

**Polytechnic School - Department of Naval, Electrical, Electronic and Telecommunications
Engineering (DITEN)
Bachelor's degree in Maritime Science and Technology
Class L-28
Degree Regulation**

Description of the Degree Course

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Art. 1 Premise and area of competence

This Regulation, in accordance with the Statute and the University Degree Regulation (general part and special part), discipline the organisational aspects of the teaching activity of the Bachelor Course in Maritime Sciences and Technology, as well as any other subject devolved to it by other legislative and regulatory sources.

The Degree Regulation of the Bachelor Course in Maritime Science and Technology is deliberated, according to Article 18, paragraphs 3 and 4 of the University Degree Regulation, general part, by the Degree Programme Board (DPB) of Maritime Science and Technology with the majority of the members and subjected to the approval of the DITEN Department Board (and of the Board of the associated DIEC Department), after consultation with the Polytechnic School, subject to the favourable opinion of the Joint Committee of the School.

The resolutions of the DPB can also be taken in telematic mode according to the above-mentioned regulations and, in particular, of Article 14 "Meetings with telematic mode" of the current General Regulation of the University (in force since 19/12/2018).

Art. 2 Admission requirements and methods of verification of initial preparation

The Bachelor Course has restricted access in accordance with the boarding availability for Cadets Officers and with the training facilities available (certified laboratories).

The Bachelor Course has as preferential access requirement the qualification of Cadet Officer. Compatibly with the training facilities and requests, it is expected to be able to accept also a number of students without the qualification of Cadet Officer, not interested in boarding as internship. The admission to the Degree Course in Maritime Science and Technology is regulated by a specific notice of admission which is published by the University of Genoa. In the notice will be defined the exams and titles that will be evaluated for the purposes of the final ranking.

In order to enroll in the Bachelor's Degree in Maritime Science and Technology you must have a high school diploma or other qualification obtained abroad, recognized as suitable. It is also required: to pass an admission test which consists of a test taking place in accordance with locally established dates and

procedures and which constitutes a verification of initial knowledge. The results of the admission test and the titles lead to the definition of a ranking that indicates the students who are entitled to access within the scheduled student number, as indicated in the Rector's specific notice;

- to possess or acquire the adequate initial preparation related to the specific objectives of the Course of Study.

The student who, being in the ranking within the scheduled number, has reported in the admission test scores lower than the minimum indicated in the Admission Notice regarding the initial knowledge, can enrol with an training debt corresponding to additional training requirements (OFA).

The Polytechnic School organizes activities to recover initial knowledge for students with OFA debt. OFA debts are considered satisfied when the student acquires the expected ECTS by passing the teaching exam of Physics or a module of the official teaching exam of Mathematics and Algebra.

All students with a qualification obtained abroad will also undergo a specific test of knowledge of Italian language. The failure of this test involves the assignment of additional training requirements.

Art. 3 Teaching activities

The list of s and other possible training activities, in the cohort 2020-2023, is given in the appropriate annex (Annex 1) which constitutes an integral part of this regulation. A responsible professor is identified for each teaching unit. A professor is responsible for teaching whoever is in charge of teaching according to the law, i.e. the one to whom the relative Department Board has attributed the responsibility itself when assigning teaching tasks to professors.

The language used to provide teaching activities (lectures, exercises, workshops) shall be English or another EU language, where expressly decided by the DPB. Annex 1 to this regulation specifies the language in which each activity is carried out.

Art. 4 Enrolment in specific training activities

In accordance with Article 6 of the University Regulations for students, in order to enrol only in specific teaching/training activities you must have a qualification which allows to access the University.

Art. 5 Curricula

The Bachelor Course in Maritime Science and Technology is structured in curricula.

Art. 6 Total time commitment

The definition of the hourly fraction dedicated to lectures or equivalent teaching activities is established, for each teaching unit, by the DPB and specified in the special part of the regulation. In any case the following intervals of variability of the correspondence classroom/ECTS hours are assumed: $8 \div 12$ hours of lectures or assisted teaching activity for each ECTS.

The definition of the overall assumed total time commitment, reserved for personal study or other training activities of an individual type, is established, for each teaching unit, in the annex (Annex 1) to this regulation. The Director of the DITEN Department and the Coordinator of the DPB are responsible for verifying compliance with the above requirements.

Art. 7 Study plan and prerequisites

Students can enrol full-time or part-time; for the two types of student there are different rights and duties.

The student chooses the type of registration simultaneously with the presentation of the study plan. The full-time student carries out his/her teaching/training activities considering the study plan prepared by the Degree Course, distinguished by years of course and published in the Degree Programme Table. The study plan submitted by the student must contain the indication of the teaching and training activities, with the relative credits that he/she intends to achieve, provided by the official study plan for the teaching period, up to a maximum of 65 credits provided in each year.

The part-time student is required to submit an individual study plan specifying the number of credits he/she intends to define in accordance with the university's student contribution regulations.

The enrolment of full-time and part-time students is regulated by the University Regulations for students considering the operational provisions resolved by the Central government bodies and indicated in the Student Guide (published annually on the University's website). The educational path of the student is organized according to criteria of propedeuticity. Therefore, the study plan is strongly recommended in line with the training path.

The DPB may, by express and reasoned resolution, authorise students who have demonstrated particularly high academic performance in the previous academic year to include in their study plan more than 65 credits, but in any case, not more than 75.

"Particularly high performance" means that the student has passed all the exams of his/her study plan by the month of September.

The study plan, which has a shorter duration than the normal one, is approved by both the Degree Programme Board and the Board of the Department.

The procedure and deadline for the submission of the study plan are established each year by the Polytechnic School and reported on the Degree Course website on the 'Students' page. The student can add in his/her study plan "extracurricular" teaching units up to a maximum of 12 ECTS, without paying additional contributions. These teaching units are not taken into account for the purpose of obtaining the Degree but may be evaluated for the achievement of a further degree.

Art. 8 Attendance and methods of carrying out teaching activities

The teaching units may take the form of: (a) lectures, including distance learning by telematic means; (b) practical exercises; (c) laboratory exercises; (d) thematic seminars.

The articulated profile and the demanding nature of the lessons taught in the Course of Study offered make the attendance to the teaching and training activities strongly recommended for an adequate understanding of the topics and therefore for a positive evaluation in the exams.

The lessons schedule is divided into two semesters. As a rule, the semester is divided into at least 12 weeks of teaching activities plus at least 4 weeks for verification tests and exams.

The exam period ends with the beginning of the teaching activities of the following semester. In the middle of the semester, the normal teaching activity (lectures, exercises, laboratories, thematic seminars) can be interrupted for the final examinations, intermediate tests, seminars, tutoring activities and didactic activities of recovery.

The lessons schedule (timetable) for the entire academic year is published on the Degree Course website before the start of the lessons of the academic year. The lessons schedule guarantees the possibility of attendance based on the year of the course programme provided by the current Degree Programme Table. For practical reasons, the compatibility of the timetable for all formally possible optional teaching choices is not guaranteed. Students must then formulate their study plan taking into account the timetable of the lessons.

Art. 9 Examinations and other exams

Exams can be carried out in written, oral, or written and oral, according to the achievement methods indicated in the sheets of each teaching unit published on the website of the Degree Course.

On request, specific learning verification arrangements may be provided for taking into account the needs of disabled students and students with specific learning disorders (S.L.D.) (Italian D.S.A.), in accordance with art. 29 paragraph 4 of the University Degree Regulation.

In the case of teaching units structured in modules taken by different teachers they participate collegially in the overall evaluation of the student's profit which cannot, however, be split into separate evaluations on the individual modules.

The calendar of exams is established by the ministerial deadline for the following academic year and is published on the website of the Degree Course. The calendar of any intermediate verification tests is established by the DPB and communicated to the students at the beginning of each teaching semester.

Exams are held in the periods of interruption of the teaching activities. Exams may be planned during the teaching period only for students who, have not included teaching/training activities in their study plan, in the current academic year.

All profit examinations of teaching/training activities must be passed by the students by the deadline set by

the student secretariat of the Polytechnic School in view of the final examination, as indicated in the "reminder" published on the University website, which can be accessed from the Degree Course website. The result of the exams passed, with the mark/score obtained, is registered in accordance with art. 29 of the University Degree Regulation.

Proficiency examination Committees are appointed by the Director of the Department or by the delegated coordinator of the DPB and are composed of at least 3 components. At least 2 members will be present at each examination session. The professor responsible for the teaching unit is a member acting as Committee president. If the percentage of passing for the teaching unit is less than 30% consecutively for two academic years, the Committee will be extended to at least 5 professors and the report must certify the actual presence of at least 3 members. Members of the Committee may also be experts identified by the Degree Programme Board on the basis of criteria ensuring the possession of scientific, training or professional requirements; such requirements may be presumed to be possessed by retired university professors. A deputy president shall be appointed for each Committee at the time of appointment. In each examination session, the Committee shall be chaired by the Committee president or by his deputy.

Art. 10 Recognition of credits

The DPB is in charge for the approval of applications for change or transfer from another Degree Course of the University or other Universities in accordance with the rules provided for in the University Degree Regulation, art. 21.

