VILNIUS GEDIMINAS TECHNICAL UNIVERSITY
LITHUANIAN MARITIME ACADEMY
(VILNIUS TECH LMA)

STUDY COURSES FOR INCOMING ERASMUS+ STUDENTS
2025/2026 Spring

ACADEMIC CALENDAR

SPRING SEMESTER		
	From	**To**
Orientation Days	2026-01-29	2026-02-02
Lectures	2026-02-02	2026-05-24
Examination Session	2026-05-25	2026-06-21
Retakes	2026-06-22	2026-06-28

MARINE NAVIGATION

No.	Course title (EN)	Course title (LT)	ECTS
1.	Maritime English (Pilot, Ship Handling and Watchkeeping Terminology and Language Practice)	*Jūrinė anglų kalba (Locijos, laivo valdymo ir budėjimo laivo tiltelyje terminija bei kalbos praktika)*	5
2.	Ship Construction	*Laivo sandara (Laivo plūdrumas, Laivo įranga)*	6
3.	Ship‘s Electrical and Electronical Equipment	*Laivų elektros ir elektronikos įranga*	3
4.	Ship’s Handling and Manoeuvring	*Laivo valdymas ir manevravimas*	3
5.	Navigation and position determination	*Navigacija ir laivo vietos nustatymas*	5

MARINE ENGINEERING and MARINE ELECTRICAL ENGINEERING

No.	Course title (EN)	Course title (LT)	ECTS
6.	Material Processing and Repair Works at LMA Workshop	*Mokomoji šaltkalvystės ir remonto praktika*	6
7.	Applied Chemistry	*Taikomoji chemija*	3
8.	Electrical Engineering and Electrical Measurement	*Elektrotechnika ir elektriniai matavimai*	6
9.	Mathematical Basics of Engineering	*Matematiniai inžinerijos pagrindai*	3
10.	Ship Auxiliaries terminology and language practice	*Laivo pagalbinių įrenginių terminija ir kalbos praktika*	5
11.	Technical Mechanics	*Techninė mechanika*	4
12.	Ship‘s Machinery Maintenance and Repairs	*Laivo mechanizmų techninis aptarnavimas ir remontas*	4
13.	Engineering Research Methodology	*Inžinerinių tyrimų metodologija*	3
14.	Marine Engineering Project Management	*Jūrų inžinerijos projektų valdymas*	4

GENERAL COURSE

No.	Course title (EN)	Course title (LT)	ECTS
15.	Transport Information Technologies	*Transporto informacinės technologijos*	5
16.	Philosophy and Ethics	*Filosofija ir etika*	2
17.	Language proficiency and academic literacy	*Kalbos kultūra ir akademinis raštingumas*	4
18.	Maritime Transport Economics Basics	*Jūrų transporto ekonomikos pagrindai*	3
19.	Introduction to Maritime English	*Įvadas į jūrinę anglų kalbą*	3

MARITIME TRANSPORT LOGISTICS TECHNOLOGIES

No.	Course title (EN)	Course title (LT)	ECTS
20.	Basics of mechatronics	*Mechatronikos pagrindai*	5
21.	Basics of mechanics	*Mechanikos pagrindai*	3
22.	Basics of electrical and automation technologies	*Elektros ir automatikos technologijų pagrindai*	3
23.	Introductory practice of maritime transport and port technologies	*Pažintinė jūrų transporto ir uosto technologijų praktika*	5
24.	Warehousing and Storage technologies	*Sandėliavimo technologijos*	5
25.	Warehousing and Inventory Distribution Modelling	*Sandėliavimo ir atsargų paskirstymo modeliavimas*	5
26.	International Logistics	*Tarptautinė logistika*	3
27.	Basics of port and shipping management	*Uosto ir laivybos valdymo pagrindai*	3
28.	Commercial law of the sea	*Komercinė jūrų teisė*	3

The course is available if minimum number of students in a group is 5 persons.

