Field of Study: Maritime and navigation engineering
Programme of studies: Navigation and maritime and fluvial transport

First year of study:

| Subject of study: Mathematical Analysis |  |
| CODE: D24NTMFL101 | NUMBER OF CREDITS: 4 |
| YEAR/SEMESTER: 1st year/1st semester | TYPE OF COURSE: fundamental |
| OBJECTIVES: The course offers the students basic theoretical and practical concepts related to the differential and integral study of functions of several variables and their applications. It allows the necessary practical skills and techniques associated to the differential and integral calculus. |
| TEACHING LANGUAGE: Romanian |
| EVALUATION: Written/oral examination |

| Subject of study: Physics |  |
| CODE: D24NTMFL103 | NUMBER OF CREDITS: 4 |
| YEAR/SEMESTER: First year / first semester | TYPE OF COURSE: fundamental |
| OBJECTIVES: Discipline "Physics" aims to familiarize students with the main physical phenomena from mechanical elements, covering chapters such as where atomic and nuclear physics. This knowledge, provided students are required to understand and manufacturing processes as well as operational activities and equipment repair. Moreover, the knowledge gained may allow improvement of technological processes. |
| TEACHING LANGUAGE: Romanian |
| EVALUATION: Written/oral |

| Subject of study: Chemistry |  |
| CODE: D24NTMFL102 | NUMBER OF CREDITS: 3 |
| YEAR/SEMESTER: 1st year/1st semester | TYPE OF COURSE: fundamental |
| OBJECTIVES: The development knowledge in the field of chemistry, close by practice and the relationship with the environment, contributes to technical formation of the students but also achieve a clear image of the phenomena taking place in the technological processes |
| TEACHING LANGUAGE: Romanian |
| EVALUATION: Written examination |

| Subject of study: Mathematical Analysis |  |
| CODE: D24NTMFL101 | NUMBER OF CREDITS: 4 |
| YEAR/SEMESTER: 1st year/1st semester | TYPE OF COURSE: fundamental |
| OBJECTIVES: The course offers the students basic theoretical and practical concepts related to the differential and integral study of functions of several variables and their applications. It allows the necessary practical skills and techniques associated to the differential and integral calculus. |
| TEACHING LANGUAGE: Romanian |
| EVALUATION: Written/oral examination |

| Subject of study: Physics |  |
| CODE: D24NTMFL103 | NUMBER OF CREDITS: 4 |
| YEAR/SEMESTER: First year / first semester | TYPE OF COURSE: fundamental |
| OBJECTIVES: Discipline "Physics" aims to familiarize students with the main physical phenomena from mechanical elements, covering chapters such as where atomic and nuclear physics. This knowledge, provided students are required to understand and manufacturing processes as well as operational activities and equipment repair. Moreover, the knowledge gained may allow improvement of technological processes. |
| TEACHING LANGUAGE: Romanian |
| EVALUATION: Written/oral |

| Subject of study: Chemistry |  |
| CODE: D24NTMFL102 | NUMBER OF CREDITS: 3 |
| YEAR/SEMESTER: 1st year/1st semester | TYPE OF COURSE: fundamental |
| OBJECTIVES: The development knowledge in the field of chemistry, close by practice and the relationship with the environment, contributes to technical formation of the students but also achieve a clear image of the phenomena taking place in the technological processes |
| TEACHING LANGUAGE: Romanian |
| EVALUATION: Written examination |
Subject of study: Programming computers and programming languages I

CODE: D24NTMFL104
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/ 1st semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students the basic computer terminology and concepts, a knowledge of the fundamental operating system functions, the theoretical and practical concepts of the Microsoft Office software applications as well as the Internet access and electronic communication.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Coman D., Bazele utilizării calculatoarelor, Note de curs, 2010.
Norton Peter, John Goodman, PC - Totul despre calculatoare personale, Editura Teora, 2001

Subject of study: Programming computers and programming languages II

CODE: D24NTMFL210
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/ 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: The course offers the students the basic concepts of programming languages, the description of algorithms, flowchart and pseudocode, basic concepts of C/C++ language and programming, a knowledge of data structures, functions and structured programming.
TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Coman D., Bazele utilizării calculatoarelor, Note de curs, 2010.

Subject of study: Linear Algebra, Analytical and Differential Geometry

CODE: D24NTMFL105 + D24NTMFL211
NUMBER OF CREDITS: 3 + 3
YEAR/SEMESTER: 1st year/1st and 2nd semester
TYPE OF COURSE: fundamental
OBJECTIVES: Knowledge of basic concepts and reasonings on the implementation of solid geometry relationships in vertical projection systems. Knowledge representation methods in two-dimensional space of elementary geometric elements such as point, line, plane or surface. Knowledge and use of the methods for determining the actual size of the specified geometric elements. Understanding how to make detail drawings and drawings.
CONTENT: Representation of point and line in the triple vertical projection Representation plan. Methods of transformation of the figures. Assembly drawing. Assembly. Representation and dimensioning of machinery parts. Tolerances and fits. Applying the skills of working with drawing tools at the level of descriptive geometry
Subject of study: Linear Algebra, Analytical and Differential Geometry
CODE: D24NTMFL212
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: fundamental

OBJECTIVES: The course offers the students basic theoretical and practical concepts of linear algebra, analytical and differential geometry and their applications. It allows the necessary practical skills used in the study and understanding of other disciplines, and in engineering problem solving.


TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Vladimirescu I., Grecu L., Algebra liniara, geometrie analitică și diferentială, EUC, 1994
C. Pătrăşcoiu, Algebră liniară, Reprografia Universității din Craiova, 1994
Vraciu G., Algebră liniară, Reprografia Universității din Craiova, 1994
Udrişte C., Algebră, geometrie analitică și diferențială, EDP, București, 1984

Subject of study: Materials science
CODE: D24NTMFL213
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 1st year/2nd semester
TYPE OF COURSE: fundamental

OBJECTIVES: The course offers the students theoretical and practical concepts on the chemical bonds, materials structures and properties related to the solidification, plastic deformation and heat treatment processes.


TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
Gingu, O., Sima, G., Stefan, I., Studiul materialelor – note de curs, Reprografia Universitatii din Craiova, 2011
Gingu, O., Materiale compozite usoare, Ed. Universitaria, Craiova, 2003
Mangra, M., Stîinta Materialelor. Curs, Reprografia Universitatii din Craiova, 1994
boats. Ships maintenance, waterproofing doors and hatches.

**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**
- Dictionar de marina – A. Bejan si M. Bujenița-Editura militara Bucuresti 1979,
- Instalatii navale de bord,constructie si exploatare- I. C. Ionita si J. Apostolache-Editura tehnica 1984,
- Manual de marinarie-M. Bujenti 1951,
- Indrumator marinaresc-M. Bujenița și N. Nigaru-Editura tehnica Bucuresti 1951,
- ABC-ul marinarului-ing. Ionescu Ghe. Si Manole I.-Editura tehnica 1976,
- Notiuni de greament,matelotaj si maneuvra ambarcatiunilor-Isbacescu Gh.-Editura Albina 1936,
- Croaziera cu vele – Radu Theodoru si Teodor Asimist-Editura Albatros Bucuresti 1985,
- Teoria navel-ing. I. Miulescu si ing. I. Cimpan-Editura militara Bucuresti 1973,
- « alpha » marine equipment-catalog materiale si subansamble-Site www.alp+na.nl,
- « Catalogue of marine accessories »-Site www.eval.gr,
- «Watersportaccessoires»-site www.lankhorsttaselaar.nl,
- « Vetus »-Site www.vetus.de.

**Subject of study:** English language I + II

**CODE:** D24NTMFL109 + D24NTMFL216

**NUMBER OF CREDITS:** 3 + 3

**YEAR/SEMESTER:** 1st year/1st + 2nd semester

**TYPE OF COURSE:** domain

**OBJECTIVES:** The course is designed to help students understand English words and paragraph and that is very important to understand English language

- Knowledge the necessary notions in English language for machine mechanisms and machinery

**CONTENT:** 1. An introduction into Engineering Materials Technology (Production phase, usage, recycling), Present Simple and Continuous
- The braking system in power cars (how brakes work, the concept of green brakes, ecological materials for brakes), describing events with Past Simple and Continuous,
- Composite technology (definition, applications, making a speech), Present Perfect vs. Past Simple, role-play
- High voltage cables (description, materials, uses), means of expressing the Future
- Describing properties of materials (using adverbs of manner), noun formation, vocabulary (describing tools, properties, uses), role-play
- Describing components and assemblies (plugs and sockets), presenting advantages and disadvantages Manufacturing techniques (drilling, flame-cutting, milling, sawing, shearing)
- Describing position of assembled components (cluster ballooning), prepositions for describing position, The Passive Voice, Engineering design-working with drawings (plan, cross-section, exploded view, elevation, schematic, specification), describing details Inventions: the incandescent lamp, present and past tenses revision
- Working with complex numbers, mathematical operations, fractions, Greek and Latin numeric prefixes

**TEACHING**

Characteristics of Materials, Some Phrases for Academic Writing Practice, Some Phrases for Describing Figures, Diagrams and for Reading Formulas, Grammar: Comparison, Processing and Performance, Classification of Materials, Grammar: Verbs, Adjectives, and Nouns followed by Prepositions
- Polymers, Word Formation: The Suffix -able/-ible, Properties of Polymers
- Case Study: Common Objects Made of Polymers Grammar: Reported Speech (Indirect Speech)
- Polymer Processing
- Composites, Case Study: Snow Ski, Grammar: Gerund (-ing Form)
- Case Study: Carbon Fiber Reinforced Polymer (CFRP)
- Technical Writing , Punctuation and capitalization, Making corrections and improvements on written drafts
- Being concise, Writing style - creating a warm, professional tone, Text abbreviations, Short words for emails and text messages, Identifying parts, Engine part vocabulary

**LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**
- 1. Vince, M, Advanced Language Practice; Macmillan Publishers, 2003;

**Subject of study:** Physical education and Sport I + II

**CODE:** D24NTMFL109 + D24NTMFL217

**NUMBER OF CREDITS:** 1+1

**YEAR/SEMESTER:** 1st year/1st + 2nd semester

**TYPE OF COURSE:** complementary

**OBJECTIVES:** the course is intended for students in order to preserve their health, increase their resistance to effort, harmonious physical development and create some sporting skills.
CONTENT: 1.-Running with changing tempo after 50m. and then 100-150m (3/4.2 / 4.4 / 4.2 / 4).
   -Conduction of the ball (repeat): depriving the opponent of the ball (learning) - football.
   2. -Processing an application hall of the hall with climbing, climbing, jumping, transport of weights.
   -Service - pick-up - pass (complex of procedures) passes from the top, bottom in 2 and 3 players (volleyball).
   3. - Initial testing through room tests
      -Mark, demarcation in relation 1-1 free on the whole ground (basketball)
   4. -Dribbling, walking - repeating items in different variants (basketball); playing 5x5 with focus on tracking balls at the board.
   5. Attack crash - learning the impulse, beat, jump, landing (volleyball); a two-way game with an emphasis on performing the service and attack strike in different areas.
   6. -Dropping the ball in dribbling - learning; 5x5 game with emphasis on this technical process.
   Taking the ball out of work - repeating with emphasis on excessive leg flexion. Bilateral game with emphasis on taking two hands down.

TEACHING LANGUAGE: Romanian

EVALUATION: sports tests

BIBLIOGRAPHY (selective):

Subject of study:
Technical drawing and infographics

CODE: D24NTMF320
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/1nd semester
TYPE OF COURSE: domain

OBJECTIVES: The course is designed to help students understand the importance of Technical drawing and infographics - Knowledge in the representation of machine mechanisms and machinery;


TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral exam

BIBLIOGRAPHY (selective):
1. R. Păunescu, Desen tehnic și infografică , Universitatea din Brasov.
3. Al. Ene, Desen tehnic industrial, Editura Avrămeana, Craiova 1993
4. Al. Ene, Desen geometric, Craiova, 1992
5. Traian Popescu s.a., Desen tehnic de la schita la ansamblu, Editura Universitaria Craiova, 2006
6. *** STAS desen tehnic Seria U10

Second year of study:

Subject of study:
Numerical Methods

CODE: D24NTMF429
NUMBER OF CREDITS: 4
YEAR/SEMESTER: 2nd year/2nd semester
TYPE OF COURSE: fundamental

OBJECTIVES: The course offers the students basic theoretical and practical concepts regarding the most important numerical techniques and their applications in solving problems, and the implementations of algorithms in numerical calculus programs.


TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):
Grecu Luminita, Metode numerice cu aplicății in C/C++, Editura Universitaria 2009
Valeriu Iorga, Boris Jora, Metode Numerice, Editura Albastra, 2008
Ebăncă D., Metode de calcul numeric, Ed. SITECH, Craiova, 1994.
Postolache M. Metode nemerice, Ed.Sirius, București, 1994
Ghinea M., Fireteanu V., MATLAB - calcul numeric, grafică, aplicatii, Teora, 1999

**Subject of study: Special mathematics**

**CODE:** D24NTMFL321  
**NUMBER OF CREDITS:** 4  
**YEAR / SEMESTER:** year II/ 1st semester  
**TYPE OF COURSE:** fundamental  
**OBJECTIVES:** The course aims to familiarize the students with the Special mathematics and basic statistical concepts and features, and also with the mathematical framework needed for statistical and informational processing of the data obtained in various measuring processes.  
**CONTENT:** Special mathematics elements, Event, probability, random variable. Typical values used in the study of the repartition for the measuring results and errors. Classical repartitions. Statistical series. Typical values of the distribution series (the indexes of the central trend, mean, median, dominant) Correlation definition, types, basic methods. Elements of poll theory and methods.  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** written examination  
**BIBLIOGRAPHY (selective):** Adela Ionescu. Informational processing of measuring data. Editura Reprograph Craiova, 2007  
M. Costescu, N. Vasilescu, C. Ionascu, Statistica si elemente de teoria sondajului. Editura Reprograph, Craiova, 2000  

