



ROMÂNIA
"MIRCEA CEL BĂTRÂN" NAVAL ACADEMY
BACHELOR PROGRAM: Marine Engineering and Navigation /
Naval Electromechanics - NAVY
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 Navy Faculty from the "Mircea cel Batran" Naval Academy is to continue the Romanian Navy traditions, by developing general, specific and attitude competences:

- for the Navy, capable to partially fulfill the requirements of the Executive or Commanding Officer onboard navy vessels, according to the Navy Staff graduate profile.

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

- The graduate of "Mircea cel Bătrân" Naval Academy will act as an officer of the Romanian Navy, with operational competences in the technical specialty subject and in leadership at the level of combat service onboard military ships
- During their study period, the cadets gain abilities and competences according to the five main directions, considered to be mandatory for the navy officer position: fighter, technical specialist, educator, organizational leader, citizen.

In order to become a fighter, the cadet will be able to:

- to apply organization and operation principles and usage of weapon systems onboard military ships of the Naval Forces;
- to use military specific procedures for activities other than war;
- to use the algorithm for self-education, maintenance and development of fighter skills;
- to use English at level 2 of STANAG 6001;

- to use correctly: - military and special languages; performances to be attained by the combat service he is in charge of; principles and rules of communication at sea; principles and rules of communication with senior officers, partners and subordinate;

- to observe the regulations which influence the operation parameters of equipment and installation onboard the ship.

- to lead competently the individual front training and within the subunit;
- to control and lead the special training using the action procedures and techniques within the combat service onboard the ship;

- to adapt his conduct according to specific rules and under certain circumstances;
- to plan his and the subordinates' ongoing professional development;
- to effectively and timely use the combat means onboard ships during military actions at sea and on the river;

- to accomplish complex missions with high physical and psychical stress under heavy weather conditions;

- to counterstrike the effects of the disturbing factors during combat training activities;
- to appropriately fill in the Engine Room log as well as the other documents of the combat service he is in charge of;

- to correctly interpret the attained data and information;

To be considered as a valuable technical specialist, the cadet will be able:

- to use basic knowledge in the field of ship engineering and navigation as well as special and complementary knowledge; to acquaint himself with the latest professional performances and applications, to comprehend and apply field-specific principles and methods;

- to have general knowledge for scientific approaches of the field of ship engineering and navigation;

- to apply concepts, theories and investigation methods in the special field;

- to use the latest professional applications in his future activity;

- to apply regulatory basics of the combat service under various situational circumstances;

As an educator, the cadet will have:

- to apply the curricular theory ;

- to apply learning theories;

- to apply teaching and pedagogical theoretical principles;

- to apply the methodology for combat design, assessment and preparation;

- to acquire the methodology of general military training;

- to identify the type of human personality and to apply related investigation methods;

- to apply influential methods of subordinates' attitude and conduct;

- to apply intellectual activity procedures and techniques

As an organizational leader, the cadet will have:

- to assess the evolution of the Romanian military field;

- to apply the operational doctrine principles of Naval Forces;

- to apply military logistics principles;

- to apply peace-supporting military operations principles;

- to apply the leadership theory and the scientific management theory and practice onto specific military structures;

- to establish missions and give battle orders;

- to design, to plan, to organize and to carry out the combat training of the subordinate structure;

As a citizen, the cadet will:

- apply theories about the human being, the society, the state and the nation;

- observe and respect civil rights, freedoms and obligations;

- meet the maritime environment protection requirements;
- underline the advantages of the military type social organization;
- apply national and international security policies and strategies;
- align his activity and the activity of the subordinate unit into the European and NATO integration coordinates of Romania;
- operate with military and political doctrine elements;
- apply the laws and regulations specific to activities and life at sea and in ports
- adopt a responsible civic behavior;
- identify the historical and military evolution of the Romanian people and the Romanian Navy:
- be able to assess the spirit of the nation and the status of national security;
- correctly interpret the functional reasons of the Army in a state of law;
- identify the requests ensuing from the strategy of national security, the military strategy and the Naval Forces doctrine;
- honor the uniform and the institution he represents;
- establish optimal correlations between personal interests and those imposed by the norms of the military body and the laws of the country;
- manifest interest for the problems of the unit;
- prove comradeships and intervene in the settlement of moral-ethnic conflicts which might arise in the unit he is in charge of

Prerequisites

Certified high school graduate, considered fit for the military profession after the special tests: psychological, physical, medical and technical tests.

Structure and organization

The studier 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 military maritime, to develop a high professional ethics and management competences specific to the army. After Bachelor Degree program, the students will attend the basic navy course where their specific professional and transversal competences will be strengthen in order to meet the requirements of the officer's first position onboard or in the navy structures.