The DPB is also in charge for the evaluation and eventually recognition, as training credits, of professional knowledge and skills certified in accordance with the current legislation, for a maximum number of 12 ECTS. In the evaluation of applications for change and transfer will be taken into account the didactic specificities and the actuality of the educational content of the individual exams taken, reserving the right to establish from time to time possible forms of verification and supplementary exams.

Within the framework of national and regional regulations on alternation of education/work, it is possible for the DPB to provide, for selected students, learning paths that also consider work experience carried out at companies under contract.

Art. 11 Mobility, studies abroad, international exchanges

The DPB strongly encourages internationalisation activities, in particular student participation in mobility and international exchange programmes. To this end, it guarantees, in accordance with the procedures provided for by the regulations in force, the recognition of the training credits achieved within these programmes, and organises the teaching activities in such a way as to make these activities easy and effective.

The DPB recognises enrolled students who have duly undertaken and completed a period of study abroad, examinations taken off-site and the achievement of the relative credits that the student intends to substitute for examinations in his/her study plan.

For the purposes of the recognition of the credits earned abroad, the student must submit to DPB suitable documentation proving the equivalence of content between the teaching unit abroad and the teaching unit in the Degree Course in Maritime Science and Technology. Equivalence shall be evaluated by the DPB.

The marks of the passed exams will be converted in the Italian grading system according to criteria approved by the DPB, in accordance with the European ECTS system.

Any period of study abroad, that has involved recognition of teaching/training credits, will be evaluated for the final examination.

Art. 12 Procedures of the final examination and knowledge of the foreign language

In order to obtain the Bachelor Degree, the final thesis consists of a written report on a specific activity carried out by the student, under the guidance of one or more supervisors, in order to gain valuable knowledge for the profession or for the continuation of studies. The supervisors must include at least one professor from the associate Department or the Course of Study.

The final thesis shall be written in English; in case of use of another EU language the authorisation of the DPB is required. In such cases, the final thesis must be accompanied by the title and an extensive summary in English.

In all cases, the final thesis should reveal:

- proper basic preparation;
- adequate preparation related to the operational and management aspects of the ship;
- correct use of scientific sources and bibliography;
- argumentative skills;
- clarity of exposition.

The commitment required by the student for the preparation of the final examination commensurate with the number of credits assigned to the exam itself.

The Committee for the final examination consists of at least five members including the Committee President and is appointed by the Director of the DITEN Department.

The evaluation of the final examination by the Committee, in the event of passing it, attributes an increase, variable from 0 to 8, the maximum established by the Polytechnic School in agreement with the Departments, to the weighted average (in one hundred and tenths) of the marks obtained in the exams related to training activities that provide a final mark, assuming as weight the number of credits associated with the training activity.

Any period of study abroad, which has involved recognition of training credits, will result in an increase of up to 1 point to the above weighted average.

Art. 13 Guidance services and tutoring

The Polytechnic School, in agreement with the DITEN Department, organizes and manages a tutoring service for the welcome and support of students, in order to prevent abandon and/or delays and to promote a profitable active participation in university life in all its forms.

The DPB identifies the number of tutors in accordance with the number of students enrolled. The names of the tutors can be found on the website of the Degree Course.

Art. 14 Verification of obsolescence of credits

University teaching credits (ECTS) earned within the framework of the Degree Course can be subjected to obsolescence verification after 6 years. If the DPB recognizes the obsolescence of even a single part of the relative educational content, the DPB itself establishes the supplementary tests that must be taken by the student, defining the topics, the methods of verification and the composition of the Examination Committee.

Once the required supplementary tests have been passed, the DPB validates the ECTS acquired with a resolution. If the related training activity provides for a mark, it may be varied from the one previously obtained, on a proposal from the Examination Committee which carried out the verification.

Art. 15 Degree Programme Table

The DITEN Department, after consulting the Polytechnic School, approves and publishes each year the Degree Programme Table of the Degree Course. In the Degree Programme Table the main provisions of the didactic system and the degree regulation of the Bachelor's degree course are indicated, to which additional information may be added.

The Degree Programme Table contains the list of the teaching units activated for the academic year. The teaching sheets are published on the University website, which can be accessed from the Degree Course website.

Annex 1 to the Degree Regulation of the Bachelor's degree course in Maritime Science and Technology
List of training activities and related training objectives

Curriculum	Year	Code	Teaching unit_IT	Teaching unit_EN	E C T S	SSD	Type	Area	Language	Propedeuticity	Training objectives	Hours of assisted teaching activity	Hours for personal study
DECK OFFICER	1	101116	MATHEMATICS AND ALGEBRA	MATHEMATICS AND ALGEBRA	12		BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science				0	0
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101116	MATHEMATICS AND ALGEBRA	MATHEMATICS AND ALGEBRA	12		BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science				0	0
DECK OFFICER	1	101117	MATHEMATICS	MATHEMATICS	6	MAT/05	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English		The aim of this course is to provide a practical working tool for students where rigorous Calculus is needed. The main focus is on the study of functions of one real variable (continuity, derivative, maxima/minima, integration) and a brief introduction to multivariable calculus (oriented towards finding maxima/minima). The last part of the course is oriented towards basic ordinary differential equations (for example separation of variables, linear first-order, and constant coefficients ODE).	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101117	MATHEMATICS	MATHEMATICS	6	MAT/05	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English		The aim of this course is to provide a practical working tool for students where rigorous Calculus is needed. The main focus is on the study of functions of one real variable (continuity, derivative, maxima/minima, integration) and a brief introduction to multivariable calculus (oriented towards finding maxima/minima). The last part of the course is oriented towards basic ordinary differential equations (for example separation of variables, linear first-order, and constant coefficients ODE).	60	90
DECK OFFICER	1	101118	ALGEBRA	ALGEBRA	6	MAT/03	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English		The course aims to provide basic technical notions and tools on complex numbers, linear algebra and analytical geometry.	60	90
ENGINEER OFFICER AND	1	101118	ALGEBRA	ALGEBRA	6	MAT/03	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry,	English		The course aims to provide basic technical notions and tools on complex numbers, linear algebra and analytical geometry.	60	90

ELECTRO-TECHNICAL OFFICER								Computer Science					
DECK OFFICER	1	101119	PHYSICS	PHYSICS	6	FIS/01	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	"Understand basic physical fundamentals and the key vocabulary to describe them: kinematics, dynamics, work and energy, rotations, fluids. Develop skills in observation, interpretation, reasoning, synthesis, generalizing, predicting, and questioning as a way to learn new knowledge. Develop scientific problem solving skills, including organization of given information, identification and application of pertinent principles, quantitative solutions, interpreting results, and evaluating the validity of results. Apply conceptual understanding of the physics to general real-world situations, and recognize how and when physics methods and principles can help address problems in their future courses and then apply those methods and principles to solve new problems.	60	90	
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101119	PHYSICS	PHYSICS	6	FIS/01	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	"Understand basic physical fundamentals and the key vocabulary to describe them: kinematics, dynamics, work and energy, rotations, fluids. Develop skills in observation, interpretation, reasoning, synthesis, generalizing, predicting, and questioning as a way to learn new knowledge. Develop scientific problem solving skills, including organization of given information, identification and application of pertinent principles, quantitative solutions, interpreting results, and evaluating the validity of results. Apply conceptual understanding of the physics to general real-world situations, and recognize how and when physics methods and principles can help address problems in their future courses and then apply those methods and principles to solve new problems.	60	90	
DECK OFFICER	1	101120	ICT	ICT	9	ING-INF/05	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	The course aims at introducing the student in the field of modern electronic methods for the management of information, related communications and basic methods of calculation. The course follows two distinct strands; the first concerns the study of the architecture of computing systems, the representation of information within them, the organization and operation of networks and of the Internet; the second teaches on the fundamentals of programming.	72	153	

ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101120	ICT	ICT	9	ING-INF/05	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	The course aims at introducing the student in the field of modern electronic methods for the management of information, related communications and basic methods of calculation. The course follows two distinct strands; the first concerns the study of the architecture of computing systems, the representation of information within them, the organization and operation of networks and of the Internet; the second teaches on the fundamentals of programming.	72	153
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101121	CHEMISTRY	CHEMISTRY	6	CHIM/03	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	"Acquiring rigorous methodology to describe as accurately as possible the fundamental phenomena that are the basis of chemical systems; knowing how to understand and use the minimum mathematical formalism required to interpret them. Physical and chemical properties of fuels, lubricant etc."	60	90
DECK OFFICER	1	101122	OPTIMIZATION METHODS	OPTIMIZATION METHODS	6	MAT/09	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	The Course introduces to optimization models and methods for the solution of decision problems, with particular attention to models and problems arising in Maritime. In particular the focus will be on route planning, cargo loading and stowage, flow management.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101122	OPTIMIZATION METHODS	OPTIMIZATION METHODS	6	MAT/09	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	The Course introduces to optimization models and methods for the solution of decision problems, with particular attention to models and problems arising in Maritime. In particular the focus will be on route planning, cargo loading and stowage, flow management.	60	90
DECK OFFICER	1	101123	SHIP STABILITY	SHIP STABILITY	9	ING-IND/01	CORE LEARNING ACTIVITY	Engineering disciplines	English	The course provides knowledge about the buoyancy and the stability of ships, both in intact and damaged conditions, with appropriate reference to relevant IMO regulations. Specific attention will be given also to some operational aspects e.g. to cargo handling and stowage.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101123	SHIP STABILITY	SHIP STABILITY	9	ING-IND/01	CORE LEARNING ACTIVITY	Engineering disciplines	English	The course provides knowledge about the buoyancy and the stability of ships, both in intact and damaged conditions, with appropriate reference to relevant IMO regulations. Specific attention will be given also to some operational aspects e.g. to cargo handling and stowage.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101124	PHYSICS II	PHYSICS II	12	FIS/01	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English	The specific training objective is to provide the student with the ability to solve elementary but concrete problems. This implies that the student must know how to distinguish between fundamental concepts (electric and magnetic fields and forces, works, Gauss's laws, Ampere's, Faraday's, ...) and more specific issues (motion of charges in electromagnetic	96	204

											fields, cylindrical condensers, ...) demanding a thorough understanding of fundamental concepts.		
DECK OFFICER	1	101125	INTERNATIONAL MARITIME LAW	INTERNATIONAL MARITIME LAW	6	IUS/06	CORE LEARNING ACTIVITY	Law disciplines	English		The aim of the course is to introduce students to the knowledge of the basic items concerning the vessels' utilization, including their safety and security, and maritime carriages of goods, through an analysis of the relevant national, international and E.C. laws and rules.	60	90
DECK OFFICER	1	101142	MARITIME TRASPOT ECONOMICS	MARITIME TRASPOT ECONOMICS	6	SECS-P/06	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English		The course provides the specificities of the sector and the contribution provided to the general economic theory, the knowledge of the distinctive characteristics of the different modes of maritime transport and the forms of integration and competition, the markets in which the companies operate and the economic policy guidelines that drive International trade and sea transport.	60	90
DECK OFFICER	1	101143	NAVIGATION	NAVIGATION	9	FIS/06	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English		The course offers a throughout understanding of the procedures that are relevant for the maritime navigation: a theoretical part allows to focus on the physics, geodesy and astronomy items related to navigation, while an operational part will focus on the methods that are necessary to carry out a reliable voyage planning and a correct execution, taking into account the use of nautical charts and publications, ship's routing and ship's reporting systems. The position fixing will be analysed both in terms of coastal and celestial navigation considering the support provided by proper Aids to Navigation and the use and control of traditional instruments such as the magnetic and gyro compass and the marine sextant. The IAMSAR procedures are also taken into account.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101126	AUTOMATION AND CONTROL FOR ELECTRIC MARINE APPLICATIONS	AUTOMATION AND CONTROL FOR ELECTRIC MARINE APPLICATIONS	6	ING-IND/33	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English		Automation and control are essential functions for the ship correct and efficient management. The course presents the fundamental concepts of automatic control enabling the student to deduce mathematical models and to synthesize controllers by a practical approach for the dynamic systems of plants, processes and time-varying behaviors in electric, thermal and mechanical marine applications.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101127	MACHINERY	MACHINERY	6	ING-IND/08	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English		The module provides the students with the fundamental skills to interpret the processes, as well as the technologies, related to fluid machines, thermal machines and energy conversion systems. This allows the student to master the basic principles of thermodynamics and fluid dynamics when applied to the design	60	90

											and the analysis of energy conversion equipment, as well as to address the functional behavior of fluid machines.		
DECK OFFICER	2	101128	SHIP STRUCTURES AND STRENGTH	SHIP STRUCTURES AND STRENGTH	9	ING-IND/02	CORE LEARNING ACTIVITY	Engineering disciplines	English		The course aims at providing students with professional competences about fundamentals of shipbuilding and ship structures, showing typical methods and languages, i.e. structural plans and drawings, to describe the hull, its structural lay-out, its components and equipment. Various merchant ship types are presented, highlighting peculiarities of each. The course includes a description of ship structural design and analysis from a global view to construction details. The general scantling criteria of ship structures and components is also summarized with reference to rules and regulations of classification societies.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101128	SHIP STRUCTURES AND STRENGTH	SHIP STRUCTURES AND STRENGTH	9	ING-IND/02	CORE LEARNING ACTIVITY	Engineering disciplines	English		The course aims at providing students with professional competences about fundamentals of shipbuilding and ship structures, showing typical methods and languages, i.e. structural plans and drawings, to describe the hull, its structural lay-out, its components and equipment. Various merchant ship types are presented, highlighting peculiarities of each. The course includes a description of ship structural design and analysis from a global view to construction details. The general scantling criteria of ship structures and components is also summarized with reference to rules and regulations of classification societies.	90	135
DECK OFFICER	2	101129	SHIP PROPULSION	SHIP PROPULSION	6	ING-IND/02	CORE LEARNING ACTIVITY	Engineering disciplines	English		The course will deal with the management and the operation of the propulsion plant. Plan and schedule operations: propulsive characteristics. Operation, performance assessment.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101129	SHIP PROPULSION	SHIP PROPULSION	9	ING-IND/02	CORE LEARNING ACTIVITY	Engineering disciplines	English		The course will deal with the management and the operation of the propulsion plant. Plan and schedule operations: propulsive characteristics. Operation, performance assessment.	90	135
DECK OFFICER	2	101130	ENGLISH	ENGLISH	6	L-LIN/12	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English		"The aim is for trainees to acquire English language competence towards B2 level according to the Common European Framework of Reference. They will be able to enhance their communicative competence by developing their grammar, pronunciation, and lexis, together with their language skills of listening, reading, writing, and speaking. Trainees will develop their ability in using	60	90

										specialized Maritime English for Deck Officers, Marine Engineers and Electro-Technical Officers, with specific reference to the standard IMO Model Training Course 3.17. They will be able to demonstrate their acquired language competence in the final oral exam.		
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101130	ENGLISH	ENGLISH	6	L-LIN/12	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English	"The aim is for trainees to acquire English language competence towards B2 level according to the Common European Framework of Reference. They will be able to enhance their communicative competence by developing their grammar, pronunciation, and lexis, together with their language skills of listening, reading, writing, and speaking. Trainees will develop their ability in using specialized Maritime English for Deck Officers, Marine Engineers and Electro-Technical Officers, with specific reference to the standard IMO Model Training Course 3.17. They will be able to demonstrate their acquired language competence in the final oral exam		
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101131	SHIPBOARD POWER SYSTEMS	SHIPBOARD POWER SYSTEMS	6	ING-IND/33	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English	The teaching of shipboard electrical systems aims to consolidate the skills of the maritime students in an application context of the knowledge of electrical engineering. Training proposals are proposed on the knowledge of the principal components and main characteristics associate to electrical machines. The correct definition and basic sizing and operation of power system distributions and protection devices.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101132	SHIPBOARD POWER SYSTEM CONTROL	SHIPBOARD POWER SYSTEM CONTROL	6	ING-IND/33	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity		The aim of the course is to introduce students to the basic problems related to the operation of the electric propulsion on ships, to guide in understanding the technologies and electrical problems due to the complexity of the ship. The correct sizing and energy balance of the power system and basic configuration in compliance with the current normative and standards.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101133	ELECTROTECNICS	ELECTROTECNICS	6	ING-IND/31	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English	The course gives the essential elements for understanding of analysis and exploitation of the electromagnetic phenomena. In the first part of the course the instruments for static and quasi-static analysis by circuit methods are introduced. In the second part of the course the principal application aspects of exploitation of power electromagnetic phenomena are introduced: electrical motors, power electronics and power electrical systems.	60	90

ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101134	SHIP PLANTS AND SYSTEM SAFETY	SHIP PLANTS AND SYSTEM SAFETY	9	ING-IND/02	CORE LEARNING ACTIVITY	Engineering disciplines	English		Design principles of ship propulsion plants, ship auxiliary plants and ship safety plants. Manage fuel, lubrication and ballast operations. Pumps and piping operation and maintenance. Manage safe and effective maintenance. Planning maintenance. Safety procedures. Life saving appliances. Fire fighting. Fire detection. Fire prevention	90	135
DECK OFFICER	2	101144	ELECTRONIC NAVIGATION	ELECTRONIC NAVIGATION	9	ICAR/06	CORE LEARNING ACTIVITY	Engineering disciplines	English		Principles of operation and accuracy of the main electronic navigation systems, including GNSS and Loran, for fixing position and navigation. Content, accuracy and formats of electronic cartography, with emphasis on electronic nautical cartography (ENC); GIS software for the management, visualisation and analysis of cartographic data and main features of ECDIS. Theoretical basis of geodesy and statistical treatment of measurements.	90	135
DECK OFFICER	2	101145	ICT 2	ICT 2	6	ING-INF/05	BASIC LEARNING ACTIVITY	Mathematics, Physics, Chemistry, Computer Science	English		Concepts and essential tools for using and programming computers; an effective synthesis between learning the basic concepts of information technology and their application on shipboard.	48	102
DECK OFFICER	2	101146	TELECOMMUNICATION	TELECOMMUNICATION	6	ING-INF/03	CORE LEARNING ACTIVITY	Engineering disciplines	English		The course aims at introducing the basics of telecommunications, from signals (sampling, modulation, frequency analysis) to computer networks (transmission media and network protocols). At the end of the course, emphasis will be given to some of the main telecommunication systems usually present onboard by analysing the technology behind RADAR, SONAR and GPS.	60	90
DECK OFFICER	2	101147	SHIP MANAGEMENT	SHIP MANAGEMENT	6	SECS-P/08	CORE LEARNING ACTIVITY	Economic and corporate disciplines	English		The course, paving on a managerial approach, aims to analyse the operations and strategies of firms operating in maritime sectors. The course focuses on main theoretical concepts and perspectives related to transport demand and segmentation, transport capacity deployment and management, marketing, as well as competitive and growth strategies. Emphasis will be given to multinational corporations operating in the transport sectors, diversifying risk and their business portfolio.	48	102
DECK OFFICER	2	101148	OCEAN SCIENCE AND ENGINEERING	OCEAN SCIENCE AND ENGINEERING	6	ICAR/02	CORE LEARNING ACTIVITY	Engineering disciplines	English		The aim of the course is to introduce the fundamentals of atmosphere and ocean dynamics that characterize meteocean conditions and climate from synoptic scale to the regional scales. Knowledge will be provided about synoptic charts and weather forecasting, ocean current systems and tides, wave storms and their generations, availability of data.	60	90