**Subject of study: Basics of Computer Aided Design I + II**

**CODE:** D24NTMFL322 + D24NTMFL430  
**NUMBER OF CREDITS:** 3 + 3  
**YEAR/SEMESTER:** 2nd year/ 1st and 2nd semester  
**TYPE OF COURSE:** fundamental  
**OBJECTIVES:** Basics of the computer aided design – 2D drawing and 3D modeling using surface and solid features. Ability to developed engineering CAD drafts from 3D computer models. Parametric design concepts, assembling, associative drafting development, basic engineering design concepts. Numerous exercises from laboratory classes will develop to students, strong abilities for using SolidWorks package.  
**CONTENT:** The role of a CAD system in the production cycle. Analytic representation of curves and surfaces used in CAD system. Modeling elements: layers, colors, line types. Wireframes modeling, entities selection, copy, move, editing features. Drafting, tolerances, formats, sections, views, hatching, 3D modeling using surfaces, primitives, revolution, extrusion, sweeping, lofting, blend, offset, filet and corners operations on solids. Solids editing, sketching features and concepts, profile, path 2D/3D cutting, splitting, design using features as holes, drafts, fillets, shells, sweeps, ribs, chamfers. Parametric modeling using relations and Excel sheets. Assembling, degrees of freedom, components table, interference checking.  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** written examination  
**BIBLIOGRAPHY (selective):** Bazele proiectării asistate de calculator, Note de curs, Roșca A., Reprografia Universității, 2001  
Proiectarea în plan cu Autocad R12, Roșca A. Ş.a., CERTI 1995  
Proiectare asistată, Mazilu D., Note ce curs, Reprografia Universității, 1999  
*** Documentaţia de firmă SolidWorks.

**Subject of study: Strength of Materials I + II**

**CODE:** D24NTMFL323 + D24NTMFL431  
**NUMBER OF CREDITS:** 4-3  
**YEAR/SEMESTER:** 2nd year / 1st+ 2nd semester  
**TYPE OF COURSE:** Domain  
**OBJECTIVES:** Dissemination of information regarding the main aspects of the mechanical resistance of materials is the main objective. Offering to the students the methods of analysis and calculation specific to the mechanical resistance of materials is objective as well.  
**CONTENT:**  
1. Generalities  
2. Stresses in transversal sections of bars  
3. Tensile and compression  
4. Conventional calculation in shear of bars  
5. General stress and strain status  
6. Applications  
2. Twisting of circular bars  
5. Strain of bended bars  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** written examination  
**BIBLIOGRAPHY (selective):** Savu, I. D. – Mechanical Resistance of Materials – Course notes  
### Subject of study: Thermotechnics I + II

**CODE:** D24NTMFL325 + D24NTMFL432  
**NUMBER OF CREDITS:** 3 + 3  
**YEAR/SEMESTER:** 2nd year/1st and 2nd semester  
**TYPE OF COURSE:** domain  
**OBJECTIVES:** The course offers the students theoretical and practical concepts of the thermodynamics of the heating processes  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** Written/oral examination  
**BIBLIOGRAPHY (selective):**  
Nicoleșcu, s.a. – Apps in thermotechnics and thermal machines, SDP Publishing House, Bucharest, 1962.  
Savu, S – Course notes

### Subject of study: Electromagnetic engineering and electrical machines I + II

**CODE:** D24NTMFL326 + D24NTMFL433  
**NUMBER OF CREDITS:** 3+3  
**YEAR/SEMESTER:** 2nd year/ 1st and 2nd semester  
**TYPE OF COURSE:** domain  
**OBJECTIVES:** The course offers to students theoretical and practical concepts regarding electromagnetic phenomena, electric circuits analysis, construction and operating of electrical machines.  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** Written/oral examination  
**BIBLIOGRAPHY (selective):**  
Şoara C. - Bazele electrotehnicii, Editura didactică și pedagogică, București, 1982  
Nicula Al., Cristea Gh., Simon S. - Electricitate și magnetism, Editura didactică și pedagogică, București, 1982  
Priboi M. - Electrotehnică, Editura Sitech, Craiova, 2001  
Bâlă C. – Mașini electrice, Editura Didactică și Pedagogică, București 1982

### Subject of study: Materials technology

**CODE:** D24NTMFL434  
**NUMBER OF CREDITS:** 3  
**YEAR/SEMESTER:** First year / 2nd semester  
**TYPE OF COURSE:** speciality  
**OBJECTIVES:** Discipline "Materials technology" aims to familiarize students with the main ways of obtaining metallic materials and their equilibrium diagrams and the main methods of processing materials. Emphasis is placed on acquiring key technologies, phenomena and processes which matter through to become a finished product. This knowledge, provided to the students are required to understand the manufacturing processes and as well the activities of exploitation and repair the equipment. Moreover, the knowledge gained may allow improvement of technological processes. The main objective is the acquisition of the method to obtain a particular product.  
**CONTENT:** Purpose and importance of technology materials, metal materials, classification and properties, primary development, Cast iron. Developing cast iron, steels. Develop steel, non-ferrous materials. Ferrous materials development, secondary development, casting metals, Physical basis of casting, casting methods, processing methods by plastic deformation of metallic materials, hot and cold plastic deformation, erosion processing; powder aggregation processing, permanent joints; welding, soldering joints, Cutting, metal, Protection of metallic materials against corrosion, control of non-metallic materials  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** Written/oral  
**BIBLIOGRAPHY (selective):**  
Aurel Nanu – Tehnologia Materialelor – Editura Didactică și pedagogică 1983  
Mihai Demian - Tehnologia Materialelor, Indrumar de laborator — Editura Universitaria 2009  
Sever Şoanta - Tehnologia Materialelor - Craiova 1980  
Vasile Popovici - Tehnologia Materialelor - Editura Politehnica 1985  