If the number is less than 5 students, LMA Erasmus+ coordinator offers another available course and change Learning Agreement.

COURSE INFORMATION

MARINE NAVIGATION

Ship‘s Electrical and Electronical Equipment
3 ECTS
1. Basics of electric circuits; Electrical measurements. Structure of electric circuits, working modes. DC, single-phase and three-phase alternating current circuits. Synthesis of direct current circuits and measurement of basic parameters. Synthesis of alternating current series-connected receiver circuits and measurement of main parameters. Synthesis of alternating current parallel receiver circuits and measurement of main parameters. Analytical study of direct current circuits 2. Ship electrical equipment. Electric machines and drives. Electrical networks and electrical protection devices. Determining the working parameters of the transformer. Study of the working characteristics of an asynchronous motor. Checking the technical condition of the battery 3. Electromagnetic waves. Propagation of electromagnetic waves in space. 4. Elements of radiotechnical schemes. Amplifiers. Generators. Digital and analog communication devices. 5. Principles of radio communication. Modulation and detection, antennas. Radio transmitters. Radio receivers. Ship's means of communication.

Ship Construction
6 ECTS
The aim of the course is to acquire professional competences provided for in the model programs of the International Maritime Organization: (English Model Course): 7.03 "Officer in Charge of Navigational Watch, 2014" and 7.01: "Master and Chief Mate, 2014" and to comply with the International Convention on the Training of Seafarers, the provisions of certification and watchkeeping standards with amendments (abbreviated in English - STCW). The subject is intended for future ship management specialists to get to know and provide knowledge about ship hull structures, hull overlap assembly schemes, to know and apply knowledge about the structural features of the ship's hull, which guarantee the strength, buoyancy and unsinkability of the ship's hull. In the shipyard and on the ships, they are introduced to the construction of ship hulls, individual parts of ship hull constructions, assembly of ship hulls, welding, materials used for ship hull construction. Final assessment - exam. The subject is subject to a cumulative assessment system.

Ship’s Handling and Manoeuvring
3 ECTS
The aim of the subject is to achieve the professional competences provided for in the model programs: 1.2 "Operation of a safe navigational watch" and 1.8 "Transmission and reception of information using visual signalling" and 1.9 "Manoeuvring the ship" (Model Course 7.03: Officer in Charge of a Navigational Watch, 2014 "). Fully complies with the provisions of the International Convention on Standards of Training, Certification and Watchkeeping of Seafarers as amended (abbreviated as STCW). The subject is intended for future ship management specialists to master Parts C, D and Appendices of the International Rules for the Prevention of Collisions at Sea, to transmit and receive information using visual signalling, to familiarize themselves with the basics of ship management and manoeuvring. Be able to collect, process, evaluate and apply all this information directly in the execution of swimming and manoeuvring procedures. While studying the subject, students acquire the following skills and knowledge: they learn to safely manage, manoeuver, moor, anchor a ship in various sailing and hydrometeorological conditions, in various sailing areas, they are able to analyze the International Rules for the Prevention of Ship Collisions in the required scope, apply them in practice, they learn to receive and transmit various information using visual signalling.

Navigation and position determination
5 ECTS
The purpose of the subject of navigation and navigation is to provide basic knowledge and practical skills to professionally plan a voyage and carry out ship management, determine the position of the ship by various methods, use charts and other maritime publications, correct them, select their set necessary for the voyage, recognize the signs of the marine marking system and use them for safe navigation ensure, use tide tables and calculate tide parameters, make a graphic representation of the ship's path, use all available navigational equipment, adjust it correctly for proper use, know the operational limitations and reliability of the equipment. The description of the study subject was prepared in accordance with the model course of the International Maritime Organization (English Model Course 7.01 "Master and Chief Mate", 7.03 "Officer in charge of a navigational watch").

