University of Kyrenia
Faculty Of Maritime Studies
Marine Engineering
Course Content

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH101	**Calculus I**	**3,2,0**	**4**	**6**	**Compulsory**
This course is designed to develop the topics of differential and integral calculus. Emphasis is placed on limits, continuity, derivatives and integrals of algebraic and transcendental functions of one variable. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to derivative-related problems with and without technology.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MPH101	**Physics for Mariners I**	**3,0,2**	**4**	**6**	**Compulsory**
This course is designed to get familiar and understand conceptually topics of physics and mechanics. To apply the methods of solving elementary mechanics problems that leads to the first insights into the rudiments of related fields in engineering sciences. To analyze the kinetic problems of one dimension and two dimensions motions by using vectors. To apply the fundamental methods of motions due to applied forces. To apply and integrate the basic physical sciences and the principles of engineering sciences into working practical knowledge.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
CHE101	**Marine Chemistry**	**2,0,1**	**2,5**	**3**	**Compulsory**
Engineering basis chemistry knowledge in an oceanographic major element in seawater, and the chemical composition of seawater. Minor elements in seawater and their importance in phytoplankton development. Origin and characterization of particulate matter in seawater, Redfield reports. Residence time of elements in the ocean. Chemical analysis in the marine environment: from sampling to the final results. Water masses in the ocean and changes in the chemical properties of marine waters on corrosion and prevention adaptation.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
SAF101	**Maritime Safety I**	**2,3,0**	**3,5**	**4**	**Compulsory**
The course will be carried out according to the IMO Model Courses 1.13, 1.21, 3.26, 3.27, and the national regulation “Egitim Sinav Yonergesi 2018” of the Turkish Republic. Successful students will be eligible to obtain mandatory STCW certificates of (1); Personal Safety and Social Responsibility, (2); Security Familiarization, (3); Security Awareness, (4) Designated Security Duties, and (5) Elementary First Aid. The contents of the course are; Introduction to Safety and Emergencies. Introduction to SOLAS, MARPOL, ISM and ISPS. Ship and Safety Familiarization. Safety on board and its					

applications. Personal safety and social responsibilities on board (Emergency Procedures, Safe Working Practices, Pollution Prevention, Effective Communication and Human Relations, Avoiding fatigue). Location, familiarisation and usage of personal life-saving appliances on board. Maritime Security Awareness and Training. Elementary first aid, including lab practice in the university hospital					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MRE101	**Introduction to Marine ENG**	**2,1,0**	**2,5**	**3**	**Compulsory**
At the end of the second semester, students will have the opportunity to participate in a two-month summer shipboard training program. This program aims to provide students with hands-on experience and basic knowledge about ship machinery in preparation for their future internships. During this training, students will have the opportunity to work directly with ship machinery, gaining practical skills and familiarizing themselves with the operation, maintenance, and troubleshooting of various onboard systems. This valuable experience will enhance their understanding of the maritime industry and prepare them for their future careers as seafarers.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MTH101	**Technical Drawing**	**1,2,0**	**2**	**4**	**Compulsory**
Technical Drawing offers prerequisite knowledge and skills for a number of the technical and vocational areas of work. The subject helps students to develop spatial intelligence, imaginative and drawing skills so that they would become creative and help to solve many of the social, economic and professional problems that need designs before production.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED101	**Workshop I**	**0,0,4**	**2**	**4**	**Compulsory**
The aim of Workshop I is to teach safety protection in workshops, marking of the materials, usage of hand tools and measurement techniques for production. Joint and welding basic knowledge and entry to the welding process.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MEC205	**Material Science**	**2,0,0**	**2**	**1**	**Compulsory**
The aim of material science is to teach methods of production of cast iron, steel and nonferrous metals. Designation and classification of all metals the principle of metal casting. The plastic working of metals and its principles. Classification and assessment techniques of materials and welding techniques and principles. Material improvement and heat treatment technology basics. Marine engineering materials and essential criteria on different applications.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
AIT101	**Ataturk's Principles**	**0,0,0**	**0**	**1**	**Compulsory**