### Subject of study: Ports and waterways

**CODE:** D24NTMFL324  
**NUMBER OF CREDITS:** 3  
**YEAR/SEMESTER:** 2nd year/1st semester  
**TYPE OF COURSE:** domain  
**OBJECTIVES:** Knowledge, understanding, explanation and interpretation of the design, construction and operation of inland waterways. Knowledge, understanding, explanation and interpretation of port activities resulting from the economic efficiency of water transport  
**CONTENT:** Water transport. Technical and economic characteristics of water transport. The main traffic indicators. The waterway. Definitive classifications. Navigation gauges. Radius of

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

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### BIBLIOGRAPHY (selective):


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### Third year of study:

<table>
<thead>
<tr>
<th>Subject of study:</th>
<th>Electronics and Automation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE: D24NTMFL541</td>
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<tr>
<td>NUMBER OF CREDITS:</td>
<td>4</td>
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<tr>
<td>YEAR/SEMESTER:</td>
<td>3rd year/1st semester</td>
</tr>
<tr>
<td>TYPE OF COURSE:</td>
<td>fundamental</td>
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</tbody>
</table>

**OBJECTIVES:**
The course intends to familiarize the students with the general issues of modern electronics, with the procedures that are used in the study of the electronic devices and the characteristic functions, and also with the most usual electronic circuits. Also, it will be realized an introduction in the field of the general industrial automation.

**CONTENT:**

**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**

NUMBER OF CREDITS: 5  
YEAR/SEMESTER: 3rd year/1st semester  
TYPE OF COURSE: domain  

OBJECTIVES: Specialized discipline addresses issues regarding ship types, fundamental nautical qualities, buoyancy, stability of the ship, nescufundabilitatea, ship building so the graduate can make safe decisions in the design, construction and operation of the vessel can load situations and behavior analysis of ship during navigation.  


Ship construction. Regulations and international conventions. Class ship class restrictions. Framing systems.  

TEACHING LANGUAGE: Romanian  
EVALUATION: Written/oral examination  

BIBLIOGRAPHY (selective):  

Subject of study: Ports and waterways  
CODE: D24NTMF653  
NUMBER OF CREDITS: 4  
YEAR/SEMESTER: 3rd year/2nd semester  
TYPE OF COURSE: domain  

OBJECTIVES: The course offers students the theoretical and practical concepts of electrical and navigation on board the ship, with ensure an proper navigation, integrity of goods transported, necessary conditions for living and activities of crew and passengers.  


TEACHING LANGUAGE: Romanian  
EVALUATION: Written/oral examination  

BIBLIOGRAPHY (selective):  
Bozianu, Francisc Indrumar de proiectare. Echipamente si sisteme de navigatie maritima.
<table>
<thead>
<tr>
<th>Subject of study: Planning and execution of the voyage</th>
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<tbody>
<tr>
<td><strong>CODE:</strong> D24NTMF658 + D24NTMF657</td>
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<tr>
<td><strong>NUMBER OF CREDITS:</strong> 3 + 3</td>
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<tr>
<td><strong>YEAR/SEMESTER:</strong> 3rd year/2nd semester</td>
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<tr>
<td><strong>TYPE OF COURSE:</strong> the specialty</td>
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<tr>
<td><strong>OBJECTIVES:</strong> The discipline addresses specialty</td>
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<tr>
<td>fundamental themes of port activities in maritime</td>
</tr>
<tr>
<td>and river transport of goods.</td>
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<td><strong>CONTENT:</strong> Role and transport features. Facilities</td>
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<tr>
<td>and port facilities. Specialized areas of port activity.</td>
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<tr>
<td><strong>TEACHING LANGUAGE:</strong> Romanian</td>
</tr>
<tr>
<td><strong>EVALUATION:</strong> Written/oral examination</td>
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<tr>
<td><strong>BIBLIOGRAPHY (selective):</strong></td>
</tr>
<tr>
<td>Popa, Dan; Popa, Dan Tehnici si echipamente GMDSS. Editura Ervin Press , Bucuresti 2003</td>
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<table>
<thead>
<tr>
<th>Subject of study: General Economics</th>
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<tr>
<td><strong>CODE:</strong> D24NTMF548</td>
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<tr>
<td><strong>NUMBER OF CREDITS:</strong> 3</td>
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<tr>
<td><strong>YEAR/SEMESTER:</strong> 3rd year/1st semester</td>
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</table>

