navigators)	Sport <i>(swimming)</i>	Improve students physical fitness, training, developing physical characteristics (endurance, force, speed, dexterity, flexibility etc.) special attention is paid to swimming. There are set for students to get familiarized with various styles of swimming and use this knowledge on practice.	1.5 ECTS	-	S.Strausa
VPB A-1,7 (navigators); PPB A-1,7 (port managers)	Maritime Economics	The Maritime Economics aims to explain how the shipping market is organized and answer some practical questions about how it works. Why do countries trade by sea? How is sea transport organized? How are prices and freight rates determined? How are ships financed? Are there market cycles? What returns do shipping companies make? How can a shipping company survive depressions? What influences ship design?	-	1.5 ECTS	J.Ivanova

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VPB A-2,2	Labour Safety and Legislation on Ships	<p>Labour Safety and Legislation is one of the basic courses in maritime sector. It deals with occupational safety and organisation of healthy working medium on board a ship.</p> <p>Students are prepared for practical training on board and familiarized with safe work management on board and occupational safety instructions. They gain knowledge about general operational requirements of a ship's equipment, operation and maintenance works on board, including work in special conditions. The study course also covers climate control factors and their impact on human body, preventive and protective measures.</p> <p>The second part of the study course covers labour legislation, particularly regulatory acts of the Labour Law of the Republic of Latvia and international and regulatory provisions of seafarers labour.</p>	-	1.5 ECTS (with 1 <sup>st</sup> year navigators)	K.Jerjomina
VPB A-2,3	Electrical Engineering and Electronics <i>(for 1<sup>st</sup> year Navigators)</i>	The main aim of the subject is to form a proper knowledge and to reach the necessary competence standards in the basics of Electrical Engineering and Electronics.	3 ECTS	-	A.Gasparjans/ G.Lauža
VPB A-2,4 (navigators)	Physics	The main task of lecture course „Physics” is to consider physical processes in nature, the laws of general and particular branches of physics, the use of the physical laws in different technical systems, the determination of its parameters experimentally and theoretically.	3 ECTS	3 ECTS	Z.Strigelis
VPB A-2,6 (navigators)	Engineering Design	<p>The overall purpose of this course is to teach the use of theoretical methods of fine geometry for the practical representation of spatial objects in the plane. To develop spatial imagination. The aim of the study course is to develop students' competence in the preparation of graphic documentation of products, observing the standards, as well as to develop skills for performing drawings in traditional (pencil) technique, to teach to use the simplest measuring instruments in practical work. Student will be able to use the acquired knowledge in practice, creating drawings or sketches of parts and total combinations.</p> <p>The course looks at theoretical foundations for the representation of objects in the plane. The course is intended to master various projection methods, methods of transformation of drawing elements. Acquisition of practical basic skills has been coordinated with the main standards for drawing up graphic documents on the following topics: formats, scales, lines, views, sections, sectional views and setting dimensions. Acquired theoretical knowledge and practical skills are the basis for the computerised geometric modelling of spatial</p>	1.5 ECTS	-	Z.Veide