DECK OFFICER	2	101149	SHIP MANOEUVRABILITY	SHIP MANOEUVRABILITY	6	ING-IND/01	CORE LEARNING ACTIVITY	Engineering disciplines	English		The focus of the course is to raise physical and practical awareness of the vessel's dynamical response to all the main means of control and propulsion which could be installed on board (active or passive devices) under any condition with respect to the vessel type. Many operative scenarios will be vectorially analyzed with a practical mathematical and physical approach; amongst those: straight course stability, calm and heavy water manoeuvrability, approaching harbours, restricted waters and canals navigation, embarking/disembarking pilots, berthing and unberthing, drydocking, anchoring and emergency operations management.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101125	INTERNATIONAL MARITIME LAW	INTERNATIONAL MARITIME LAW	6	IUS/06	CORE LEARNING ACTIVITY	Law disciplines	English		The aim of the course is to introduce students to the knowledge of the basic items concerning the vessels' utilization, including their safety and security, and maritime carriage of goods, through an analysis of the relevant national, international and E.C. laws and rules.	60	90
DECK OFFICER	3	101135	LEADERSHIP&TEAMWORKING	LEADERSHIP&TEAMWORKING	6	SECS-P/10	CORE LEARNING ACTIVITY	Economic and corporate disciplines	English		Ability to apply task and workload management. Shipboard personnel management. International conventions. Decision making techniques.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101135	LEADERSHIP&TEAMWORKING	LEADERSHIP&TEAMWORKING	6	SECS-P/10	CORE LEARNING ACTIVITY	Economic and corporate disciplines	English		Ability to apply task and workload management. Shipboard personnel management. International conventions. Decision making techniques.	60	90
DECK OFFICER	3	101136	TRAINING ON BOARD	TRAINING ON BOARD	30		FOR STAGES AND INTERNSHIPS	For Stages and Internships in Companies, Public or Private Institutions, Professional Associations	English		The curricular internship has the objective of including the student in a specific working reality of enbarquement or in industry in maritime sector.	0	750
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101136	TRAINING ON BOARD	TRAINING ON BOARD	30		FOR STAGES AND INTERNSHIPS	For Stages and Internships in Companies, Public or Private Institutions, Professional Associations	English		The curricular internship has the objective of including the student in a specific working reality of enbarquement or in industry in maritime sector.	0	750
DECK OFFICER	3	101137	FINAL EXAM	FINAL EXAM	3		FINAL EXAMINATION	For the final examination	English		Project work on a particular topic based on the internship carried out supervised by a tutor.	0	75

ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101137	FINAL EXAM	FINAL EXAM	3		FINAL EXAMINATION	For the final examination	English		Project work on a particular topic based on the internship carried out supervised by a tutor.	0	75
DECK OFFICER	3	101138	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	6	M-STO/02	ELECTIVE LEARNING ACTIVITY	Student's elective learning activity	English		The course aims to analyze the general features and historiographical interpretations of maritime and naval history in the modern age.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101138	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	6	M-STO/02	ELECTIVE LEARNING ACTIVITY	Student's elective learning activity	English		The course aims to analyze the general features and historiographical interpretations of maritime and naval history in the modern age.	60	90
DECK OFFICER	3	101140	ELECTRIC MACHINES AND MAINTENANCE	ELECTRIC MACHINES AND MAINTENANCE	6	ING-IND/32	ELECTIVE LEARNING ACTIVITY	Student's elective learning activity	English		Provide elements on the electrical equipment construction for low and high voltage applications. Provide the elements for diagnostics and maintenance of electromechanical components.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101140	ELECTRIC MACHINES AND MAINTENANCE	ELECTRIC MACHINES AND MAINTENANCE	6	ING-IND/32	ELECTIVE LEARNING ACTIVITY	Student's elective learning activity	English		Provide elements on the electrical equipment construction for low and high voltage applications. Provide the elements for diagnostics and maintenance of electromechanical components.	60	90
DECK OFFICER	3	101141	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	6	SECS-P/07	RELATED AND SUPPLEMENTARY LEARNING ACTIVITY	Related or supplementary learning activity	English		The course will introduce the student on Analytical accounting and cost analysis. The planning and control procedures for budgeting. The analysis logic of the deviations.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101141	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	6	SECS-P/07	ELECTIVE LEARNING ACTIVITY	Student's elective learning activity	English		The course will introduce the student on Analytical accounting and cost analysis. The planning and control procedures for budgeting. The analysis logic of the deviations.	60	90
DECK OFFICER	3	101258	FIRST AID AND MEDICAL CARE	FIRST AID AND MEDICAL CARE	6	MED/09	ELECTIVE LEARNING ACTIVITY	Student's elective learning activity	English		The course will provide the skills related to the first and second level of training of seafarers designated to provide first aid and medical care on board the ships, in compliance to International Convention STCW 1978/1995 in its updated version in Manila in 2010.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101258	FIRST AID AND MEDICAL CARE	FIRST AID AND MEDICAL CARE	6	MED/09	ELECTIVE LEARNING ACTIVITY	Student's elective learning activity	English		The course will provide the skills related to the first and second level of training of seafarers designated to provide first aid and medical care on board the ships, in compliance to International Convention STCW 1978/1995 in its updated version in Manila in 2010.	60	90

Descrizione del funzionamento del Corso di Laurea

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Art. 1 Premessa e ambito di competenza

Il presente Regolamento, in conformità allo Statuto ed al Regolamento didattico di Ateneo (parte generale e parte speciale), disciplina gli aspetti organizzativi dell'attività didattica del Corso di Laurea in Scienze e tecnologie Marittime (Maritime Science and Technology), nonché ogni diversa materia ad esso devoluta da altre fonti legislative e regolamentari.

Il Regolamento didattico del Corso di Laurea in Scienze e tecnologie Marittime è deliberato, ai sensi dell'articolo 18, commi 3 e 4 del Regolamento didattico di Ateneo, parte generale, dal Consiglio dei Corsi di Studio (CCS) di Scienze e tecnologie Marittime a maggioranza dei componenti e sottoposto all'approvazione del Consiglio del Dipartimento DITEN (e del Consiglio di Dipartimento associato DIEC), sentita la Scuola Politecnica, previo parere favorevole della Commissione Paritetica di Scuola.

Le delibere del CCS possono essere assunte anche in modalità telematica ai sensi dei sovraordinati regolamenti e, in particolare, dell'articolo 14 "Riunioni con modalità telematiche" del vigente Regolamento Generale di Ateneo (in vigore dal 19/12/2018).

Art. 2 Requisiti di ammissione e modalità di verifica della preparazione iniziale

Il CdL è a numero programmato in accordo con le disponibilità di imbarco previste per gli Allievi Ufficiali e con le strutture didattiche disponibili (laboratori certificati).

Il CdL ha come requisiti preferenziali di accesso la qualifica di Allievo Ufficiale. Compatibilmente con le strutture didattiche e le richieste si prevede di poter accettare anche un numero di studenti senza la qualifica di Allievo Ufficiale, non interessati all'imbarco come tirocinio. L'ammissione al corso di laurea in Maritime Science and Technology è regolamentata da un apposito bando che viene pubblicato dall'Università degli Studi di Genova. Nel bando saranno definite le prove d'esame e i titoli che verranno valutati ai fini della graduatoria finale.

Per potersi iscrivere al Corso di laurea in Maritime Science and Technology occorre essere in possesso del diploma di scuola secondaria superiore o di altro titolo di studio conseguito all'estero, riconosciuto idoneo. Si richiede altresì:

- il superamento di una prova di accesso che consiste in un test che si svolge secondo date e modalità stabilite a livello locale e che costituisce una verifica delle conoscenze iniziali. I risultati della prova d'accesso e i titoli portano alla definizione di una graduatoria che indica gli studenti che hanno diritto all'ingresso entro il numero di posti programmato, come indicati in apposito bando rettorale;
- il possesso o l'acquisizione di un'adeguata preparazione iniziale riferita agli obiettivi specifici del corso di studio.