**Subject of study:** Navigation on inland channels

**CODE:** D24NTMF658

**NUMBER OF CREDITS:** 3

**YEAR/SEMESTER:** 3rd year/2nd semester

**TYPE OF COURSE:** specialty

**OBJECTIVES:** The course offers the students theoretical and practical concepts regarding navigation activity on inland waterways. Teach the students the basis of the navigation principles regarding the way of the ship, the route, weather and water level predictions and convoy dimensions calculation. Evaluation of the waterway flow for navigation safety.


**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**
- Comisia Dunării-Annuaire hydrologique –ediţiile 1990-1999
- Comisia Dunării 1964-Regulii de supraveghere fluviului aplicabile pe Dunăre
- Comisia Dunării 1965- Recomandări referitoare la modul de stabiliere şi comunicare a avizelor pe Dunăre
- Comisia Dunării -Recomandări referitoare la condițiile tehnice pe care trebuie să le satisfacă porturile, radele și alte locuri destinate convoaielor impinse.
- Comisia Dunării 1986-Coordonarea Serviciilor hidrometeorologice pe Dunăre
- Comisia Dunării 1958-Dispoziţii fundamentale referitoare la navigația pe Dunăre
- Comisia Dunării 1973-Albumul curbelor Dunării
- Consiliul Europei -Directica Europeană 2005/44/EC (Directiva RIS)
- Consiliul Europei -Regulamentele RIS 414 / 415 / 416 din 2007
TYPE OF COURSE: B

OBJECTIVES: The essential aim of the course is to train specialists in economics by accumulating theoretical and methodological knowledge necessary to understand the complexity of real economic life, economic structures' dynamics and of multiple relationships between economic agents. Another purpose is to arouse interest in economics as an exciting and useful science. Initiation of students into this science will allow analyzing real economic situation, making the right economic decisions and acting accordingly.

CONTENT: ECONOMICS - FORM OF HUMAN ACTIVITY; ECONOMY AND ECONOMIC SCIENCES SYSTEM; MARKET ECONOMY; CONSUMER BEHAVIOR THEORY; THEORY OF MANUFACTURER, SUPPLY AND DEMAND; MARKET, COMPETITION AND PRICE; INCOME; DISTRIBUTION; MEASURING ECONOMIC ACTIVITY AT MACROECONOMIC LEVEL; LABOR MARKET AND UNEMPLOYMENT; MONETARY MARKET AND INFLATION, FINANCIAL MARKET, INCOME, CONSUMPTION AND INVESTMENTS; ECONOMIC FLUCTUATIONS.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):


Subject of study:
- The basics of radiolocation and hydrocolocation
- Knowledge of the necessary notions in the representation of machine mechanisms and machinery:
  - Knowledge of the application states studied and applied to the machine organs in operation.

CONTENT: International regional Convention about radio traffic in Very High Frequency. Different type of messages, danger (MayDay), emergency(PanPan), security (Securite) and usual messages. The official rules for the composition of the messages and the responses to these messages. Rules about the radio stations and the operators. Channels and frequencies, types of connections. The rules about the radio stations, technical and handling rules.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):
- Acordul regional cu privire la serviciul radiotelofonic pe căile de navigație interioară (Bâle, 6 aprilie 2000)
- Regulamentul stățiilor de radiocomunicații din România
- Ordinul Ministrului Transportului nr. 244/26.02.1972

Subject of study:
- Machine organs and mechanisms

CONTENT: Introduction, Mechanism structure, Mechanics kinematics, Dynamic analysis, Mechanics of the mechanism, Camshafts, Helical gear transmissions, Gear transmissions, Belt transmissions, Chains transmissions, Demountable assemblies, Non-assembled assemblies, Axles and shafts Pivots, Friction gears, Mechanical drives, Couplings, Elastic couplings

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):
Subject of study: Prevention of environmental pollution

**CODE:** D24NTMFL659
**NUMBER OF CREDITS:** 3
**YEAR/SEMESTER:** 3rd year/2nd semester

**OBJECTIVES:**
- Identifying the main sources of pollution on board ships and the technical means of limiting pollution.
- Organizing deployment operations on board the ship.
- Understanding, explaining the analysis and solving specific problems in the field of pollution and rules for preventing water pollution.

**CONTENT:**
1. Introduction. 2. Prevention of water pollution. 3. Sources of pollution, effects of pollution, pollutants. 4. Control organizations. 5. International collaboration in the fight for the prevention of transboundary pollution of Danube waters by navigational activity. 6. Technical requirements imposed on ships to prevent pollution. 7. Measures against water pollution. 8. Requirements for ships to prevent and reduce navigational accidents: actions taken in the event of fire or explosion, action taken in the event of a collision, actions in case of structural damage, actions in case of excessive inclination. 9. The current dimensions of environmental pollution. 10. Main IMO Conventions ratified by the Romanians: SOLAS, MARPOL, COLREG, TONNAGE.

