



ROMÂNIA
"MIRCEA CEL BĂTRÂN" NAVAL ACADEMY
BACHELOR PROGRAM: Marine Engineering and Navigation /
Naval Electromechanics
DEPARTMENT: Naval Systems and Machinery
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Name of Study Program

NAVAL ELECTROMECHANICS (240 ECTS)

Introduction

The mission of the "NAVAL ELECTROMECHANICS" Bachelor Degree Program, developed by the Merchant Marine Faculty from the "Mircea cel Batran" Naval Academy is to continue the Romanian Maritime traditions, by developing general, specific and attitude competences:

- capable to fulfill the requirements of the Engineering Officer of the Watch onboard merchant vessels, according to the STCW 95 rules and regulations and previous amendments.

This mission will be accomplished by applying all procedures and activities requested by the Academy's Quality Management System and also fully compatible to the academic community aquis.

The values we want to implement for our success are:

- the professionalism, sustainable activity respect, honesty and correctitude in front of other people and his profession;
- the respect to other people, respect of the law, respect of the school's traditions and virtues;

Full-time Duration

8 semesters full time

Credits

240 ECTS +10 after graduating the final Bachelor exam

Level

Higher education

Degree

Bachelor Degree in Marine Engineering and Navigation

Learning outcome

After graduating the study program, the students should have:

- the capacity for collecting, processing and perform preliminary analysis of necessary information decisions preparing and performing;
- the ability for communication and negotiation within various cultural backgrounds;
- the ability to run through skills, methods, techniques and instruments specific to the specialization;
- ability to work on the computer;
- make them to communicate effectively and efficiently in English language direct by using specific communication techniques;
- the capacity to perform in a interdisciplinary and multicultural environment;

- an ethical behavior;
- the capacity of evaluation and self knowledge;
- the ability to collaborate effectively with specialists from other areas;
- the ability to initiate and develop small business and medium-sized enterprises in the area maritime (their own or with partners from abroad);
- the ability to adapt quickly and effectively as an engineer in new situations, and in a variety of different types of organizations and institutions.
- the orientation through quality;
- leader abilities;
- the ability develop various projects and to follow their implementation;
- the ability to perform safely the activities during the engineering watch;
- knowledge regarding the processes and phenomena specific naval systems;
- detailed knowledge of technologies on the manufacturing process of machinery and facilities;
- the ability to organize and conduct various activities in machinery spaces;
- the ability to determine by calculation and adjust the functional parameters, using documentation and specific instruments;
- the ability to perform repairs on machines and installations shipyards and their supervision as well as the organization of technological flow according to lists of repairs;

Prerequisites

Certified high school graduate, considered fit for the maritime profession after the special tests: psychological and medical exams.

Structure and organization

The studies are organized during 8 semesters, with annual training stages respecting both technical and vocational curricula.

Aims and Goals

During the study semesters, we try to develop an advanced engineering point of view, in direct relation with the specific maritime, to develop a high professional ethics and management competences. After Bachelor Degree program, the students will attend the certification exam, as stated by the Romanian Naval Authority.

Teaching and working methods

Lectures, individual and group exercises, project work and laboratory assignments, specific practical stages onboard merchant vessels.

Internationalization

The study program is partially internationally oriented. All subjects are taught in Romanian language. There will be accepted cadets from the partner Faculties enlisted in the Erasmus program.

1st YEAR OF STUDY

Code	Compulsory Subjects	Credits	O/V*	Credits per semester	
				1st Semester	2nd Semester
ENC-01	Linear Algebra, Analytic and Differential Analysis	5	O	5	
ENC-02	Mathematical Analysis	9	O	5	4
ENC-03	Fundamentals of Navigation	3	O		3

ENC-04	Physics	4	O		4
ENC-05	Chemistry	3	O		3
ENC-06	Computer Programming and Programming Language	6	O	3	3
ENC-07	English Language	4	O	2	2
ENC-08	Physical Education	2	O	1	1
ENC-09	Seamanship	4	O	4	
ENC-10	Materials Science and Engineering	5	O	5	
ENC-11	Maritime Law	2	O		2
ENC-12	Descriptive Geometry	5	O	5	
ENC-13	Technical Drawing and Information Graphics	5	O		5
ENC-14	Training	3	O		3
ENC-57	Fire Prevention and Fire Fighting	4	V		4
ENC-58	Personal Sea Survival Techniques	2	V		2
ENC-59	First Aid	2	V	2	
ENC-60	Onboard Personal Safety and Social Responsibilities	2	V	2	
ENC-61	English Language	4	V	2	2
ENC-62	2nd Foreign Language	2	V	1	1
TOTAL		Min 60		Min 30	Min 30