Lo studente che, trovandosi in graduatoria all'interno del numero programmato, ha riportato nella prova di accesso punteggi inferiori ai minimi indicati nel bando di ammissione relativamente alle conoscenze iniziali, può immatricolarsi con un debito formativo cui corrispondono obblighi formativi aggiuntivi (OFA).

La Scuola Politecnica organizza attività di recupero delle conoscenze iniziali per gli studenti con debito OFA. Gli OFA si ritengono soddisfatti quando lo studente acquisisce i CFU previsti superando l'esame dell'insegnamento di Physics o un modulo dell'insegnamento ufficiale Mathematics and Algebra.

Tutti gli studenti con titolo di studio conseguito all'estero saranno sottoposti anche ad una specifica prova di conoscenza di lingua italiana. Il mancato superamento comporta l'attribuzione di obblighi formativi aggiuntivi che dovranno essere assolti entro la fine del primo anno del corso di studi.

Art. 3 Attività formative

L'elenco degli insegnamenti e delle altre attività formative attivabili, nella Coorte 2020-2023, è riportato nell'apposito allegato (ALL.1) che costituisce parte integrante del presente Regolamento. Per ogni insegnamento è individuato un docente responsabile. È docente responsabile di un insegnamento chi ne sia titolare a norma di legge, ossia colui al quale il Consiglio di Dipartimento di afferenza abbia attribuito la responsabilità stessa in sede di affidamento dei compiti didattici ai docenti.

La lingua usata per erogare le attività formative (lezioni, esercitazioni, laboratori) è l'inglese o un'altra lingua della UE, ove sia espressamente deliberato dal CCS. Nell'allegato (ALL.1) al presente Regolamento è specificata la lingua in cui viene erogata ogni attività formativa.

Art. 4 Iscrizione a singole attività formative

In conformità con l'articolo 6 del Regolamento di Ateneo per gli studenti, per iscriversi a singole attività formative occorre possedere un titolo di studio che permetta l'accesso all'Università.

Art. 5 Curricula

Il Corso di Laurea in Scienze e tecnologie Marittime è articolato in curricula.

Art. 6 Impegno orario complessivo

La definizione della frazione oraria dedicata a lezioni o attività didattiche equivalenti è stabilita, per ogni insegnamento, dal CCS e specificata nella parte speciale del Regolamento. In ogni caso si assumono i seguenti intervalli di variabilità della corrispondenza ore aula/CFU: 8 ÷ 12 ore di lezione o di attività didattica assistita.

La definizione dell'impegno orario complessivo presunto, riservato allo studio personale o ad altre attività formative di tipo individuale, è stabilito, per ogni insegnamento, nell'allegato (ALL.1) del presente regolamento.

Il Direttore del Dipartimento DITEN e il Coordinatore del CCS sono incaricati di verificare il rispetto delle predette prescrizioni.

Art. 7 Piani di studio e propedeuticità

Gli studenti possono iscriversi a tempo pieno o a tempo parziale; per le due tipologie di studente sono previsti differenti diritti e doveri.

Lo studente sceglie la tipologia di iscrizione contestualmente alla presentazione del piano di studio. Lo studente a tempo pieno svolge la propria attività formativa tenendo conto del piano di studio predisposto dal Corso di Laurea, distinto per anni di corso e pubblicato nel Manifesto degli Studi del Corso di Laurea. Il piano di studio formulato dallo studente deve contenere l'indicazione delle attività

formative, con i relativi crediti che intende conseguire, previsti dal piano di studio ufficiale per tale periodo didattico, fino ad un massimo di 65 dei crediti previsti in ogni anno.

Lo studente a tempo parziale è tenuto a presentare un piano di studio individuale specificando il numero di crediti che intende inserire secondo quanto disposto dal regolamento per la contribuzione studentesca di Ateneo.

L'iscrizione degli studenti a tempo pieno e a tempo parziale è disciplinata dal Regolamento di Ateneo per gli studenti tenuto conto delle disposizioni operative deliberate dagli Organi centrali di governo ed indicate nella Guida dello studente (pubblicata annualmente sul sito web dell'Università).

Il percorso formativo dello studente è stato organizzato secondo criteri di propedeuticità, indicate nella Parte speciale del presente Regolamento (All.1).

Il Consiglio dei Corsi di Studio, con esplicita e motivata deliberazione, può autorizzare gli studenti che nell'anno accademico precedente abbiano dimostrato un rendimento negli studi particolarmente elevato ad inserire nel proprio piano di studio un numero di crediti superiore a 65, ma in ogni caso non superiore a 75.

Per "rendimento particolarmente elevato" si intende che lo studente abbia superato tutti gli esami del proprio piano di studio entro il mese di settembre.

Il piano di studio articolato su una durata più breve rispetto a quella normale è approvato sia dal Consiglio dei Corsi di Studio sia dal Consiglio di Dipartimento.

La modalità e il termine per la presentazione del piano di studio sono stabiliti annualmente dalla Scuola Politecnica e riportate sul sito web del Cds alla pagina "Studenti".

Lo studente, può aggiungere nel proprio piano degli studi insegnamenti "extracurricolari" fino ad un massimo di 12 CFU senza versare ulteriori contributi. Tali insegnamenti non sono presi in considerazione ai fini del conseguimento della Laurea, ma potranno essere valutati per il conseguimento di un ulteriore titolo di studi.

Art. 8 Frequenza e modalità di svolgimento delle attività didattiche

Gli insegnamenti possono assumere la forma di: (a) lezioni, anche a distanza mediante mezzi telematici; (b) esercitazioni pratiche; (c) esercitazioni in laboratorio; (d) seminari tematici.

Il profilo articolato e la natura impegnativa delle lezioni tenute nell'ambito del Corso di studio rendono la frequenza alle attività formative fortemente consigliata per una adeguata comprensione degli argomenti e quindi per una buona riuscita negli esami.

Il calendario delle lezioni è articolato in semestri. Di norma, il semestre è suddiviso in almeno 12 settimane di lezione più almeno 4 settimane complessive per prove di verifica ed esami di profitto. Il periodo destinato agli esami di profitto termina con l'inizio delle lezioni del semestre successivo. A metà semestre, la normale attività didattica (lezioni, esercitazioni, laboratori, seminari tematici) può essere interrotta per lo svolgimento di esami di laurea, di prove in itinere, seminari, attività di tutorato e attività didattica di recupero.

L'orario delle lezioni per l'intero anno accademico è pubblicato sul sito web di Ateneo, raggiungibile da quello del CdS prima dell'inizio delle lezioni dell'anno accademico. L'orario delle lezioni garantisce la possibilità di frequenza per anni di corso previsti dal vigente Manifesto degli Studi del Corso di Laurea. Per ragioni pratiche non è garantita la compatibilità dell'orario per tutte

le scelte formalmente possibili degli insegnamenti opzionali. Gli studenti devono quindi formulare il proprio piano di studio tenendo conto dell'orario delle lezioni.

Art. 9 Esami e altre verifiche del profitto

Gli esami di profitto possono essere svolti in forma scritta, orale, o scritta e orale, secondo le modalità indicate nelle schede di ciascun insegnamento pubblicato sul sito web del Corso di Laurea. A richiesta, possono essere previste specifiche modalità di verifica dell'apprendimento che tengano conto delle esigenze di studenti disabili e di studenti con disturbi specifici dell'apprendimento (D.S.A.), in conformità all'art. 29 comma 4 del Regolamento didattico di Ateneo.

Nel caso di insegnamenti strutturati in moduli con più docenti, questi partecipano collegialmente alla valutazione complessiva del profitto dello studente che non può, comunque, essere frazionata in valutazioni separate sui singoli moduli.

Il calendario degli esami di profitto è stabilito entro la scadenza ministeriale e viene pubblicato sul sito web di Ateneo, raggiungibile da quello del Corso di Laurea. Il calendario delle eventuali prove di verifica in itinere è stabilito dal CCS e comunicato agli studenti all'inizio di ogni ciclo didattico.

Gli esami si svolgono nei periodi di interruzione delle lezioni. Possono essere previsti appelli durante il periodo delle lezioni soltanto per gli studenti che, nell'anno accademico in corso, non abbiano inserito attività formative nel proprio piano di studio.

Tutte le verifiche del profitto relative alle attività formative debbono essere superate dallo studente entro la scadenza prevista dallo Sportello unico della Scuola Politecnica in vista della prova finale, come indicato nel "promemoria" pubblicato sul sito web di Ateneo e accessibile da quello del CdS. L'esito dell'esame, con la votazione conseguita, è verbalizzato secondo quanto previsto all'art. 29 del Regolamento didattico di Ateneo.