**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written examination

**BIBLIOGRAPHY (selective):**
6. Pătrăuceanu D., Îndrumări privind prevenirea şi combaterea incendiilor la bordul navei CDPT.

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Fourth year of study:

Subject of study: Installations of board and deck

**CODE:** D24NTMFL765
**NUMBER OF CREDITS:** 4
**YEAR/SEMESTER:** 4th year/1st semester

**OBJECTIVES:** Discipline through lectures and practical work, to made theoretical and experimental study of each type of installations on board, operation and malfunction their.

**CONTENT:**
- Hydropneumatic characteristics of naval installations.
- Installations of loading / unloading.
- The steering equipment.
- The anchoring equipment.
- Mooring and tying ships. Towing.
- Salvage equipment.
- Handling facility covers. Propulsion system.
- Bilge ballast system.
- Oil separator residues.
- Fire equipment.
- Plumbing equipment.
- Operation, maintenance and overhaul of naval installations.

**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**
- Panaitescu, M. Panaitescu V. Mașini și instalații navale. Editura EX PONTO, Constanța, 2001
- Ioneț, I. Prevenirea si stingerea incendiilor la bordul navelor marine, fluviale si portuare (cunoaşterea tehnicii din dotare). Constanța, 1980
main aspects about the activity of the crew on board of the inland vessels. Teach the students about how to organize and lead the crew during navigation and cargo handling.

CONTENT: The bindings and attributions regarding organizing and leading the crew. What kind of competences of the leader might be given to the other crew member. Interactions between the members of the same professional group. Criteria regarding organizing and leading different activities of the crew. Tiredness effects and its tendency.

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):
- Curs IMO model 1.21.: Prolloficienci in Personal Safety and Social Responsibilities
- Ghid pentru dezvoltarea resurselor umane CPPMC Constanta
- Santion F.- Caracteristici pasiologice si psihosociale ale vieții si activitatii la bordul navelor W. Wagnoar – Personalul Injury Prevention
- Rolul comandamentului in colectarea evidentelor – Institutul nautic Londra
- Competenta in probleme de protectie individuala responsabilitati sociale la bordul navei CPPMC Constanta
- Managementul performantei si evaluarea angajatilor – Curs CODECS
- Managementul general al firmei. Regulamentul serviciului la bordul navelor fluviuale

Subject of study: Inland navigation, coastal waters and sea navigation I + II

CODE: D24INTMFL769 + D24INTMFL878
NUMBER OF CREDITS: 4 + 4
YEAR/SEMESTER: 4th year/ 1st and 2nd semester
TYPE OF COURSE: speciality

OBJECTIVES: The course offers the students theoretical and practical concepts about applicability of transportation contract. Knowledge about technique and commercial/ mercantile parameters are essential to achieve an efficient transportation and without loses. The "control of loosees" applying insurance rules such P&I or Lloyd.


TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):
- 1. Mircea Costin – Dreptul comertului international Ed. Lumina Lex, 1997
- 6. Gheorghe Stanciu – Dreptul de retentie, gajul si privilegiul carausului asupra marfii tarbnsportate, Ed. Lumina Lex, 1999

Subject of study: Ships bussines administration I + II

CODE: D24NTMFL770 + D24NTMFL879
NUMBER OF CREDITS: 3 + 3
YEAR/SEMESTER: 4th year/ 1st and 2nd semester
TYPE OF COURSE: speciality

OBJECTIVES: The course offers the students theoretical and practical concepts for inland

TEACHING LANGUAGE: Romanian

EVALUATION: Written/oral examination

BIBLIOGRAPHY (selective):

Subject of study: Maritime and river towing

CODE: D24NTMFL773
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/ 2nd semester
TYPE OF COURSE: speciality

OBJECTIVES: The course offers the students theoretical and practical concepts for inland
navigation and towing, transport, and salvage using river tugs.

**CONTENT:** Inland tug handling, evolution, classification, procedures, towing techniks. Different inland tugs type,harbour types,. Evaluatuan of the stability of the harbour tug, how to command the inland towed barge convoi and towing activity in different conditions. Typical towing manoeuvres . Towing for salvage/recue, refloatoing manoeuvres, special towing.