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		objects in subsequent specialised courses.			
VPB A-2,8 (navigators); MPB A-3,2 (engineers); EPB A-3,2 (electrical engineers)	Maritime English	<p>The course texts treat specific aspects of the maritime profession. The course covers the use of the IMO Standard Marine Communication Phrases and procedures for communicating with other ships and coast stations. Also included is the use of English for on-board communications with pilots, with ratings forming part of the navigational watch and with passengers and crew in the event of an emergency.</p> <p>The course deals with the use of charts and other nautical publications on tides and currents, the understanding of navigational information and messages concerning ship safety and operations.</p> <p>The students are made acquainted with ship's correspondence and covers laws and regulations pertaining to safety at sea and the protection of the marine environment. The course uses extracts from operator manuals for navigational equipment; instructions dealing with prevention and detection of fires, the supervision of firefighting, additional hazards of fires in ships, and mobile and fixed firefighting equipment; plus environmental protection and safety of life at sea. (for navigators)</p> <p>Used in the conduct of the course are texts dealing with marine engineering subjects.</p> <p>The course deals with marine engineering terms needed to read and understand manufacturers' technical manuals and specifications, and required to communicate with technical shore staff concerning repairs to the ship and its machinery. Also taught are IMO conventions concerning safety of life at sea and the protection of marine environment. Finally, the course also covers publications dealing with instructions for action in survival craft.</p>	<p>6 ECTS (for Navigators)</p> <p>3 ECTS (for engineers and electrical engineers)</p>	<p>3 (3<sup>rd</sup> year) or 4,5 (1<sup>st</sup> year) ECTS (for Navigators) or 6 ECTS (for engineers and electrical engineers)</p>	<p>M.Sausā I.Buivide- Iremašvili V.Kasakovska</p>
VPB A-2,9	Ship Management	<p>Basic types of ship management; organizational structures of management, functions of structural units; crewing management; documents that regulate technical management, company's policy. Alcohol and drug policy. ISM and MARPOL. Designated person. ISPS code. IACS code. Ships inspection specification and practice of tankers operation. Ship maintenance organization, control systems. Ship maintenance's budget, plan and control. Organization of bunkering operations. Management of accidents and removal of consequences.</p> <p>Basics of ship management; organizational structures of management – Ownership, Commercial and Technical managers' functions and structural units; Responsibility, and documents regulating technical management. Shipman 2009 forms. Company's policy. ISM essence, requirements and</p>	<p>1.5 ECTS (with navigators)</p>	-	<p>J.Brūnavs</p>

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		Certification. Designated person. Classification societies. Class and Statutory Certification. PSC inspections. OCIMF and CDI inspections. Ship building and disposal. Ship maintenance and repair organization, Oil and Chemical Tankers. Voyage and running costs, maintenance's budget, plan and control. H&M insurance, follow up. Shipyards and Ship building. Lay-up and Recycling, Jones act, Valuation of Ships. Bunker purchasing, bunkering, fuel grades and standards. Organization of bunkering operations. Energy saving initiatives and technologies: SEEMP, EEDI, MRV, EEXI. Slow steaming. Alternative fuels and Energy sources: Nuclear, LNG, Methanol, Biofuels, Fuel cells, Cold Ironing. Green Shipping: CO <sub>2</sub> , NO <sub>x</sub> and SO <sub>x</sub> reduction technologies, Ballast water treatment technological equipment. Ships crews, Organization of the crewing. Four pillars -MLC requirements.			
VPB A-2,11 (navigators)	Applied Chemistry	<p>In this specific course of chemistry, material is arranged under the IMO (partly incorporated modules of IMO courses No. 7.01. MO17 and No.7.03. MO16) and STCW-95 competence requirements.</p> <p>In theme „Electrochemical processes” students obtain the knowledge about Galvanic cell as chemical current source, its kinds and calculations of electromotive force, oxidation-reduction processes of galvanic cell, the conception of electrode.</p> <p>The theme „Electrolysis” deals with the processes of electrolysis as a base of metallic coatings as well as metals purifications from additions. The batteries of acids and alkali are discussed further and laboratory work is realized about both themes.</p> <p>Theme „Corrosion of metals and its protection” deals with main kinds of corrosion of metals and its alloy, especially of steel in sea water. There are discussed external and internal factors that are influenced by corrosions. The students get the skills about actual corrosions protection methods on the ship and their complex combination to make effective protection against corrosion in sea water. In this theme laboratory work is realized</p>	-	1.5 ECTS (for 2 <sup>nd</sup> year engineers or 1 <sup>st</sup> year navigators)	S.Gaidukova
VPB A-2,12	Mathematics	The main task of course „Mathematics” is to give knowledge necessary for professional courses LMA. There are considered such parts of mathematics: complex number, determinants, matrices, analytical geometry, mathematical analysis, differential and integral calculations, differential equations, equations of mathematical physics, theory of probability.	4.5 ECTS	4.5 ECTS	I.Veilande