2nd YEAR OF STUDY

Code	Compulsory Subjects	Credits	O/V*	Credits per semester	
				1st Semester	2nd Semester
ENC-15	Thermal Engineering	6	O	6	
ENC-16	Special Mathematics	5	O	5	
ENC-17	Numerical Analysis	3	O		3
ENC-18	Electrical Measurements and Transducers	3	O		3
ENC-19	Mechanics	3	O	3	
ENC-20	Fluid Mechanics	4	O		4
ENC-21	Mechanisms and Machine Parts	4	O		4
ENC-22	Strength of Materials	8	O	5	3
ENC-23	System Theory and Automatic Control Sytem	3	O		3
ENC-24	Machine Tools and Dimensional Control	9	O	4	5
ENC-25	English Language	4	O	2	2
ENC-26	Fundamentals of Electrical Engineering	5	O	5	
ENC-27	Training	3	O		3
ENC-63	2nd Foreign Language	2	V		2
ENC-64	Carriage and Handling of Dangerous Goods	3	V		3
ENC-65	MARPOL	3	V		3
ENC-66	Competence in Using Survival Techniques, except for Fast Rescue Boats	2	V	2	
ENC-67	Maritime English and Interpersonal Communication Issues	2	V	2	
ENC-68	Physical Education	4	V	2	2
TOTAL		Min 60		Min 30	Min 30

3rd YEAR OF STUDY

Code	Compulsory Subjects	Credits	O/V*	Credits per semester	
				1st Semester	2nd Semester
ENC-28	Electrical Machines and Drives	7	O	5	2
ENC-29	Theory and Ship Design	8	O	8	
ENC-30	Internal Combustion Engines	8	O	4	4
ENC-31	Gas and Steam Power Plants	5	O		5

ENC-32	Hydro and Pneumatic Machines and Drives	8	O	3	5
ENC-33	Static Converters	3	O		3
ENC-34	Electronics	3	O	3	
ENC-35	Marine Automation	5	O	5	
ENC-36	English Language	4	O	2	2
ENC-37	Training- Marine Electromechanics	2	O		2
ENC-38	Electrical Equipment	3	O/V		3
ENC-39	Computer Networks and Data	4	O/V		4
ENC-40	Electrical Machinery	3	V/O		3
ENC-41	Software for Fully Automated Ships	4	V/O		4
ENC-69	2nd Foreign Language	4	V	2	2
ENC-70	Physical Education	2	V		2
ENC-71	Politology	2	V	2	
ENC-72	English Language	4	V	2	2
ENC-73	Naval History	2	V		2
TOTAL		Min 60		Min 30	Min 30

4th YEAR OF STUDY

Code	Compulsory Subjects	Credits	Subject Type	Credits per semester	
				1st Semester	2nd Semester
ENC-42	Gas and Steam Power Plants	3	O	3	
ENC-43	Internal Combustion Engines	5	O	5	
ENC-44	Marine Mechanical and Hydro Pneumatic Equipment	9	O	5	4
ENC-45	Ship Safety and Security	3	O	3	
ENC-46	Marine Refrigeration Equipment	3	O		3
ENC-47	Marine Electrical Equipment	6	O		6
ENC-48	English Language	4	O	2	2
ENC-49	Specialty Diploma Project		O		
ENC-50	Graduate Diploma	10	O		10
ENC-51	Repair and Maintenance Technology of Machinery and Equipment Onboard General Cargo Boats and Bulk Carriers	14	O/V	6	8
ENC-52	Running and Monitoring of Machinery and Marine Equipment	9	O/V	2	7
ENC-53	Economics and Logistics	4	O/V	4	
ENC-54	Repair and Maintenance Technology of Machinery and Equipment Onboard Carriers (Liquid Bulk and Dangerous Goods)	14	V/O	6	8
ENC-55	Safety and Urgency Procedures for Watchkeeping in Engine Rooms	9	V/O	2	7
ENC-56	ISM Code – Supplier Management Program	4	V/O	4	
ENC-74	2nd Foreign Language	4	V	2	2
ENC-75	Communication and Public Relations	2	V		2
ENC-76	Psychology and Sociology	2	V	2	
ENC-77	English Language	4	V	2	2
ENC-78	Physical Education	4	V	2	2
TOTAL		Min 70		Min 30	Min 40