Teaching and working methods

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

Internationalization

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

1st YEAR OF STUDY

No.	Compulsory Subjects	Subject Code
1	Linear Algebra, Analytic and Differential Geometry	ENM-01
2	Mathematical Analysis	ENM-02
3	Fundamentals of Navigation	ENM-03
4	Physics	ENM-04
5	Chemistry	ENM-05
6	Computer Programming and Programming Language	ENM-06
7	English Language	ENM-07
8	Physical Education	ENM-08
9	Seamanship Training	ENM-09
10	Descriptive Geometry	ENM-10
11	Technical Drawing and Information Graphics	ENM-11
12	Materials Science and Engineering	ENM-12
13	Training	ENM-13
14	Weapon Systems	ENM-14
15	Basic Training	ENM-15

2nd YEAR OF STUDY

No.	Compulsory Subjects	Subject Code
1	Thermal Engineering	ENM-16
2	Special Mathematics	ENM-17
3	Numerical Analysis	ENM-18
4	Electrical Measurements and Transducers	ENM-19
5	Mechanics	ENM-20
6	Fluid Mechanics	ENM-21
7	Mechanisms and Machine Parts	ENM-22
8	Strength of Materials	ENM-23
9	System Theory and Automatic Control System	ENM-24
10	Fundamentals of Electrical Engineering	ENM-25
11	Machine Tools and Dimensional Control	ENM-26
12	English Language	ENM-27
13	Training	ENM-28
14	Military and Political International Relations	ENM-29
15	English Language –Military Terminology	ENM-30
16	History of Romanian Army and Navy	ENM-31

3rd YEAR OF STUDY

No.	Compulsory Subjects	Subject Code
1	Electrical Machines and Drives	ENM-32
2	Naval Architecture	ENM-33
3	Internal Combustion Engines	ENM-34
4	Marine Generators and Steam Turbines	ENM-35

5	Hydro and Pneumatic Machines and Drives	ENM-36
6	Static Converters	ENM-37
7	English Language	ENM-38
8	Training- Marine Electromechanics	ENM-39
Option A		
9a	Electrical Equipment	ENM-40
10a	Computer Networks and Data	ENM-41
11a	Marine Automation	ENM-42
12a	Electronic Devices and Circuits	ENM-43
Option B		
9b	Electrical Machinery	ENM-44
10b	Software for Fully Automated Ships	ENM-45
11b	Automatic Steering Systems	ENM-46
12b	Electronics	ENM-47
13	Communication and Public Relations	ENM-48
14	English Language –Military Terminology	ENM-49

4th YEAR OF STUDY

No.	Compulsory Subjects	Subject Code
1	Propulsion systems with Steam turbines	ENM-50
2	Marine Mechanical and Hydro Pneumatic Equipment	ENM-51
3	Marine Refrigeration Equipment	ENM-52
4	English Language	ENM-53
5	Marine Equipment Reliability and Maintenance	ENM-54
6	Leadership	ENM-55
7	Specialty Diploma Project	ENM-56
8	Graduate Diploma	ENM-57
Option A		
9a	Running and Monitoring of Machinery and Marine Equipment	ENM-58
10a	Technical Systems Management	ENM-59
11a	Damage Control	ENM-60
12a	Marine Electrical Energetics Systems	ENM-61
Option B		
9b	Safety and Urgency Procedures for Watch keeping in Engine Rooms	ENM-62
10b	Fundamentals of Logistics	ENM-63
11b	Ship Safety	ENM-64
12b	Marine Electrical Equipment	ENM-65
13	International Human Rights Law	ENM-66
14	English Language-Military Terminology	ENM-67
15	Military Psychology and Sociology	ENM-68

Elective Subjects**1st Year of Study**

No.	Elective Subjects	Subject Code
1	Fire Fighting and Fire Prevention	ENM-69
2	2nd Foreign Language – Military Terminology	ENM-70
3	English Language	ENM-71
4	Physical Education- Military Applications	ENM-72

2nd Year of Study

No.	Elective Subjects	Subject Code
1	Physical Education- Military Applications	ENM-73
2	English Language	ENM-74
3	2nd Foreign Language – Military Terminology	ENM-75

3rd Year of Study

No.	Elective Subjects	Subject Code
1	Physical Education- Military Applications	ENM-76
2	English Language	ENM-77
3	2nd Foreign Language – Military Terminology	ENM-78

4th Year of Study

No.	Elective Subjects	Subject Code
1	Physical Education- Military Applications	ENM-79
2	English Language	ENM-80
3	2nd Foreign Language – Military Terminology	ENM-81