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VPB A-2,13	Mechanical Science for Navigators	The purpose of this course is to Get acquainted with the simplest basics of static, kinematic and strength calculations for marine equipment. In this study course students learn the basics of statics and kinematics, as well as get acquainted with the basics of strength calculations and the most common rotary motion transmissions.	-	1.5 ECTS	I.Boiko
VPB A-3,1	Celestial Navigation	Solar system. Celestial sphere and systems of co-ordinates. Hour angle. Daily motion. Horizontal system of co-ordinates. Altitude and azimuth calculation. Sextant, sextant altitude measure and correction. Amplitude. Compass error determine by stars and Sun. Time and equation of time. Ship's time, chronometer. Nautical almanac. Constellations and navigational stars. Identify of navigational stars using star chart, globe, star finder. Meridian altitude. Latitude calculation by meridian altitude. Pole star. Pole star observations. Position fixing by celestial bodies. Celestial navigation automation principles. Special and universal calculation means.	1.5 ECTS (for 2 <sup>nd</sup> year navigators)	3 ECTS (for 3 <sup>rd</sup> year navigators)	S.Izmailova
VPB A-3,2	Maritime Safety**	Seamen's basic safety course: SOLAS Human protection on board. Action with passengers. Saving people from other ship. Use of life saving appliances: on board, abandoning the ship. Use of life boats and life raft. Lowering and hoisting them. Actions when abandoning the ship. Order which is to be observed in lifeboat. Radio equipment. First aid. Alarm for instruction. Firefighting. Firefighting on board. Firefighting plan and training. Firefighting appliances. Firefighting equipment and signalization maintenance. Fire inspections. Ship accidents. Fire and explosions. Abandoning the ship. Muster plan. Ship floodability insurance. Internal communication system. Internal communication means. Standard maritime communication phrases etc.	3 ECTS	3 ECTS	J.Pempers
VPB A-3,3	Marine Power Plant and Electrical Equipment ( <i>for navigators</i> )	Construction, voltage regulation and parallel operation of marine generators. Ship's main switchboard (MSB), busbars and power lines. MSB instrumentation, protection of generators and motors. Isolation resistance monitoring. Marine electric drives.	1.5 ECTS (for 2 <sup>nd</sup> year navigators)	3 ECTS (for 1 <sup>st</sup> year navigators)	A.Melngailis M.Mališko

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VPB A-3,4 (navigators) PPB A-3,2 (port managers)	Technology of Cargo Transportation	Various cargo transportation technologies: dry cargo, deck cargo, liquid and container cargo. The systems of the cargo and safety rules in the work with order to prepare the cargo room, cargo segregation, ventilation the cargo room, cargo rustication handing the cargo. The process of cargo receiving, accounting calculation and handing over. Cargo supervision in the age. Demand for the cargo system. The service of cargo system. The service trapdoor. Timber loading. IMO Code of safe practice for cargo stowage and security. Heavy cargo loading, transportation and unloading. To disinfection of cargo room and security rule. The dangerous and harmful cargo. International rules of dangerous cargo. International Maritime Dangerous code.	4.5 ECTS Or 1.5 ECTS (with port managers)	-	I.Aleksandrov K.Lūkins
VPB A-3,6	Watchkeeping	International Convention for preventing collision regulations. (COLREG 1972). Safe navigation watch principles. Organization of watch in port. Bridge work organization: bridge recourses, team and work operations. Bridge team management. Using weather routing for planning the voyage. Passage planning.	1.5 ECTS (2 <sup>nd</sup> year navigators)	1.5 ECTS (3 <sup>rd</sup> year navigators)	K.Lūkins
VPB A-3,7	Ship Theory	<p>The purpose of this course is to:</p> <ol style="list-style-type: none"> <li>1. Provide with theoretical knowledge and practical skills to determine and assess ship buoyancy, stability and floatability parameters in accordance with requirements of IMO and classification societies;</li> <li>2. Provide with theoretical knowledge and practical skills to determine environmental resistance to ship movement;</li> <li>3. Provide with theoretical knowledge and practical skills on ship propeller construction and relevant calculations;</li> <li>4. Provide with knowledge on the construction and working principles of engine room systems including shaft and propeller equipment;</li> <li>5. Provide practical skills on stability, trim and stress tables, diagrams and calculating equipment;</li> <li>6. Provide with understanding of the principles of water tightness;</li> <li>7. Provide with understanding of basic measures to be taken in case of partial loss of buoyancy;</li> <li>8. Provide with general knowledge on main constructive elements of the ship and their correct terminology.</li> </ol> <p>Course outline: Ship theory is science about properties of ship dependant on its external shape and location of masses. Ship theory examines laws governing ships seaworthiness capabilities. These capabilities can be called a board set of characteristics which allows it to carry out the functions of the vehicle associated with the movement through water in different weather conditions. Seaworthiness can be conditionally divided into two groups.</p>	-	1.5 ECTS	I.Aleksandrov