The reasons that prepared the collapse of the Ottoman Empire and the Turkish Revolution. Disintegration of the Ottoman Empire, Tripoli War, Balkan Wars, First World War. Armistice of Mudros. The situation of the country in the face of the occupations and the reaction of Mustafa Kemal, the departure of Mustafa Kemal to Samsun. The opening of the Turkish Grand National Assembly of the National Struggle. Treaty of Sevr. The Lausanne Peace Treaty. Atatürk's Principles: Republicanism, Nationalism. Populism, Statism. Secularism, Revolutionism.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TUR101	**TUR101**	**0,0,0**	**0**	**1**	**Compulsory**

Reading passages related to the chapter; grammar studies; vocabulary and translation activities; listening activities; debates on current issues related to the department (Repetition of tenses, Internet history, Health and medicine, passive frameworks, Social issues, Environmental issues, Repetition of modals, Law and punishment, repetition of adjective phrases, Language and Literature, Repetition of noun phrases

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH102	**Calculus II**	**3,2,0**	**4**	**6**	**Compulsory**

This course is designed to develop the topics of series, parametric equations, vector and surfaces, vector valued functions, partial differentiation, multiple integrals and vector calculus. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to vector calculus, parametric equations and polar coordinates, multiple integrals problems with and without technology.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MPH102	**Physics for Mariners II**	**3,2,0**	**4**	**6**	**Compulsory**

This course is designed to get familiar and understand conceptually topics of physics and electromagnetic. To get familiar and understand conceptually topics of electromagnetism. To apply the methods of solving elementary electromagnetism problems that lead to the first insights into the rudiments of related fields in engineering sciences. To analyze simple resistive circuits. To apply the fundamental methods of Circuit theory on DC circuits. To apply and integrate the basic physical sciences and the principles of engineering sciences into a working practical knowledge.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC203	**Statics**	**3,0,0**	**3**	**4**	**Compulsory**

The aim of static is an understanding of the theory and applications of basic engineering mechanics, including a review of vectors, the computation of resultant forces, the equations for equilibrium of particles and rigid bodies, calculation of center of gravity and moment of inertia, structural analysis of trusses and dry friction.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course

SAF102	Maritime Safety II	2,1,0	2,5	3	Compulsory
The course will be carried out according to the IMO Model Courses 1.19, 1.20, 1.23, and the national regulation “Egitim Sinav Yonergesi 2018” of the Turkish Republic. Successful students will be eligible to obtain mandatory STCW certificates of (1); Personal Survival Techniques, (2); Fire Prevention and Fire Fighting, (3); Proficiency in Survival Crafts and Rescue Boats (Other than Fast Rescue Boats). The contents of the course are; Mustering in emergencies onboard. The operation, maintenance, launching and recovery of Survival Crafts and Rescue Boats. Evacuation procedures and survival techniques at sea. Dangers, life and best practices in survival crafts. Preventing and fighting fire onboard. Firefighting methods, operation and maintenance of the firefighting equipment.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED104	**Diesel Engines I**	**2,0,2**	**3**	**5**	**Compulsory**
The aim of Diesel Engines is to gain knowledge about Diesel Engine theory, Diesel Engine’s thermodynamic cycle dealing with the fuel burning synthesis for different fuel types in terms of internal combustion engine. Diesel engine parts and kinematic components are the main course objective on marine diesel engines.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED106	**Maritime English I**	**2,0,0**	**2**	**3**	**Compulsory**
The aim is to build up necessary vocabulary on marine engineering terminology that will be used as technical documentation, main source objectives related to machinery on marine engineering path and assist students in a certain reading comprehension.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED102	**Workshop II**	**0,0,4**	**2**	**4**	**Compulsory**
Workshop equipment usage for production and joint applications. Marine repair techniques on carbon steels and other structural ship elements under safe working obligations.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
PED102	**Physical Education**	**0,2,0**	**1**	**2**	**Compulsory**
This couse is designed to improve the physical fitness of the students which will help them during their seagoing training for better adaptation and maintaining good physical condition.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
CMP152	**Introduction to Computer**	**2,0,0**	**2**	**3**	**Compulsory**