Maritime English (Pilot, Ship Handling and Watchkeeping Terminology and Language Practice)
5 ECTS
The aim of the study module is to develop students' ability to use maritime English in order to facilitate communication in accordance with their duties and responsibilities, using maritime terms rather than regulatory radio expressions and to ensure that students have sufficient knowledge, understanding and proficiency in using marine English, Certification and Watchkeeping (STCW) Code, and to develop lifelong learning skills, providing an opportunity to further develop English language skills at sea. The description of the study module is prepared in accordance with the International Maritime Organisation's Model Course "Maritime English 3.17". The study module is taught for four semesters. Assessment for module subjects - exam, final assessment for module - exam with commission. A cumulative valuation system is in place.

MARINE ENGINEERING and MARINE ELECTRICAL ENGINEERING

Material Processing and Repair Works at LMA Workshop
6 ECTS
To provide theoretical knowledge and practical skills necessary for watchkeeping in the ship's engine department, as outlined in the competencies specified in Table A-III/1 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978/95. During practical training sessions, students learn to use hand tools and measuring instruments for disassembling, maintaining, repairing, and assembling ship machinery and equipment. They are trained in fitting, turning, milling, electric and gas welding, and gas cutting techniques. Students acquire hands-on skills in repair and assembly work. The introductory fitting practice is carried out in the mechanical workshops of the VILNIUS TECH Lithuanian Maritime Academy, and the repair practice is conducted in mechanical workshops and ship repair workshops.

Mathematical Basics of Engineering
3 ECTS
To provide practical skills in the application of fundamental higher mathematics methods necessary for solving specialty-related problems, describing the operating principles of ship mechanisms and instruments, as well as understanding and analyzing analytical data of ship power systems. To develop a system of skills and abilities for applying mathematical knowledge in practice. To foster the ability to identify and classify technical problems in interaction with the environment, to model mathematically-based situations using algebraic expressions, functions, equations, inequalities, and systems of equations and inequalities; to know their solution methods and justify the obtained results when solving various tasks related to the operation of ship power systems and preparing projects aimed at solving these problems.

Engineering Research Methodology
3 ECTS
To be able to carry out applied research in maritime transport engineering, to independently and collaboratively analyze the obtained results, and to prepare a maritime engineering project by planning activities within time and budget constraints, while adhering to the norms of verbal and written communication. At the level of engineering research methodology, to understand and be able to design an engineering research project, select and apply appropriate research methods and tools, compile and process data sets using computer software, analyze, evaluate, interpret, and present research results.

Electrical Engineering and Electrical Measurement
6 ECTS
To provide basic knowledge about the fundamental laws of electrical engineering, electrical concepts, the essential differences between direct and alternating current circuits, their structure, and simplification methods through the investigation and analysis of electrical parameters. To understand the purpose and errors of analog and digital measuring instruments used on ships. During practical laboratory work, to properly use measuring instruments, understand their numerical values in order to measure electrical parameters as accurately as possible while investigating electrical circuits, analyzing, and processing data. To independently assemble basic electrical circuits, understand their operating principles, analyze them, and interpret results by selecting appropriate methodologies. The objective of the study subject is focused on developing engineering logical thinking through independent electrical parameter measurements and evaluation of electrical systems. The course description is prepared in accordance with the International Maritime Organization's Model Courses for engineers: 7.02 "Chief Engineer Officer and Second Engineer Officer", and 7.04 "Officer in Charge of an Engineering Watch".

Applied Chemistry
3 ECTS
The aim of the subject is to provide knowledge about the most important laws of chemistry, the essence of chemical processes and phenomena, the properties of chemical elements and their compounds, the physical and chemical properties of fuels and lubricants. Develop the ability to recognise chemical processes in nature and technology, metal corrosion processes, electrochemical processes occurring in galvanic elements and batteries; ability to understand new technologies in theory.