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		<p>First group, that comprises capabilities such as floatability, stability and damage control, refers to a stationary condition of a ship in calm water. Ships movement, speed and acceleration are not taken into account while changing the condition of the ship relatively to the water surface. Therefore, this part of the theory of the ship is named as ship statics. Ship statics examines ships floatability, stability and damage stability and control. These objectives without too much difficulty may be examined using methods of technical mechanics and hydrostatics.</p> <p>Second group comprises properties such as ship handling and rolling. These properties are associated with ship movement through the sea surface which is calm very rarely. Properties of this group are examined by ships theory section called ships dynamic. Ships dynamic examines the movement of the ship which is caused due to exposure to different external forces. These objectives are much more complex therefore, acquiring theoretical solutions, even in simplified approach to tasks great difficulties must be overcome. Solving the tasks related to ships dynamic experimental methods are widely used. Ship movement depends on the shape of the hull, the condition of the surface of the hull and propulsion itself. That is why within the framework of ship theory it is divided into two sections. One examines the environmental resistance movement of the ship and the other one examines ship propulsion theory. Issues related to the water resistance to movement of the vessel must be accessed both by ship navigator and ship engineer.</p> <p>Study course complies with STCW convention part A-II/1 un A-II/2 as well as with recommendations of IMO module courses 7.03 and 7.01.</p>			
VPB A-3,8	Ships Construction and Operation	The study course "Ships Construction and Operation" provides students with theoretical and practical knowledge about ships' construction, classification and design, as well as specific features of different types of ships. It deals with design, operational and maintenance requirements of a ship's equipment and systems, as well as assessment of construction strength in various operating conditions	3 ECTS (with 1 <sup>st</sup> year students)	-	K.Lūkins
VPB A-3,9	Ship Handling, Manoeuvring and SAR ( <i>only SAR</i> )	The course texts treat specific aspects of the Search and Rescue (SAR) operations at sea. The course covers the use of the International Aeronautical and Maritime manuals for planning, coordinating and conducting SAR operations. The course also covers overview concerning Global SAR system concept, Latvian SAR national and regional systems functions, and cooperation with neighbouring states.	-	1.5 ECTS	I.Aleksandrov