This course is designed to give students an understanding of how a computer works its capabilities, limitations, and applications. This course is intended as a first computer course and it is not assumed that the student has background knowledge on the subject. The course will focus on theoretical issues during the first period, followed by application and hands-on skills.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MTH112	**Linear Algebra**	**3,0,0**	**3**	**5**	**Compulsory**

Systems of linear equations: elementary row operations, echelon forms, Gaussian elimination method; Matrices: elementary matrices, invertible matrices, symmetric matrices; Determinants: adjoint and inverse matrices, Cramer's rule. Vector spaces: linear independence, basis and dimension, Euclidean spaces. Linear mappings: matrix representations, changes of bases; Inner product spaces: Cauchy-Schwarz inequality, Gramm-Schmidt orthogonalization; Eigenvalues and eigenvectors: characteristic

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEL201	**Introduction to Marine Electronics**	**2,1,0**	**2,5**		**Compulsory**

Introduction to Electronics is intended to be offered for engineering studies; students who are planning to become a captain or mechanic. Topics include practicing diodes in circuits, transistors, transistors in circuits, transistor amplifiers. Field effect transistor. Feedback amplifiers and oscillators. Power amplifiers. Multi vibrators. Modulation. Antennas and Propagation of electromagnetic waves.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED201	**Operation and Maintenance of Main and Auxiliary Machinery I**	**3,0,2**	**4**	**5**	**Compulsory**

It is to provide basic information about the ship machinery operations related to the purpose of maintenance and repair methods of operation of ship main and auxiliary machines. During the life of the machine, the manufacturer's product inspection controls handle the spare part information, operation, disassembly and mounting details of different machine concepts for different machine types, with the size criteria of large parts. The course is at operational level and aims to improve the student in terms of preparation before the internship.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED203	**Marine Auxiliary Machinery I**	**2,1,0**	**2,5**	**4**	**Compulsory**

The aim of Marine Auxiliary Machinery I is to gain basic knowledge about the different types of pumps, valve sand piping systems used in main and auxiliary ship systems.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC207	**Thermodynamics I**	**3,0,0**	**3**	**5**	**Compulsory**
The aim of thermodynamics I is to gain basic knowledge about the fundamental concepts of energy and energy transformations with focus on engineering utilization of thermodynamic principles. The system description is done and the first law of thermodynamics is described in detail. The application of the first law of thermodynamics on different types of steady-state devices and cycles will be carried out.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
NRC201	**Ship Construction**	**2,2,0**	**3**	**4**	**Compulsory**
In this course students will acquire knowledge about the construction and general arrangement of ships and various components of the vessel. They will learn about the layout and design of the ship, including the arrangement of holds, engine room, peak tanks, double-bottom tanks, hatchways, bulkheads, cargo tanks, deck plating, frames, brackets, transverse frames, deck beams, shell plating, and other relevant structural elements. Additionally, this course will provide studentswith a comprehensive understanding of the minimum requirements for training seafarers on tanker ships, as specified by the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW). They will learn about the essential knowledge and skills needed to operate and work on tanker vessels safely and efficiently.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MEC210	**Strenght of Materials**	**3,0,0**	**0**	**3**	**Compulsory**
Strength of Materials is the foundation for Engineering design courses. The course covers material behaviour, stresses, strains and deformations with simple applications in engineering designs					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MTH201	**Differential Equations**	**3,0,0**	**3**	**5**	**Compulsory**
First order ordinary differential equations. Higher order homogeneous linear differential equations. Solution space. Linear differential equations with constant coefficients. Non- homogeneous linear equations; variation of parameters, operator methods. Systems of linear differential equations with constant coefficients. Laplace Transforms. Power series solutions. Orthogonal functions and Fourier expansions. Introduction to partial differential equations. First and second order linear partial differential equations. Separation of variables. Heat and wave equations					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MTH301	**Numerical Analysis for Engineers**	**2,0,0**	**2**	**4**	**Compulsory**

This course will emphasize the development of numerical algorithms to provide solutions to common problems formulated in science and engineering. The primary objective of the course is to develop the basic understanding of the construction of numerical algorithms, and perhaps more importantly, the applicability and limits of their appropriate use. The emphasis of the course will be the thorough study of numerical algorithms to understand (i) the guaranteed accuracy that various methods provide, (2) the efficiency and scalability for large scale systems. And (3) issues of stability. Topics include the standard algorithms for numerical computation.

