



NATIONAL UNIVERSITY OF ENGINEERING
COLLEGE OF MECHANICAL ENGINEERING
NAVAL ENGINEERING PROGRAM

MV463 – NAVAL PROJECT II

I. GENERAL INFORMATION

CODE	: MV-463 Naval Project II
SEMESTER	: 10
CREDITS	: 4
HOURS PER WEEK	: 6 (Theory–Practice)
PREREQUISITES	: MV-461 Naval Project I
CONDITION	: Compulsory
DEPARTMENT	: Naval Engineering

II. COURSE DESCRIPTION

At the end of the course, students should be able to dimension, calculate and select the structural elements, plates, welding, shafts propulsion and steering, breaks, propeller, rudders, habitability, autonomous water and fuel as well as the systems for good equipment of a self-propelled vessel and prepared to navigate without any restrictions and get the highest level of classification.

III. COURSE OUTCOMES

1. Determine the dimensions of the naval craft propelled to develop.
2. Draw lines form and calculate hydrostatic curves and cross the boat.
3. Calculate the plates and structural elements of the hull, wheelhouse and bridge.
4. Calculate and develop the propulsion system (axles, breaks, propeller, stuffing box, stern tube engine, gearbox, etc.)
5. Calculate and develop the system of command (shovel, Baron Shaft, shaft blade, heel, inkwell, command hydraulic unit, etc.)
6. Outlining the required systems for the proper functioning in the water (seas, rivers and / or lakes).
7. Prepare the "Act Stability and Trim" to see the theoretical behavior of the boat and correct defects before delivery and commissioning.

IV. LEARNING UNITS

1. HULL

It includes the development of forms according to the activity (tugboat, fishing, shipping, etc.). Calculation of hydrostatic and cross curves, calculation of hull plating and bulkheads, main and auxiliary reinforcements according to the selected type of structure (transverse, longitudinal or mixed), assembly and welding.

2. SYSTEMS

Fire and sluicing systems. Calculation and selection of pumps, pipes, manifolds, passes bulkheads, seacocks, sea discharges, valves and other accessories. Also the selection and placement of portable fire extinguishers and / or fixed firefighting equipment. Water sweet and sanitary systems. Electric system. Charge-discharge system. Cooling system of engine on board and the engine room. Mooring and anchoring systems. Hull protection system: mechanical, chemical and galvanic. Propulsion system. Command system. RSW refrigeration system for fishing boats.

3. FINISHING

Mechanical protection of fenders, gunwale, gunwale tube.

Chemistry: sandblasting and painting.

Galvanic: zinc anodes to protect with galvanic action.

Other: lined environments booth, bridge, railings, stairs, bollards, etc.

4. SECURITY

Preliminary Stability Act, testing of pumps, systems, motors, lights, watertight tanks and hull.

5. BUDGET

General guidelines for the elaboration of a budgeting turnkey.

V. METHODOLOGY

Classes will be masterfully type. During the lessons, the boat parts will be calculated as an example of application. Classification standards will be used for the calculation of structures and systems. Commercial catalogs were used for the selection of machinery and equipment. Acquittal of consultations regarding the issue in development will be considered.

VI. EVALUATION FORMULA

04 qualified practices will be undertaken constituted by submission of plans:

1st practice: Form lines planes, hydrostatic curves and crusades curves.

2nd practice: General structure plan, frames and bulkheads and structural and welding details.

3rd practice: Propulsion and command systems.

4th practice: Stability Act and trim.

VII. BIBLIOGRAPHY

1. MANDELLI, ANTONIO

Principios de Arquitectura Naval

2. DARCANGELO, AMELIO

Guía para Estructura de Buques

3. AMERICAN BUREAU OF SHIPPING

Steel Vessel under 61 meters in length

4. LLOYD, GERMANISCHER

Rules for classification and construction: Ships

Technology

5. Reglamento General de Capitanías y Guardacostas

6. Reglamentos Generales de Seguridad de la Vida Humana en el Mar

7. AMERICAN BUREAU OF SHIPPING

Reglamento de la Organización Marítima Internacional