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VPB A-3,10	Terrestrial Navigation, CP***	<p>Navigation is one of the basic courses in ship management. Acquisition of the study course ensures the competence of ship managers in voyage planning, determination of the ship's location, control of the accuracy of the direction of movement during the watch. Within the course, students learn to measure navigation parameters and evaluate the accuracy of results. Practical classes are dedicated to raising the level of practical skills.</p> <p>The course includes Navigation topics in accordance with STCW Chapter II, Section A-II / 1 and Chapter II, Section A-II / 2 "Navigation at the Management Level" (IMO MC 7.01), with the purpose of preparing students for functions 1.1.1.1 "Voyage planning and navigation for all conditions by acceptable methods of plotting tracks" on board ships.</p> <p>Basic definitions, latitude and longitude, main direction determine on a sea. Course, bearing and course angle. Basic knowledge of chart projections. Navigation charts, information on them, correcting of charts. Electronic chart systems, ECDIS. Measure the distance on a chart. Position lines. Methods of ship's position fixing. Chartwork exercises. Sailings, plane sailing formula. Tides, tidal stream and current. Navigation publication. Lighthouses, buoys, beacons, radio beacons and other navigational marks. IALA systems. Keeping a log. Voyage planning and navigation for all conditions. Great-circle sailing. Ship reporting systems.</p>	3 ECTS (2 <sup>nd</sup> year navigators)	1.5 ECTS (1 <sup>st</sup> year navigators)	Ē.Ziņģis
VPB A-3,11	Navigation Meteorology	<p>The study course "Navigation Meteorology" provides deck officers performance and management level proficiency for dealing with hydro-meteorological information. Students gain theoretical knowledge about meteorological, synoptic, climatic and oceanographic parameters required for practical navigation, as well as practical skills in determination of these parameters and their interpretation.</p> <p>It deals with issues of elaboration of maritime safety in extreme conditions and optimal ship routing based on hydro-meteorological information</p>	1.5 ECTS (2 <sup>nd</sup> year navigators)	1.5 ECTS (3 <sup>rd</sup> year navigators)	J.Žurbins
VPB A-3,12	Radionavigation and Communication Hardware	<p>Description of radio navigation and communication equipment. Equipment performance of worldwide electronic equipment companies. List of prominent radio equipment companies.</p> <p>Acquisition of practical skills with GMDSS equipment. Acquisition of practical skills with GPS SHIPMATE equipment. Acquisition of practical skills with radar FURUNO 1721 equipment. Acquiring a practical skill of distress procedures.</p> <p>Assessment of radar specifications. Hyperbolic navigation systems and basics. Satellite navigation systems and equipment. Global positioning system (GPS),</p>	1.5 ECTS (for 1 <sup>st</sup> or 2 <sup>nd</sup> year navigators)	-	J.Jaunošāns A.Zuts



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		equipment. Assessment of satellite navigation systems. Distance ranging systems. NAVSTAR system. GLONASS system. GALILEO system. Dynamic positioning (DP) systems. Wide area argumentation systems (WAAS, EGNOS. MSAT). Doppler Navigation equipment. Local navigation systems. Regional navigation systems. Further development of radio navigation systems. Automatic Identification system (AIS) performance. Development of AIS Net. LRIT and e-navigation. Integrated navigation systems.			
VPB A-3,15	Environment Maritime Protection	The main aim of teaching the subject is to form a proper knowledge and reach necessary competence standards on providing the implementation of international, regional national pollution prevention requirements in process of operating the ship.	1.5 ECTS (with 2 <sup>nd</sup> year navigators)	-	I.Demjanenko
VPB B/1	Latvian Language	The contents of the course encourage the use of newly acquired vocabulary, which forms a solid basis for further communication. Having completed the course, the learners can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). They can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters as well as describe in simple terms aspects of their background, immediate environment and matters in areas of immediate need.	1.5 ECTS	1.5 ECTS or 3 ECTS	I.Buivide-Iremašvili
VPB A-2,1	Civil Protection	The study course covers basic knowledge on civil protection tasks, regulatory enactments, legal grounds and organisational principles. Information on various types of catastrophes, which may endanger human life, is learned. Upon completion of the course, the students gain the ability to act in the event of natural disasters, explosion, fire, chemical hazardous substances leakage, radiation, are able to evacuate and use protective equipment.	1.5 ECTS	-	A.Buls
MPB A-1,5	Engine Room Resource Management <i>(for Engineers)</i>	During the course obtained knowledge allows to ensure officers function on management level. There are three bases – personal management, management and organization of engine crew, training methods on board. Studying course is based on modern psychology, sociology, personal planning and modern management theories.	-	3 ECTS	R.Klucāns