Course Code	Course Name	(Theory , Appl, or Lab)	CREDIT	ECTS	Compulsory/Elective Course
MEC204	**Dynamics**	**3,0,0**	**3**	**5**	**Compulsory**

Kinematics and kinetics of particles; Newton's laws, energy and momentum methods; system of particles, kinematics and kinetics of planar motions of rigid bodies; plane motion of rigid bodies. Develop an understanding of particle and planar rigid body kinematics and kinetics. Obtain an understanding of Newton's Laws of Motion, and the ability to apply energy and momentum methods to particles and rigid bodies in planar motion.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC306	**Fluid Mechanics**	**2,2,0**	**3**	**5**	**Compulsory**

Course material includes an introduction to the concepts and applications of fluid mechanics and dimensional analysis with an emphasis on fluid behavior, internal and external flows, analysis of engineering applications of incompressible pipe systems, and external aerodynamics, ideal fluid flow including potential flow theory, and computer solutions in ideal fluid flow.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED202	**Marine Auxiliary Machinery II**	**2,1,0**	**2,5**	**4**	**Compulsory**

The aim of Marine Auxiliary Machinery II is to gain basic knowledge about the different types of pumps used in main engine and loading and unloading operation. Also pipelines on ships, mooring winches, windlass, cranes, davits crane and steering gears will be distinguished.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SAF214	**Maritime Safety III**	**2,2,0**	**3**	**5**	**Compulsory**

The course will be carried out according to the IMO Model Courses 1.24, 1.28, and the national regulation "Egitim Sinav Yonergesi 2018" of the Turkish Republic. Successful students will be eligible to obtain mandatory STCW certificates of (1); Proficiency in Fast Rescue Boat, (2); Crowd Management, Passenger Safety and Safety Training for Personnel Providing Direct Services to Passengers in Passenger Spaces. The contents of the course are; Assisting passengers for assembling in Muster Stations in emergencies. The operation, maintenance, launching and recovery methods of the

Fast Rescue Boats. Abandoning Ship / Evacuation Procedures in cargo and passenger ships. Evacuation procedures and survival techniques at sea.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
SWM202	**Swimming**	**0,2,0**	**1**	**2**	**Compulsory**

The course "Swimming Principles and Practical Application" focuses on teaching students the essential principles of swimming and providing practical training in a pool environment. The primary objective of this course is to ensure that students possess the necessary swimming skills and water survival techniques in case of emergencies or dangerous situations at sea, such as fires or abandoning the ship. Swimming proficiency is crucial for the safety and survival of seafarers during such incidents.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED301	**Marine Electrotechnology I**	**2,1,0**	**2,5**	**3**	**Compulsory**

Electrical circuits, diagrams, distribution panels, fuses. All electrical machineries, Working principle of AC DC transformers, electric motors and generators, starters of motors, mono-phase and three phase electricity. Maintenance, determination of disorders and repair. Precautions for safety on marine applications.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED303	**Marine Engine's simulator**	**1,0,3**	**2,5**	**4**	**Compulsory**

The aim of the Engine Room Simulator course is to demonstrate full functional engine room and vessel applications to the students under the STCW code 6.10 model course and regulation. The aim of the lecture is to improve practical usage of theoretical knowledge under supervision of different scenarios. Students will gain habits for critical thinking and risk management. Handover procedures will lead them to live in a team management activities to prepare vessels.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED305	**Marine Diesel Engines II**	**2,0,2**	**3**	**4**	**Compulsory**

The aim of ıntroduction to marine engineering is to gain knowledge about the ıntroduction to marine equipment, Main Engines, Aux. Engines dealing with the operation and maintenance of parts of engines. Main and auxiliary diesel engines, Supportive systems of Main propulsion engines and auxiliary diesel engines. Operational facilities and activities on diesel engines. Watchkeeping on engine operations with diesel engine auxiliary systems.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course