Le commissioni di esame di profitto sono nominate dal Direttore del Dipartimento o su sua delega dal coordinatore del corso di studio e sono composte da almeno 3 componenti. Ad ogni sessione di esame saranno presenti almeno 2 membri. Il docente responsabile dell'insegnamento è membro con funzione di presidente. Nel caso in cui la percentuale di superamento per l'insegnamento sia inferiore al 30% consecutivamente per due anni accademici la commissione sarà allargata ad almeno 5 docenti e la verbalizzazione dovrà certificare la presenza effettiva di almeno 3 componenti. Possono essere componenti della commissione cultori della materia individuati dal consiglio del corso di studio sulla base di criteri che assicurino il possesso di requisiti scientifici, didattici o professionali; tali requisiti si possono presumere posseduti da parte di docenti universitari a riposo. Per ogni commissione all'atto di nomina va individuato un presidente supplente. In ogni sessione di esame le commissioni sono presiedute dal presidente o dal supplente.

Art. 10 Riconoscimento di crediti

Il Consiglio dei Corsi di Studio delibera sull'approvazione delle domande di passaggio o trasferimento da un altro Corso di Laurea dell'Ateneo o di altre Università secondo le norme previste dal Regolamento didattico di Ateneo, art. 21. Delibera altresì l'eventuale riconoscimento, quale credito formativo, per un numero massimo di 12 CFU, di conoscenze e abilità professionali certificate ai sensi della normativa vigente.

Nella valutazione delle domande di passaggio si terrà conto delle specificità didattiche e dell'attualità dei contenuti formativi dei singoli esami sostenuti, riservandosi di stabilire di volta in volta eventuali forme di verifica ed esami integrativi.

Nel quadro della normativa nazionale e regionale su alternanza formazione/lavoro, è possibile per il Corso di Studio prevedere, per studenti selezionati, percorsi di apprendimento che tengano conto anche di esperienze lavorative svolte presso aziende convenzionate.

Art. 11 Mobilità, studi compiuti all'estero, scambi internazionali

Il CCS incoraggia fortemente le attività di internazionalizzazione, in particolare la partecipazione

degli studenti ai programmi di mobilità e di scambi internazionali. A tal fine garantisce, secondo le modalità previste dalle norme vigenti, il riconoscimento dei crediti formativi conseguiti all'interno di tali programmi, e organizza le attività didattiche opportunamente in modo da rendere agevoli ed efficaci tali attività.

Il CCS riconosce agli studenti iscritti, che abbiano regolarmente svolto e completato un periodo di studi all'estero, gli esami sostenuti fuori sede e il conseguimento dei relativi crediti che lo studente intenda sostituire ad esami del proprio piano di studio.

Ai fini del riconoscimento di tali esami, lo studente all'atto della compilazione del piano delle attività formative che intende seguire nell'Ateneo estero, dovrà produrre idonea documentazione comprovante l'equivalenza dei contenuti tra l'insegnamento impartito all'estero e l'insegnamento che intende sostituire, impartito nel Corso di Laurea in Scienze e tecnologie Marittime. L'equivalenza è valutata dal CCS.

La conversione dei voti avverrà secondo criteri approvati dal CCS, congruenti con il sistema europeo ECTS.

L'eventuale periodo di studio all'estero, che abbia comportato riconoscimento di crediti formativi, verrà valutato ai fini della prova finale.

Art. 12 Modalità della prova finale e conoscenza della lingua straniera

Ai fini del conseguimento della Laurea, l'elaborato finale consiste in una relazione scritta su una specifica attività svolta dallo studente, sotto la guida di uno o più relatori, al fine di acquisire conoscenze utili per l'inserimento nel mondo del lavoro o per l'eventuale proseguimento degli studi. Tra i relatori deve essere presente almeno un docente del Dipartimento di riferimento o associato o del Corso di Studi.

L'elaborato finale è redatto in lingua inglese; in caso di utilizzo di altra lingua della UE è necessaria l'autorizzazione del CCS. In questi casi l'elaborato finale deve essere corredato dal titolo e da un ampio sommario in inglese. L'elaborato finale dovrà rivelare:

- adeguata preparazione di base;
- adeguata preparazione legate agli aspetti operativi e gestionali della nave;
- corretto uso delle fonti e della bibliografia;
- capacità sistematiche e argomentative;
- chiarezza nell'esposizione.

L'impegno richiesto allo studente per la preparazione della prova finale è commisurato al numero di crediti assegnati alla prova stessa.

La Commissione per la prova finale è composta da almeno cinque componenti compreso il Presidente ed è nominata dal Direttore del Dipartimento DITEN.

La valutazione della prova finale da parte della Commissione avviene, in caso di superamento della stessa, attribuendo un incremento, variabile da 0 a 8, massimo stabilito dalla Scuola Politecnica di concerto con i Dipartimenti, alla media (in centodecimi) ponderata dei voti riportati nelle prove di verifica relative ad attività formative che prevedono una votazione finale, assumendo come peso il numero di crediti associati alla singola attività formativa.

L'eventuale periodo di studio all'estero, che abbia comportato riconoscimento di crediti formativi, darà luogo all'incremento fino a 1 punto alla media ponderata di cui sopra.

Art. 13 Orientamento e tutorato

La Scuola Politecnica, di concerto con il Dipartimento DITEN, organizza e gestisce un servizio di tutorato per l'accoglienza e il sostegno degli studenti, al fine di prevenire la dispersione e il ritardo negli studi e di promuovere una proficua partecipazione attiva alla vita universitaria in tutte le sue forme.

Il CCS individua al suo interno un numero di tutor in proporzione al numero degli studenti iscritti. I nominativi dei tutor sono reperibili nel sito web di Ateneo, raggiungibile da quello del Corso di

Laurea.

Art. 14 Verifica dell'obsolescenza dei crediti

I crediti formativi universitari acquisiti nell'ambito del corso di laurea possono essere sottoposti a verifica di obsolescenza dopo 6 anni. Qualora il CCS riconosca l'obsolescenza anche di una sola parte dei relativi contenuti formativi, lo stesso CCS stabilisce le prove integrative che dovranno essere sostenute dallo studente, definendo gli argomenti delle stesse, le modalità di verifica, la composizione della commissione di esame.

Una volta superate le prove integrative previste, il CCS convalida i crediti acquisiti con apposita delibera. Qualora la relativa attività formativa preveda una votazione, la stessa potrà essere variata rispetto a quella precedentemente ottenuta, su proposta della Commissione d'esame che ha proceduto alla verifica.

Art. 15 Manifesto degli Studi

Il Dipartimento DITEN, sentita la Scuola Politecnica, approva e pubblica annualmente il Manifesto degli Studi del Corso di Laurea nel sito web di Ateneo, raggiungibile da quello del Corso di Laurea. Nel Manifesto sono indicate le principali disposizioni dell'Ordinamento didattico e del Regolamento didattico del Corso di Laurea, a cui eventualmente si aggiungono indicazioni integrative.

Il Manifesto degli Studi del Corso di Laurea contiene l'elenco degli insegnamenti attivati per l'anno accademico in questione. Le schede dei singoli insegnamenti sono pubblicate sul sito web di Ateneo, raggiungibile da quello del Corso di Laurea.

Allegato 1 Parte speciale del Regolamento didattico del Corso di Laurea in Maritime Science and Technology della Scuola Politecnica

Elenco delle attività formative attivabili e relativi obiettivi formativi

Indirizzo	Anno di corso	Codice	Nome_ins	Nome_ins EN	CFU	SSD	Tipologia	Ambito	Lingua	Propedeuticità	Obiettivi formativi	Ore riservate attività didattica assistita	Ore riservate allo studio personale
DECK OFFICER	1	101116	MATHEMATICS AND ALGEBRA	MATHEMATICS AND ALGEBRA	12		DI BASE	Matematica, Fisica, Chimica, Informatica				0	0
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101116	MATHEMATICS AND ALGEBRA	MATHEMATICS AND ALGEBRA	12		DI BASE	Matematica, Fisica, Chimica, Informatica				0	0
DECK OFFICER	1	101117	MATHEMATICS	MATHEMATICS	6	MAT/05	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese		The aim of this course is to provide a practical working tool for students where rigorous Calculus is needed. The main focus is on the study of functions of one real variable (continuity, derivative, maxima/minima, integration) and a brief introduction to multivariable calculus (oriented towards finding maxima/minima). The last part of the course is oriented towards basic ordinary differential equations (for example separation of variables, linear first-order, and constant coefficients ODE).	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101117	MATHEMATICS	MATHEMATICS	6	MAT/05	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese		The aim of this course is to provide a practical working tool for students where rigorous Calculus is needed. The main focus is on the study of functions of one real variable (continuity, derivative, maxima/minima, integration) and a brief introduction to multivariable calculus (oriented towards finding maxima/minima). The last part of the course is oriented towards basic ordinary differential equations (for example separation of variables, linear first-order, and constant coefficients ODE).	60	90
DECK OFFICER	1	101118	ALGEBRA	ALGEBRA	6	MAT/03	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese		The course aims to provide basic technical notions and tools on complex numbers, linear algebra and analytical geometry.	60	90
ENGINEER OFFICER AND ELECTRO-	1	101118	ALGEBRA	ALGEBRA	6	MAT/03	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese		The course aims to provide basic technical notions and tools on complex numbers, linear algebra and analytical geometry.	60	90