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MPB A-3,4	Marine Diesel Engines and Turbines <i>(for Engineers)</i>	Knowledge about construction of a marine propulsion plant and auxiliaries, their accurate operation and maintenance. Theoretical basics of a diesel engine. Construction of marine steam turbines and gas turbines. Accurate operation and maintenance of marine turbines.	1.5 ECTS (for 1 <sup>st</sup> year engineers)	1.5 ECTS (for 1 <sup>st</sup> year engineers) & 3 ECTS (for 2 <sup>nd</sup> year engineers)	D.Meteliņš
MPB A-3,8	Marine Electrical Engineering and Electronics <i>(for Engineers)</i>	Basics of electron theory. Types and elements of electric circuits. Ammeters and Voltmeters. Work, energy and power. Ohm's and Kirchoff's laws. Electric conductors. Electric isolation and isolation materials. Magnetism and electromagnetism. Density of magnetic flux. Electromagnetic induction. AC current. Single phase and three phase systems. Calculations in AC systems. Power factor: Basic of electronics.	1.5 ECTS (for 3 <sup>rd</sup> year engineers)	3 ECTS (for 1 <sup>st</sup> year engineers)	G.Lauža
MPB A-3,9	Marine Auxiliaries and Systems <i>(for Engineers)</i>	Considering the study material includes bases of auxiliaries, ship systems, steering gear and refrigerating equipment. There are considered principles of engines' work and aspects of operation that guaranty accident-free work and increase the safety of navigation.	1.5 ECTS (for 2 <sup>nd</sup> year engineers)	3 ECTS (for 2 <sup>nd</sup> year engineers)	M.Rastopčins
MPB A-3, 12	Ship Technical Management	Basic types of ship management; organizational structures of management, functions of structural units; crewing management; documents that regulate technical management, company's policy. Alcohol and drug policy. ISM and MARPOL. Designated person. ISPS code. IACS code. Ships inspection specification and practice of tankers operation. Ship maintenance organization, control systems. Ship maintenance's budget, plan and control. Organization of bunkering operations. Management of accidents and removal of consequences.	-	1.5 ECTS (with engineers)	J.Brūnavs
MPB A-3,18	Water, Fuels and Lubricants Management on board. <i>(for Engineers)</i>	How water is used in diesel engines and steam boilers. Use of oil and lubricant in ships' energy equipment. Maintenance of ships' equipment according to the operation conditions.	-	3 ECTS	M.Fogelis
MPB B,2	Computer Aided Design 1 (AutoCAD)	The course offers in-depth training in design and modelling using Autodesk AutoCAD. 2D and 3D parametric models of the machine components will be created, and assembly of multiple components will be performed using the latest versions of AutoCAD. The goal of the course is to make a student capable of CAD-based designing and 3D modelling of complex machine elements. A variety of tasks will be introduced in the course which will provide step-by-step training to the students and after completing this course the students will be	-	1.5 ECTS	A.Arshad

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		able to not only model but also understand and modify the existing assembly of machines and mechanisms.			
MPB C,3	Engine Room Simulator <i>(for Engineers)</i>	<p>The Engine Room Simulator is a maritime simulator meant for the education, training and assessment of engine department personnel, including officers in charge of watchkeeping, second and chief engineers. The high level of physical and behavioural realism of the simulator creates a professional environment for the following types of marine engineering training:</p> <ul style="list-style-type: none"> <li>• Familiarization and education</li> <li>• Standard operation and watch keeping</li> <li>• Advanced operation and troubleshooting.</li> </ul> <p>Content:</p> <ul style="list-style-type: none"> <li>• Basic physical and technical knowledge</li> <li>• Engine room equipment familiarization</li> <li>• System layout and flow diagrams</li> <li>• Control, Automation, Alarm and Safety systems</li> <li>• Operational instructions</li> <li>• Watch keeping procedures</li> </ul>	3 ECTS	-	R.Klaucāns
EPB A-2, 2	Computer Science and Programming <i>(for Electrical Engineers)</i>	PC operation systems and environment. MS –Windows 98. Applied program packets; text editors; spreadsheets. Performing of professional tasks on MS-Excel. Project presentation using software MS-Power Point. Data base MS-Access. PC network and internet. Phases of solution of a problem; formulation of a problem. Basic structure of an algorithm. Graphical ways of presenting algorithms; types of algorithms. Programming: programming languages, general principles of a language structure. Program finalizing rules. Operators and instructions. Simple programs for different calculations. Analyses of results obtained.	-	3 ECTS	A.Gasparjans
EPB A-2, 3	Electric Machines <i>(for Electrical Engineers)</i>	Induction motors: construction, parameters and characteristics. Single phase and special purpose induction motors. Synchronous machines: construction, parameters and characteristics. Synchronous generator and synchronous compensator. Unbalanced operation processes and transients in synchronous machines. DC machines: construction, parameters and characteristics. Electrical micro machines.	3 ECTS	4.5 ECTS	A.Gasparjans