MED307	Hydraulic Pneumatic & Automatic Control	2,0,1	2,5	4	Compulsory

The aim of Hydraulic & Pneumatic covers the basics of pneumatic, electro pneumatic and hydraulic control circuits in a complex mechatronic system. Students will learn the functions and properties of control elements based upon physical principles, and the roles they play within the system. Technical documentation such as data sheets, circuit diagrams, displacement step diagrams and function charts will also be covered. By understanding and performing measurements on the pneumatic and hydraulic control circuits, students will learn and apply troubleshooting strategies to identify, localize and correct malfunctions. Preventive maintenance of (electro) pneumatic and hydraulic components as well as safety issues within the system will be discussed.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAN301	Maritime Management I	2,0,0	2	2	Compulsory

This course is designed to provide students with the necessary knowledge and skills to effectively manage the crew and ensure the safe operation of the ship. This course is in line with the 1995 revision of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW-78).

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
LAW351	Maritime Law and International Marine Conventions I	3,0,0	3	4	Compulsory

In this module on the international law of the sea, students will be introduced to the comprehensive legal framework governing maritime activities. The module covers various aspects of international law related to the sea, including jurisdictional zones and principles recognized in international law. The module begins by exploring the principles and regulations governing the territorial sea, archipelagic waters, international straits, contiguous zone, continental shelf, exclusive economic zone (EEZ), high seas, and deep seabed. Students will examine the rights and responsibilities of coastal states and the legal implications of these different maritime zones. The module also delves into the resolution of competing claims to maritime areas and resources. Students will learn about the methods and mechanisms available for resolving disputes between states concerning maritime boundaries and resource exploitation.

Course Code	Course Name	(Theory, Appl, or Lab)	CREDIT	ECTS	Compulsory/Elective Course
MEC301	Heat Transfer I	3,1,0	3,5	5	Compulsory

Introduction to the fundamental mechanisms of heat transfer; conduction, convection and radiation, and to problems where combinations of these modes occur. Applications to practical systems are stressed. Objectives are to provide understanding of the physical processes allowing heat transfer; development of analytical skills, and to increase the ability to handle realistic engineering problems. Some special topics will be treated as appropriate. At completion of the course, students should understand the physical processes governing heat transfer; be able to analyze and solve conduction, convection, and radiation transfer problems by appropriate methods to determine temperature distributions and/or energy transfer rates for steady and transient conditions; and be able to analyze and design common heat transfer equipment and devices including extended surfaces and heat exchangers. These skills are highly valued in many industries, including automobile, microelectronics, HVAC, electrical power generation, and manufacturing.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC303	**Machine Component Design I**	**3,0,0**	**3**	**4**	**Compulsory**

The aim of machine design is an understanding of theoretical design of machinery; analysis for prevention of machine elements failure. Steps in designing, tasks and activities. It is also aimed to gain the knowledge of varieties of engineering, design process and role of designer, iteration, decision making, resource conversion, systems and devices and variety of needs, need analysis, feasibility study, preliminary design, detail design, revision. Information for need and problems associated with information, variety of information.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
STG303	**Sea Going Training**	**0,0,0**	**0**	**25**	**Compulsory**

During this period, students will have the opportunity to gain practical experience and apply the knowledge and skills they have acquired in the maritime field. They will join a merchant vessel for seagoing training, a crucial component of their training as as per the STCW-2010 Manila Amendments and subsequent regulations. The seagoing training period allows students to work in a real-world maritime environment under the guidance of experienced professionals. They will be exposed to various onboard operations and responsibilities, gaining practical knowledge and hands-on experience in areas such as navigation, watchkeeping, cargo handling, safety procedures, emergency response, and ship management. The onboard training period aims to provide students with a comprehensive understanding of the day-to-day operations and challenges faced onboard a merchant vessel. It enables them to develop practical skills, enhance their decision-making abilities, and apply theoretical concepts in real-life situations. During the onboard training period, students will be required to meet the minimum requirements specified by the STCW-2010 Manila Amendments. This ensures that they acquire the necessary competencies and experience to progress in their maritime careers and eventually take up roles with increased responsibilities in the industry.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course