TECHNICAL OFFICER												
DECK OFFICER	1	101119	PHYSICS	PHYSICS	6	FIS/01	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	"Understand basic physical fundamentals and the key vocabulary to describe them: kinematics, dynamics, work and energy, rotations, fluids. Develop skills in observation, interpretation, reasoning, synthesis, generalizing, predicting, and questioning as a way to learn new knowledge. Develop scientific problem solving skills, including organization of given information, identification and application of pertinent principles, quantitative solutions, interpreting results, and evaluating the validity of results. Apply conceptual understanding of the physics to general real-world situations, and recognize how and when physics methods and principles can help address problems in their future courses and then apply those methods and principles to solve new problems.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101119	PHYSICS	PHYSICS	6	FIS/01	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	"Understand basic physical fundamentals and the key vocabulary to describe them: kinematics, dynamics, work and energy, rotations, fluids. Develop skills in observation, interpretation, reasoning, synthesis, generalizing, predicting, and questioning as a way to learn new knowledge. Develop scientific problem solving skills, including organization of given information, identification and application of pertinent principles, quantitative solutions, interpreting results, and evaluating the validity of results. Apply conceptual understanding of the physics to general real-world situations, and recognize how and when physics methods and principles can help address problems in their future courses and then apply those methods and principles to solve new problems.	60	90
DECK OFFICER	1	101120	ICT	ICT	9	ING-INF/05	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	The course aims at introducing the student in the field of modern electronic methods for the management of information, related communications and basic methods of calculation. The course follows two distinct strands; the first concerns the study of the architecture of computing systems, the representation of information within them, the organization and operation of networks and of the Internet; the second teaches on the fundamentals of programming.	72	153

ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101120	ICT	ICT	9	ING-INF/05	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	The course aims at introducing the student in the field of modern electronic methods for the management of information, related communications and basic methods of calculation. The course follows two distinct strands; the first concerns the study of the architecture of computing systems, the representation of information within them, the organization and operation of networks and of the Internet; the second teaches on the fundamentals of programming.	72	153
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101121	CHEMISTRY	CHEMISTRY	6	CHIM/03	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	"Acquiring rigorous methodology to describe as accurately as possible the fundamental phenomena that are the basis of chemical systems; knowing how to understand and use the minimum mathematical formalism required to interpret them. Physical and chemical properties of fuels, lubricant etc."	60	90
DECK OFFICER	1	101122	OPTIMIZATION METHODS	OPTIMIZATION METHODS	6	MAT/09	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	The Course introduces to optimization models and methods for the solution of decision problems, with particular attention to models and problems arising in Maritime. In particular the focus will be on route planning, cargo loading and stowage, flow management.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101122	OPTIMIZATION METHODS	OPTIMIZATION METHODS	6	MAT/09	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	The Course introduces to optimization models and methods for the solution of decision problems, with particular attention to models and problems arising in Maritime. In particular the focus will be on route planning, cargo loading and stowage, flow management.	60	90
DECK OFFICER	1	101123	SHIP STABILITY	SHIP STABILITY	9	ING-IND/01	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese	The course provides knowledge about the buoyancy and the stability of ships, both in intact and damaged conditions, with appropriate reference to relevant IMO regulations. Specific attention will be given also to some operational aspects e.g. to cargo handling and stowage.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101123	SHIP STABILITY	SHIP STABILITY	9	ING-IND/01	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese	The course provides knowledge about the buoyancy and the stability of ships, both in intact and damaged conditions, with appropriate reference to relevant IMO regulations. Specific attention will be given also to some operational aspects e.g. to cargo handling and stowage.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	1	101124	PHYSICS II	PHYSICS II	12	FIS/01	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese	The specific training objective is to provide the student with the ability to solve elementary but concrete problems. This implies that the student must know how to distinguish between fundamental concepts (electric and magnetic fields and forces, works, Gauss's laws, Ampere's, Faraday's, ...) and more specific issues (motion of charges in electromagnetic	96	204

											fields, cylindrical condensers, ...) demanding a thorough understanding of fundamental concepts.		
DECK OFFICER	1	101125	INTERNATIONAL MARITIME LAW	INTERNATIONAL MARITIME LAW	6	IUS/06	CARATTERI ZZANTI	Discipline Giuridiche	Inglese		The aim of the course is to introduce students to the knowledge of the basic items concerning the vessels' utilization, including their safety and security, and maritime carriages of goods, through an analysis of the relevant national, international and E.C. laws and rules.	60	90
DECK OFFICER	1	101142	MARITIME TRASPORT ECONOMICS	MARITIME TRASPORT ECONOMICS	6	SECS-P/06	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese		The course provides the specificities of the sector and the contribution provided to the general economic theory, the knowledge of the distinctive characteristics of the different modes of maritime transport and the forms of integration and competition, the markets in which the companies operate and the economic policy guidelines that drive International trade and sea transport.	60	90
DECK OFFICER	1	101143	NAVIGATION	NAVIGATION	9	FIS/06	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese		The course offers a throughout understanding of the procedures that are relevant for the maritime navigation: a theoretical part allows to focus on the physics, geodesy and astronomy items related to navigation, while an operational part will focus on the methods that are necessary to carry out a reliable voyage planning and a correct execution, taking into account the use of nautical charts and publications, ship's routing and ship's reporting systems. The position fixing will be analysed both in terms of coastal and celestial navigation considering the support provided by proper Aids to Navigation and the use and control of traditional instruments such as the magnetic and gyro compass and the marine sextant. The IAMSAR procedures are also taken into account.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101126	AUTOMATION AND CONTROL FOR ELECTRIC MARINE APPLICATIONS	AUTOMATION AND CONTROL FOR ELECTRIC MARINE APPLICATIONS	6	ING-IND/33	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese		Automation and control are essential functions for the ship correct and efficient management. The course presents the fundamental concepts of automatic control enabling the student to deduce mathematical models and to synthesize controllers by a practical approach for the dynamic systems of plants, processes and time-varying behaviors in electric, thermal and mechanical marine applications.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101127	MACHINERY	MACHINERY	6	ING-IND/08	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese		The module provides the students with the fundamental skills to interpret the processes, as well as the technologies, related to fluid machines, thermal machines and energy conversion systems. This allows the student to master the basic principles of thermodynamics and fluid dynamics when applied to the design	60	90

											and the analysis of energy conversion equipment, as well as to address the functional behavior of fluid machines.		
DECK OFFICER	2	101128	SHIP STRUCTURES AND STRENGTH	SHIP STRUCTURES AND STRENGTH	9	ING-IND/02	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		The course aims at providing students with professional competences about fundamentals of shipbuilding and ship structures, showing typical methods and languages, i.e. structural plans and drawings, to describe the hull, its structural lay-out, its components and equipment. Various merchant ship types are presented, highlighting peculiarities of each. The course includes a description of ship structural design and analysis from a global view to construction details. The general scantling criteria of ship structures and components is also summarized with reference to rules and regulations of classification societies.	90	135
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101128	SHIP STRUCTURES AND STRENGTH	SHIP STRUCTURES AND STRENGTH	9	ING-IND/02	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		The course aims at providing students with professional competences about fundamentals of shipbuilding and ship structures, showing typical methods and languages, i.e. structural plans and drawings, to describe the hull, its structural lay-out, its components and equipment. Various merchant ship types are presented, highlighting peculiarities of each. The course includes a description of ship structural design and analysis from a global view to construction details. The general scantling criteria of ship structures and components is also summarized with reference to rules and regulations of classification societies.	90	135
DECK OFFICER	2	101129	SHIP PROPULSION	SHIP PROPULSION	6	ING-IND/02	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		The course will deal with the management and the operation of the propulsion plant. Plan and schedule operations: propulsive characteristics. Operation, performance assessment.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101129	SHIP PROPULSION	SHIP PROPULSION	9	ING-IND/02	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		The course will deal with the management and the operation of the propulsion plant. Plan and schedule operations: propulsive characteristics. Operation, performance assessment.	90	135
DECK OFFICER	2	101130	ENGLISH	ENGLISH	6	L-LIN/12	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese		"The aim is for trainees to acquire English language competence towards B2 level according to the Common European Framework of Reference. They will be able to enhance their communicative competence by developing their grammar, pronunciation, and lexis, together with their language skills of listening, reading, writing, and speaking. Trainees will develop their ability in using	60	90

										specialized Maritime English for Deck Officers, Marine Engineers and Electro-Technical Officers, with specific reference to the standard IMO Model Training Course 3.17. They will be able to demonstrate their acquired language competence in the final oral exam.		
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101130	ENGLISH	ENGLISH	6	L-LIN/12	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese	"The aim is for trainees to acquire English language competence towards B2 level according to the Common European Framework of Reference. They will be able to enhance their communicative competence by developing their grammar, pronunciation, and lexis, together with their language skills of listening, reading, writing, and speaking. Trainees will develop their ability in using specialized Maritime English for Deck Officers, Marine Engineers and Electro-Technical Officers, with specific reference to the standard IMO Model Training Course 3.17. They will be able to demonstrate their acquired language competence in the final oral exam		
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101131	SHIPBOARD POWER SYSTEMS	SHIPBOARD POWER SYSTEMS	6	ING-IND/33	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese	The teaching of shipboard electrical systems aims to consolidate the skills of the maritime students in an application context of the knowledge of electrical engineering. Training proposals are proposed on the knowledge of the principal components and main characteristics associate to electrical machines. The correct definition and basic sizing and operation of power system distributions and protection devices.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101132	SHIPBOARD POWER SYSTEM CONTROL	SHIPBOARD POWER SYSTEM CONTROL	6	ING-IND/33	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative		The aim of the course is to introduce students to the basic problems related to the operation of the electric propulsion on ships, to guide in understanding the technologies and electrical problems due to the complexity of the ship. The correct sizing and energy balance of the power system and basic configuration in compliance with the current normative and standards.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101133	ELECTROTECNICS	ELECTROTECNICS	6	ING-IND/31	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese	The course gives the essential elements for understanding of analysis and exploitation of the electromagnetic phenomena. In the first part of the course the instruments for static and quasi-static analysis by circuit methods are introduced. In the second part of the course the principal application aspects of exploitation of power electromagnetic phenomena are introduced: electrical motors, power electronics and power electrical systems.	60	90

ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	2	101134	SHIP PLANTS AND SYSTEM SAFETY	SHIP PLANTS AND SYSTEM SAFETY	9	ING-IND/02	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		Design principles of ship propulsion plants, ship auxiliary plants and ship safety plants. Manage fuel, lubrication and ballast operations. Pumps and piping operation and maintenance. Manage safe and effective maintenance. Planning maintenance. Safety procedures. Life saving appliances. Fire fighting. Fire detection. Fire prevention	90	135
DECK OFFICER	2	101144	ELECTRONIC NAVIGATION	ELECTRONIC NAVIGATION	9	ICAR/06	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		Principles of operation and accuracy of the main electronic navigation systems, including GNSS and Loran, for fixing position and navigation. Content, accuracy and formats of electronic cartography, with emphasis on electronic nautical cartography (ENC); GIS software for the management, visualisation and analysis of cartographic data and main features of ECDIS. Theoretical basis of geodesy and statistical treatment of measurements.	90	135
DECK OFFICER	2	101145	ICT 2	ICT 2	6	ING-INF/05	DI BASE	Matematica, Fisica, Chimica, Informatica	Inglese		Concepts and essential tools for using and programming computers; an effective synthesis between learning the basic concepts of information technology and their application on shipboard.	48	102
DECK OFFICER	2	101146	TELECOMMUNICATION	TELECOMMUNICATION	6	ING-INF/03	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		The course aims at introducing the basics of telecommunications, from signals (sampling, modulation, frequency analysis) to computer networks (transmission media and network protocols). At the end of the course, emphasis will be given to some of the main telecommunication systems usually present onboard by analysing the technology behind RADAR, SONAR and GPS.	60	90
DECK OFFICER	2	101147	SHIP MANAGEMENT	SHIP MANAGEMENT	6	SECS-P/08	CARATTERI ZZANTI	Discipline Economiche ed Aziendali	Inglese		The course, paving on a managerial approach, aims to analyse the operations and strategies of firms operating in maritime sectors. The course focuses on main theoretical concepts and perspectives related to transport demand and segmentation, transport capacity deployment and management, marketing, as well as competitive and growth strategies. Emphasis will be given to multinational corporations operating in the transport sectors, diversifying risk and their business portfolio.	48	102
DECK OFFICER	2	101148	OCEAN SCIENCE AND ENGINEERING	OCEAN SCIENCE AND ENGINEERING	6	ICAR/02	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		The aim of the course is to introduce the fundamentals of atmosphere and ocean dynamics that characterize meteocean conditions and climate from synoptic scale to the regional scales. Knowledge will be provided about synoptic charts and weather forecasting, ocean current systems and tides, wave storms and their generations, availability of data.	60	90

DECK OFFICER	2	101149	SHIP MANOEUVRABILITY	SHIP MANOEUVRABILITY	6	ING-IND/01	CARATTERI ZZANTI	Discipline Ingegneristiche	Inglese		The focus of the course is to raise physical and practical awareness of the vessel's dynamical response to all the main means of control and propulsion which could be installed on board (active or passive devices) under any condition with respect to the vessel type. Many operative scenarios will be vectorially analyzed with a practical mathematical and physical approach; amongst those: straight course stability, calm and heavy water manoeuvrability, approaching harbours, restricted waters and canals navigation, embarking/disembarking pilots, berthing and unberthing, drydocking, anchoring and emergency operations management.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101125	INTERNATIONAL MARITIME LAW	INTERNATIONAL MARITIME LAW	6	IUS/06	CARATTERI ZZANTI	Discipline Giuridiche	Inglese		The aim of the course is to introduce students to the knowledge of the basic items concerning the vessels' utilization, including their safety and security, and maritime carriage of goods, through an analysis of the relevant national, international and E.C. laws and rules.	60	90
DECK OFFICER	3	101135	LEADERSHIP&TEAMWORKING	LEADERSHIP&TEAMWORKING	6	SECS-P/10	CARATTERI ZZANTI	Discipline Economiche ed Aziendali	Inglese		Ability to apply task and workload management. Shipboard personnel management. International conventions. Decision making techniques.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101135	LEADERSHIP&TEAMWORKING	LEADERSHIP&TEAMWORKING	6	SECS-P/10	CARATTERI ZZANTI	Discipline Economiche ed Aziendali	Inglese		Ability to apply task and workload management. Shipboard personnel management. International conventions. Decision making techniques.	60	90
DECK OFFICER	3	101136	TRAINING ON BOARD	TRAINING ON BOARD	30		PER STAGE E TIROCINI	Per Stages e Tirocini Presso Imprese, Enti Pubblici o Privati, Ordini Professionali	Inglese		The curricular internship has the objective of including the student in a specific working reality of enbarquement or in industry in maritime sector.	0	750
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101136	TRAINING ON BOARD	TRAINING ON BOARD	30		PER STAGE E TIROCINI	Per Stages e Tirocini Presso Imprese, Enti Pubblici o Privati, Ordini Professionali	Inglese		The curricular internship has the objective of including the student in a specific working reality of enbarquement or in industry in maritime sector.	0	750
DECK OFFICER	3	101137	FINAL EXAM	FINAL EXAM	3		PROVA FINALE	Per la Prova Finale	Inglese		Project work on a particular topic based on the internship carried out supervised by a tutor.	0	75

ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101137	FINAL EXAM	FINAL EXAM	3		PROVA FINALE	Per la Prova Finale	Inglese		Project work on a particular topic based on the internship carried out supervised by a tutor.	0	75
DECK OFFICER	3	101138	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	6	M-STO/02	A SCELTA	A Scelta dello Studente	Inglese		The course aims to analyze the general features and historiographical interpretations of maritime and naval history in the modern age.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101138	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	MARITIME AND NAVAL HISTORY LABORATORY (NAVLAB)	6	M-STO/02	A SCELTA	A Scelta dello Studente	Inglese		The course aims to analyze the general features and historiographical interpretations of maritime and naval history in the modern age.	60	90
DECK OFFICER	3	101140	ELECTRIC MACHINES AND MAINTENANCE	ELECTRIC MACHINES AND MAINTENANCE	6	ING-IND/32	A SCELTA	A Scelta dello Studente	Inglese		Provide elements on the electrical equipment construction for low and high voltage applications. Provide the elements for diagnostics and maintenance of electromechanical components.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101140	ELECTRIC MACHINES AND MAINTENANCE	ELECTRIC MACHINES AND MAINTENANCE	6	ING-IND/32	A SCELTA	A Scelta dello Studente	Inglese		Provide elements on the electrical equipment construction for low and high voltage applications. Provide the elements for diagnostics and maintenance of electromechanical components.	60	90
DECK OFFICER	3	101141	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	6	SECS-P/07	AFFINI O INTEGRATIVE	Attività Formative Affini o Integrative	Inglese		The course will introduce the student on Analytical accounting and cost analysis. The planning and control procedures for budgeting. The analysis logic of the deviations.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101141	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	ACCOUNTING AND CONTROL IN SHIPPING COMPANIES	6	SECS-P/07	A SCELTA	A Scelta dello Studente	Inglese		The course will introduce the student on Analytical accounting and cost analysis. The planning and control procedures for budgeting. The analysis logic of the deviations.	60	90
DECK OFFICER	3	101258	FIRST AID AND MEDICAL CARE	FIRST AID AND MEDICAL CARE	6	MED/09	A SCELTA	A Scelta dello Studente	Inglese		The course will provide the skills related to the first and second level of training of seafarers designated to provide first aid and medical care on board the ships, in compliance to International Convention STCW 1978/1995 in its updated version in Manila in 2010.	60	90
ENGINEER OFFICER AND ELECTRO-TECHNICAL OFFICER	3	101258	FIRST AID AND MEDICAL CARE	FIRST AID AND MEDICAL CARE	6	MED/09	A SCELTA	A Scelta dello Studente	Inglese		The course will provide the skills related to the first and second level of training of seafarers designated to provide first aid and medical care on board the ships, in compliance to International Convention STCW 1978/1995 in its updated version in Manila in 2010.	60	90