NATIONAL UNIVERSITY OF ENGINEERING
COLLEGE OF MECHANICAL ENGINEERING
NAVAL ENGINEERING PROGRAM

MV113 – NAVAL FUNDAMENTALS

I. GENERAL INFORMATION

COURSE	**:** MV113 Naval Fundamentals
SEMESTER	**:** 1
CREDITS	**:** 1
HOURS PER WEEK	**:** 3 (Theory–Practice)
REQUIREMENTS	**:** None
CONDITION	**:** Mandatory

II. SUMMARY

The course prepares the student in the knowledge of concepts and terminologies used in the naval, maritime and port industry. The concepts are directed to generalities of the ship; Naval terminology; Shipyards; Boathouses; dykes; Types of navigation; National and international institutions that control shipbuilding, safety in navigation, the aquatic environment and marine biodiversity; Helmet geometry; Deck elements, engine room, superstructure, etc. Of the vessel. Ship structure, definitions, types and functions. History of navigation; Types of ships; Types of propulsion; Basic concepts of stability, buoyancy, navigability and maneuverability and maritime accidents.

III. STUDENT ACHIEVEMENTS

The student:

1. Familiar with naval terminology, used in existing technical language.
2. Knows basic principles of construction engineering, stability, buoyancy, navigability.
3. He interprets the basic concepts of naval engineering and relates them to the other courses and practices to be carried out during his professional life.
4. Work as a team, so you can become familiar with teamwork and research.
5. Knows the naval terminology in order to be able to understand the technical language used in shipyards, companies, ships, ports and others, related.

IV. LEARNING UNITS

1. GENERAL DEFINITIONS / 6 HOURS

Concepts of the ship / Dimensions of the ship / Orientation / Main parts of the ship/ Shipyards, docks, etc.

2. ENERGETI EFFICIENCY / 4 HOURS

Design / Optimization of the ship's forms / Optimization of the propulsion plant / Optimization of the propeller / Optimization of the weight and structural resistance / Optimization of the operation / Optimization of the stability / Optimization of the navigation / Optimization of the construction.

3. MOVEMENTS, SEAS, NAVIGATION, INSTITUTIONS / 3 HOURS
Movements and oscillations of the ship / Types of seas / Types of navigation / National and International Institutions that control the ship's construction, safety and environment.

4. HULL'S GEOMETRY / 3 HOURS
Shape Lines / Shape Types / Stern Types / Types of Master Sections / Shape Coefficients.

5. ELEMENTS OF THE SHIP / 6 HOURS
Hull elements / Deck elements / Superstructure elements.

6. STRUCTURE OF THE SHIP / 6 HOURS
Ship stresses / Main structure of the hull / Secondary structure of the ship / Structural elements of the ship.

7. SHIP MACHINERY / 3 HOURS
Engineering plant in the propulsion of civilian and military ships / Types of engineering plants / Energy performance / Types of propellers / Other types of propellers / Auxiliary machinery.

8. TYPE OF SHIPS / 6 HOURS
Basic Classification of Ships / Types of Ships - For its functionality / Naval Artifacts.

9. FINAL CONCEPTS / 3 HOURS
Basic concepts of stability, buoyancy, compartmentalization, navigability, maneuverability.

V. METODOLOGY:

The course is developed in sessions of theory and practice. In theory sessions, the teacher presents terminology, history, concepts and applications. In all the sessions, the active participation of the student is promoted. The practice sections are done during class time.

VI. EVALUATION FORMULA

Evaluation System "D". Calculation of Final Average:

$$PF = (PC1 + PC2 + PC3) / 3.$$

VII. BIBLIOGRAPHY

- Luis Delgado Lallemand. "Encyclopedic Maritime Dictionary". Auditorium. Madrid. 2010.
- Primitivo B. Gonzales López. "Naval Construction Techniques". University Of La Coruña. Spain. 2005.
- Domingo José Real. "Manual of Marine Knowledge". Editorial Coast Guard. Buenos Aires. 2002.
- AMICH, Julián. "Maritime Dictionary". Editorial Juventud SA. Barcelona. 2002.
- FERNANDEZ GONZALEZ, Francisco. "Naval Construction - Naval Nomenclature and Technology". Higher Technical School of Naval Engineers - ETSIN. Madrid. 1992.