MEC208	**Thermodynamic s II**	**3,0,0**	**3**	**4**	**Compulsory**
The aim of thermodynamics II is to gain basic knowledge about the gas and steam cycles. The system description is done and the second law of thermodynamics are described in details. The application of first and second law of thermodynamics on different types of cycles will be carries out.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED401	**Marine Electrotechnology II**	**2,0,1**	**2,5**	**3**	**Compulsory**
As all we know Electric Motors, Generators and Transformer are working on the base of electromagnetic and magnetic field. Since the sea persons will face such machines on the board, the functions of electrical distribution panel, all kind of electrical machineries, alarm systems should be known. The main purpose of this course is to give that information to the students and prepare the students to the ships with theoretical topics are listed in “Objectives of the Course” section					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED403	**Operation and Maintenance of Main and Auxiliary Machinery II**	**3,0,2**	**4**	**5**	**Compulsory**
The aim of introduction to marine engineering is to gain main knowledge about the marine machinery operations dealing with the deck machinery maintenance and repair methods. Measurement controls of manufacturer product on machinery system lifetime, dimensional critization of major parts and spare part knowledge of different auxiliary machinery concepts. Learning of auxiliary machinery systems and machinery repair concepts Literature knowledge of measurement and performance analysis of the running parts, motional parts, redial part and bearing fracture models. Technics of dismantling and mounting of sensitive elements of the machinery system. Axial bearing critearia. Communicational facility applications in case studies.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED405	**Marine Boilers & Operation**	**2,0,0**	**2**	**3**	**Compulsory**
The aim of introduction to Marine Boilers & Operation is to gain knowledge about Marine Boilers dealing with the components and supportive systems to preparation of operational activities with marine engineering knowledge onboard vessels. The basic concepts of marine boiler and systems with operational marine engineering terminology. Technical essential performance criteria of system requirements. Thermodynamic assesment of a marine boiler design comcepts. Operational and repair facility requirements and aids to maintain equipment on expected performance.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**

MEC202	Manufacturing Technology I	2,0,0	2	3	Compulsory
The aim of Material Technology is to teach the methods of production of cast iron, steel and non ferrous metals. Designation and classification of all metals the principle of metal casting. The plastic working of metals and its principles. Welding techniques and principles. The heat treatment.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED409	**Maritime English II**	**2,0,0**	**2**	**3**	**Compulsory**
The aim is to teach the students English who are at maritime schools and cadets. It takes the goal to build up necessary vocabulary on technical documentation related to machinery and assist in reading comprehension. Course will be advanced marine engineering terminology for marine management activities					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
SAF421	**Maritime Safety IV**	**2,1,0**	**2,5**	**3**	**Compulsory**
Refreshment of STCW basic trainings. Safety / Firefighting organization and maintenance on board. Applications and regulations of the SOLAS, MARPOL, ISM and ISPS Codes. Ship Security. Surveys and Port State Control Inspections. Advance Medical Care on board. Successful students will be eligible to obtain STCW certificates of (1); Advance Fire Fighting, (2); Advance Medical Care, (3); Ship Security Officer.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
LAW451	**Maritime Law & International Conventions II**	**2,2,0**	**3**	**4**	**Compulsory**
In this course, students will be introduced to Maritime Private Law, which encompasses topics such as tort and contractual liability in the maritime context. They will gain an understanding of the fundamental principles and concepts of Maritime Law, including the legal aspects related to ships, registration, flag, and seaworthiness. The course will cover the duties, authorities, and responsibilities of the Master of a ship, as well as the rights and responsibilities of the shipowner. Students will also learn about various shipping contracts that are commonly used in the maritime industry.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Compulsory/Elective Course**
MED402	**Steam and Gas Turbines**	**2,0,0**	**2**	**3**	**Compulsory**

The aim of introduction to Steam and Gas turbines is to gain knowledge about steam production and forms dealing with the components and supportive systems of steam turbines, their operational preparation based on its theory. Gas turbines and different gas phases with their impact forces and effects. Steam and gas turbine preparation of operational activities with marine engineering knowledge onboard vessels. basic concepts steam and gas turbine systems with operational marine engineering terminology. Technical essential performance criteria of system requirements. Thermodynamic and kinematic assessment of a steam and gas phases. Steam and gas turbine design comcepts. Operational and repair facility requirements and aids to maintain equipment on expected performance