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EPB A-2, 6	Electrical Engineering ( <i>for Electrical Engineers</i> )	<p><i>SPRING SEMESTER:</i> Elements of electric circuits and graphic symbols. Ohm's and Kirchhoff's laws. Calculation methods of Loop currents and Node potentials. Superposition principle. Nonlinear electric circuits. DC magnetic circuits. Calculations of magnetic circuits. Single phase AC circuits: phasor diagrams, calculations applying real and complex numbers. AC power, power factor, power measurements.</p> <p><i>FALL SEMESTER:</i> Three phase systems with balanced and unbalanced load. Method of symmetrical components. Harmonics in three phase system. Complex (non-sinusoidal) AC waveform analyses: coil with iron core, semiconductor rectifier. Analyses of electric transient processes: classic and symbolic methods.</p>	4.5 ECTS (with 2 <sup>nd</sup> year electrical engineers)	4.5 ECTS (with 1 <sup>st</sup> year electrical engineers)	G.Lauža
EPB C,1 (el. engineers) MPB C,1 (engineers)	Workshop practice	<p><b><i>For electrical engineers</i></b> Electrical safety for working with electro-technical equipment. Electrical measurement instruments and technology. Soldering technology. Relay - contactor circuits: - fault localization - replacement technology of faulted elements. Servicing of DC and AC motors. Servicing of transformers. Assembly technology of electronic Circuits.</p> <p><b><i>For Engineers</i></b> "Workshop Practice" is a complex subject, which contains the basic details of a variety of industrial and technical sectors of metals and alloys used in the processing of various parts and products extraction. "Workshop practice" along with other general technical disciplines - engineering drawing, descriptive geometry, material resistance, theoretical mechanics, machinery and mechanical theory, material technology, machine elements of the course provides the necessary general technical preparedness and provide knowledge of fundamental base on the basis of which students will be able to independently acquire all the new practical mechanics field. During the practice, students acquire theoretical knowledge and practical skills in locksmithing, safety engineering, the construction of the instrument and their application, scribing, locksmith works, applicable instruments enforceable locksmith works, drills and drilling, hand power tools.</p>	4.5 ECTS (with 3 <sup>rd</sup> year electrical engineers) or 6 ECTS (for 3 <sup>rd</sup> year engineers)	4.5 ECTS (with 2 <sup>nd</sup> year electrical engineers) or 3 ECTS (for 2 <sup>nd</sup> year engineers)	I.Boiko (JT-KM) or (JT-KEA)

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		During the practice in mechanical workshop students acquire practical skills working on lathes, milling machines and planers. Calculate cutting modes. Practice culminate in the preparation of reference works, which developed the technological process detail with all the necessary calculations and sketches. Calculate the divider head gear milling.			

*\*The list of the study courses available in English may be amended if such a necessity arises.*

*\*\* The state of health of the students who select the study course on MARITIME SAFETY must comply with the requirements of the International Convention of Training, Certification and Watchkeeping of Seafarers (STCW), adopted on 7th July 1978, as amended, as well as the requirements of the International Labour Organisation.*