Technical Mechanics
4 ECTS
The aim of the Technical Mechanics course is to provide fundamental and up-to-date knowledge in the field of marine engineering studies, enabling students to understand the general laws and regularities of natural sciences and mathematics. The course provides essential knowledge to comprehend the basic principles of statics and dynamics, to analyze their effects on structures under consideration, and to understand the loads acting on ship mechanisms, component overloads, and related issues. It introduces analytical and modelling methods that help solve various operational problems of mechanical systems. The course offers theoretical knowledge that allows students to independently create and draw load diagrams of components. After completing this course, students will understand general natural science principles and laws, recognize the impact of various loads on the operation and longevity of ship mechanisms, analyze and evaluate the influence of these factors on the performance of mechanisms and equipment, understand ship mechanism design methodologies, and be able to solve operational problems of ship mechanisms using appropriate analytical and modelling methods. The course also aims to develop students' personal qualities by fostering general competences such as mathematical, logical, and analytical thinking, and the ability to collect and evaluate information.

Ship‘s Machinery Maintenance and Repairs
4 ECTS
The aim of the course is to acquire fundamental knowledge, engineering thinking, and practical skills necessary for the maintenance, planning, and preparation of ship power plants for technical inspections by a classification society and for company repair procedures. During practical sessions, professional competencies are developed by selecting appropriate measuring devices, tools, and equipment, performing fault detection and maintenance of power systems, as well as mastering typical repair methods for components and conducting various tests after repairs. The course description is prepared in accordance with the International Maritime Organization (IMO) Model Courses for marine engineers No. 7.02 “Chief Engineer Officer and Second Engineer Officer” and 7.04 “Officer in Charge of an Engineering Watch”.

Marine Engineering Project Management
4 ECTS
To introduce students to maritime engineering projects. To provide students with knowledge about the procedures for preparing and evaluating projects, as well as project management tools and methodologies. During practical sessions, students learn to formulate a project idea, objectives, and tasks. Students independently prepare and present a project justification, in which the project is assessed from various perspectives (technical, economic, environmental, etc.), and a project implementation plan is prepared. The course description is prepared in accordance with the International Maritime Organization’s Model Courses No. 7.02 “Chief Engineer Officer and Second Engineer Officer” and No. 7.04 “Officer in Charge of an Engineering Watch”.

Ship Auxiliaries terminology and language practice
5 ECTS
The aim of the study module is to develop students' ability to use Maritime English in order to facilitate communication according to their duties and responsibilities, using maritime terminology and standard radio communication phrases. It also aims to ensure that students have sufficient knowledge, understanding, and proficiency in using Maritime English, as specified in the STCW (Standards of Training, Certification, and Watchkeeping) Code, and to foster lifelong learning skills by enabling further development of English language competence at sea. The module description is prepared in accordance with the International Maritime Organization’s Model Course “Maritime English 3.17”.

MARITIME TRANSPORT LOGISTICS TECHNOLOGIES

Commercial law of the sea
3 ECTS
Based on the fundamental concepts of legal theory and maritime commercial law, to explain and apply the rules of maritime commercial law and international trade in the economic activities of port and shipping companies, in legal relations with port structures, partners and clients in the maritime transport sector, distributing the responsibilities of legal entities, cargo owners, carriers, and intermediaries when organizing and executing cargo transportation by sea, as well as passenger and baggage transport, etc. To analyze and summarize case law in the field of maritime commercial law, to be able to find, update, and apply legal information in professional activities, to work with legal sources independently and in a team, and to communicate both orally and in writing.