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED404	**Survey Procedures**	**2,0,0**	**2**	**3**	**Compulsory**

The aim of the survey procedures is to teach students, shipping procedures based upon main activities of loading, discharging, bunkering, docking and other major 3'th party inspection procedures. This course is as the last step of the marine engineering education to inject responsibility knowledge of management operational activities with logic methods with both internal and external documental facilities. Management organization key-response will be explained and applied examples will be demonstrated in course period with a legal, law forced activities

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED406	**Refrigeration and Conditioning**	**3,0,0**	**3**	**4**	**Compulsory**

The aim of introduction to Refrigeration is to gain basic knowledge about the introduction to Refrigeration and ventilation equipment's, dealing with the operation and maintenance of parts of refrigeration.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED408	**Automatic Control**	**3,0,0**	**3**	**4**	**Compulsory**

The aim of Automatic Control introduces the design of feedback control systems as applied to a variety of air and ship systems. Topics include the properties and advantages of feedback systems, time-domain and frequency-domain performance measures, stability and degree of stability, the Root locus method, Nyquist criterion, frequency-domain design, and state space methods on marine automation systems.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MEC310	**Hydromechanic s**	**3,0,0**	**3**	**4**	**Compulsory**

Properties and changes of state for fluids and gases, equilibrium of fluids (hydrostatics), conservation principles in kinematics (moving coordinate systems, the control volume concept, Eulerian and Lagrangian methods), energy and continuity equations, stress-strain relations, differential analysis of fluid motion Euler and Bernoulli equations, similarity analysis, laminar and turbulent boundary layers, uniform and non-uniform flows in open and closed systems (flow in pipes). Demonstration: 1. Energy distribution and losses in a closed hydraulic system 2. Sub-critical and Super critical flows in open channels.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MED412	**Engine Room Simulator**	**1,4,0**	**3**	**4**	**Compulsory**

The aim of the Engine Room Simulator course is to demonstrate full functional engine room and vessel applications to the students under the STCW code 6.10 model course and regulation. Using engine room equipment and systems.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
MAN402	**Maritime Management II**	**2,0,0**	**2**	**2**	**Compulsory**

Seafarers undergo training as per the 1995 revision of the STCW-78 convention to become ship captains. The training equips them with the necessary knowledge and skills to manage the crew and ensure the safe operation of the ship. They learn about crew coordination, leadership, communication, emergency response, navigation, and maritime regulations. The training covers shipboard operations, safety procedures, and regulatory compliance. Seafarers gain practical experience and theoretical understanding to navigate different trading routes, handle cargoes, manage resources, and comply with international maritime laws. The training emphasizes decision-making, risk assessment, problem-solving, and effective communication skills. After completing the training, seafarers are prepared to assume the role of a ship captain and fulfill their responsibilities in maintaining the safety and efficiency of the vessel and its crew.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
NRC202	**Ship Stability I**	**3,1,0**	**3,5**	**4**	**Compulsory**

This course covers various aspects related to ship design, dimensions, stability, and strength. Students will learn about ship dimensions, such as length overall (LOA), beam, draft, and depth. Ship stability, forces and monents that affecting the ship'stability. They will understand how these dimensions and stability affect the performance and characteristics of a ship. The course also introduces ship tonnages, such as gross tonnage (GT) and net tonnage (NT), and explains their significance in terms of ship registration and regulatory requirements.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
FGP499	**Graduation Project**	**0,6,0**	**3**	**5**	**Compulsory**

In this course, students will engage in theoretical and technological investigations to solve a well-defined problem in their field of study. They will conduct research, analyze data, and apply relevant theories and technologies to address the problem at hand. The focus is on practical problem-solving and finding innovative solutions. Once the problem has been successfully solved, students will be required to present their findings using visual tools. This may include creating graphs, charts, diagrams, or other visual representations to effectively communicate their results. The objective is to present the research outcomes in a clear and visually appealing manner that facilitates understanding and engages the audience. By combining theoretical knowledge, technological expertise, and effective visual presentation skills, students will not only demonstrate their understanding of the subject matter but also showcase their ability to apply their knowledge to real-world problems and communicate their findings effectively.