**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**
1. RECOMMANDATIONS RELATIVES A L'ETABLISSEMENT DES GABARITS DU CHENAL DES OUVRAGES HYDROTECHNIQUES ET AUTRES SUR LE DANUBE –Comisia Dunării –Budapesta 1988
3. DESCRIPTION DU CHENAL,DES DANGERS NAUTOIQUES ET DU BALISAGE - Comisia Dunării –Budapesta 1961
4. Constantin Savin - Hidrologia răurilor-teorectica şi aplicată - editura Reprograf Craiova 2001,
5. Regulamentul de navigaţie pe Dunăre în sectorul românesc –Inspectoratul de Stat al Navigaţiei Civile -ediţia 1993,
6. CEVNI -European code for inland waterways-revision 2 –United Nations-Economics-Commitison For Europe Inland Transport Committee 2002,
7. Navigaţia şi manevra navelor fluviatile- P.S.Bontideanu-Editura tehnica 1958,

**Subject of study: COLREG- Collision regulation**

**CODE:** D24NTMFL775

**NUMBER OF CREDITS:** 3

**YEAR/SEMESTER:** 4th year/1st semester

**TYPE OF COURSE:** Optional specialty

**OBJECTIVES:** Discipline through lectures and practical work, to realize theoretical and experimental study of naval propulsion installation in order to design, study and exploit them.


**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**
Panaitescu, M. Panaitescu V. Maşini şi instalaţii navale. Editura EX PONTO, Constanţa, 2004
Roman, C. Instalaţii şi sisteme navale funcţionale. Litografia Institutului de marinar „Miroea cel bătrân”, Constanţa, 1981
Samoliescu, Gh. Instalaţia de propulsie electrica a navii Editura ANMB, Constanţa 2004

**Subject of study: Regulations for Danube and Channel navigation**

**CODE:** D24NTMFL776

**NUMBER OF CREDITS:** 5

**YEAR/SEMESTER:** 4th year/2nd semester

**TYPE OF COURSE:** Speciality

**OBJECTIVES:** The course offers to the students theoretical and practical concepts for inland navigation, applying manoeuvring regulation , visual and acoustical signalisation rules, navigation dimensions of the convoys, signals and signs for manoeuvring. All procedures are mentioned in international inland navigation regulations.

**CONTENT:** General accepted definitions, the signalisation for day and night of the vessels, the signalisation of the waterway,.Spacial vizual and acustical signalizations. Signalization for regular and special convoy , pollution preventing rules for inland waterway. Other special rulkes and conditions for navigation.

**TEACHING LANGUAGE:** Romanian

**EVALUATION:** Written/oral examination

**BIBLIOGRAPHY (selective):**
Subject of study:
Ship handling, salvage and first aid

CODE: D24NTMFL877
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/2nd semester
TYPE OF COURSE: specialty

OBJECTIVES: The course offers the students theoretical and practical concepts about the main nautical qualities of the ship, knowledge about how the vessel is manoeuvred in different conditions.

CONTENT: Nautical and manoeuvring qualities of the ship. The effects of the rudder and propulsion, and different combination of these. Factors which determine specific movement of the vessel (flow, wind, power of the propulsion, surface of the rudder). The manoeuvre of one propeller vessel or two propellers, drop and heave the anchor manoeuvre, turning manoeuvre, come alongside and clearance manoeuvre. First aid and fire fighting activities.

TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
2. Balaban Gh., Conducerea navei, Ed. Tehnică, București, 1963

Subject of study:
Use of radar on international waterways

CODE: D24NTMFL771
NUMBER OF CREDITS: 3
YEAR/SEMESTER: 4th year/1st semester
TYPE OF COURSE: specialized

OBJECTIVES: Knowledge, understanding, explanation and interpretation of the theoretical foundations and methods of using the radar installation.


TEACHING LANGUAGE: Romanian
EVALUATION: Written/oral examination
BIBLIOGRAPHY (selective):
2. Bozianu, F Sisteme radioelectronice de navigatie. Note de curs, 1995
**Subject of study:**
River navigation

**CODE:** D24NTMFL885  
**NUMBER OF CREDITS:** 2  
**YEAR/SEMESTER:** 4\textsuperscript{th} year/2\textsuperscript{nd} semester  
**TYPE OF COURSE:** Specialized  
**OBJECTIVES:** Knowledge and understanding of the phenomena that influence navigation on inland waterways and factors that influence the ability to navigate safely. Understanding the theoretical background of ship and convoy behavior during navigation.  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** Written examination  

**Subject of study:**
International maritime law

**CODE:** D24NTMFL768  
**NUMBER OF CREDITS:** 3  
**YEAR/SEMESTER:** 4\textsuperscript{th} year/1\textsuperscript{st} semester  
**TYPE OF COURSE:** domain  
**OBJECTIVES:** Knowledge, understanding, explanation and interpretation: the legal regime of Romania's waterways; general notions of labor law, normative acts specific to labor law; maritime and river courts; the legal aspects of shipping, the registration and deletion of ships, the documents of the ship, the transcription of the constitution, modification and extinction of real rights over the vessel, the rights and obligations of the seafarers, their documents and their professional attestation.  
**TEACHING LANGUAGE:** Romanian  
**EVALUATION:** Written examination  