Warehousing and Storage technologies
5 ECTS
Warehousing and Inventory Distribution Modelling
5 ECTS
To provide knowledge about the main functions and tasks of warehouse logistics systems. To understand the company's logistics system and its specifics. To know the factors that determine the company's warehouse logistics system. At the consumer level, students are introduced to company warehouse systems and their characteristics: general cargo, bulk, container, Ro-Ro, liquid, heavy, and oversized cargo storage technologies in ports and logistics service companies. After completing the course **Warehousing and Storage technologies**, students will be able to analyze the main infrastructure elements, equipment, and machinery of warehouse logistics systems at the technology level, understand and select the appropriate warehouse logistics system, equipment, and machinery for specific cargo, identify and evaluate the factors that affect the infrastructure, equipment, and machinery of the company's warehouse logistics system. Through practical sessions and field lectures, students will become familiar with the infrastructure, equipment, and technology of warehouse systems: general cargo, container, Ro-Ro, heavy, and oversized cargo storage technologies. At the **Warehousing and Inventory Distribution Modelling** level, students will be able to apply mathematical modelling principles and methods to solve warehouse, cargo transportation, optimal route planning, and inventory management problems; identify the problematic area in a specific situation, create a mathematical model, i.e., write the objective function, constraints, and determine the optimality criteria. For the developed mathematical model, students will select the appropriate method, find the optimal (best) solution, and be able to evaluate the results. Specialized software will be used for solving optimization problems and visualizing the solutions.

International Logistics
3 ECTS
After completing the course, students should be able to understand the concept of a freight forwarder, analyze the specifics of the freight forwarding process and the nature of the cargo, compare the activities of a freight forwarder with those of other business entities, identifying differences and limits of responsibility based on the legal framework. Students should be able to prepare a transport plan and a full set of accompanying documents for a specific cargo, and summarize best practices gained from field visits to professional workplaces by analyzing and comparing various cargo forwarding schemes. At the **International Logistics** level, students should be able to select, highlight, and analyze the most important updates in international conventions and legal regulations governing international cargo movement, as well as the requirements and procedures of regulatory authorities. They should be able to analyze international logistics corridors, considering national and EU transport policy, development strategies, and sustainable economy factors; evaluate the role of each type of transport and the application methods of logistics technologies, and understand their interconnection with maritime transport, revealing the integrative functions of the maritime business and other economic sectors.

Basics of electrical and automation technologies
3 ECTS
Objectives of the study program: to prepare an electronics and electrical engineering specialist with the knowledge, abilities and skills required to professionally design, install, maintain, repair and operate automatic, electronic and electrical control systems. To form the first independent design work skills of these systems. The goals of the subject are focused on the improvement of the student's personal qualities, achieved by developing and deepening the following general abilities: engineering thinking, analytical thinking, the ability to make decisions independently, and forming lifelong learning skills.

Basics of mechatronics
5 ECTS
The study of the basics of mechatronics aims to provide knowledge, thanks to which it would be possible to theoretically understand and analyze the structure and complexity of marine technology systems, programming principles of industrial technological devices, control methods and technologies, and compare different systems in terms of reliability. During the practical's, the aim is to develop the necessary skills to select suitable and adequate mechanical components, sensors, drives, actuators for the technological process, to design port addressing schemes. Also independently prepare, test and analyze basic signal generation and conceptual equipment control programs for technological processes in the PLV emulator.

Basics of mechanics
3 ECTS
The purpose of mechanics studies is to provide basic and up-to-date knowledge of the field of marine engineering studies, allowing students to understand the general regularities and laws of natural sciences and mathematics, to provide basic knowledge that will allow understanding the basic laws of statics and dynamics, to analyze their effects on the constructions in question, to understand the working mechanisms of ships loads, overloads of parts and related problems, to familiarize with analytical and modelling methods that will help to solve the problems encountered in the operation of various mechanisms. To provide theoretical knowledge that will allow you to independently compile and draw detail loading schemes. After completing this course, the student will know the general laws and regularities of natural sciences, will understand the influence of various loads on the operation and durability of ship mechanisms, will analyze and evaluate the influence of these factors on the work of mechanisms and devices, will know and understand the design methodologies of ship mechanisms, will be able to solve the problems of the operation of ship mechanisms by applying appropriate analytical methods and modelling techniques. The goals of the subject are focused on improving the student's personal qualities by developing the following general abilities: mathematical, logical and analytical thinking, the ability to accumulate and evaluate information.

Introductory practice of maritime transport and port technologies
5 ECTS
To connect the theoretical knowledge and the knowledge gained during practicals with practical activities in sea cargo companies, organizing the process of sea cargo, and applying the acquired experience in solving practical problems of sea cargo technologies, assessing the real operating conditions in the port, sea cargo, shipping, agency, forwarding and other activities in companies, analyzing practical information about maritime business activities, operational processes and results of individual branches of the maritime sector. Comply with occupational safety rules, work independently, individually and in a team, improve technological literacy, develop creativity, communication skills. The subject is taught for one semester.

Basics of port and shipping management
3 ECTS
To explain the concept of a port, distinguishing between port types and their organizational structures; to present the services related to the maritime business and their functions; to introduce the classification of ports based on their activities and services; to analyze the significance of ports for national economic and business development; to explain the principles of containerization, highlighting its advantages and disadvantages; to present the main cargo handling equipment, cargo handling procedures, and types of cargo. To expand the vocabulary of essential maritime English terms, and to improve grammar and speaking skills.

GENERAL COURSE

Language proficiency and academic literacy
4 ECTS
To understand the concept of professional language and acquire the skills to use it correctly in various professional communication and work situations. To become familiar with the main features of Lithuanian language policy, the degrees of language norm violations, the key aspects of Lithuanian language etiquette, and the requirements of public and private communication. During practical sessions and independent work, to be able to identify and correct the most common professional language errors and shortcomings. To use standard Lithuanian language correctly when preparing professional documents (project reports, coursework, etc.). To develop lifelong learning skills, the ability to work in a multicultural environment, and to make independent decisions.

Maritime Transport Economics Basics
3 ECTS
Based on the concept of a market economy, to analyze and justify the main micro- and macroeconomic phenomena and their trends, and to develop economic thinking and literacy. By applying the laws of economic theory, to assess the position of the shipping business within the economic system, to describe and evaluate the performance indicators of a vessel, taking into account the maritime transport business environment. To be capable of making rational decisions and implementing effective engineering solutions aimed at economically beneficial outcomes.

Applied Mathematics and Programming
5 ECTS
To provide basic knowledge of linear algebra and mathematical analysis and introduce the basics of programming in the R environment. Develop the ability to analyze, model and evaluate social and economic phenomena by applying the laws of mathematical analysis and linear algebra. Develop logical thinking and mathematical literacy. The form of settlement is an exam. A cumulative evaluation system is applied.

Philosophy and Ethics
5 ECTS
Applying erudition to be able to think universally and critically, to evaluate and predict the development of the relationship between science, technology and culture, to formulate issues relevant to professional life at the personal and social level. A cumulative valuation system is in place.

Transport Information Technologies
5 ECTS
To provide knowledge about IT, transport IS and online services in order to form complex computer literacy skills, which allow to critically evaluate, select and effectively manage IS functions in professional activities. Use the latest information retrieval and communication tools. To apply modern means of preparation of text documents and spreadsheets in professional activities and to utilize their functionality. To provide theoretical knowledge and practical skills about the preparation and management of technical documentation, applying the requirements of Lithuanian and European standards for the performance and execution of drawings. Be able to understand the drawings of the ship's construction documentation. To develop skills in using computer graphics AutoCAD design possibilities, methodology of working with it and creation of graphic documents - drawings by computer. Acquired theoretical knowledge and practical skills of drawing and analysis of drawings, applied in the study of specialty subjects, preparation of term papers, diploma theses, as well as in further work activities. Final assessment - exam. A cumulative valuation system is in place.

Introduction to Maritime English
3 ECTS
The aim of the study module is to develop students' ability to use Maritime English in order to facilitate communication according to their duties and responsibilities, using maritime terminology and standard radio communication phrases. It also aims to ensure that students have sufficient knowledge, understanding, and proficiency in using Maritime English, as specified in the STCW (Standards of Training, Certification, and Watchkeeping) Code, and to foster lifelong learning skills by enabling further development of English language competence at sea. The module description is prepared in accordance with the International Maritime Organization's Model Course "Maritime English 3.17".