

ShipMarTech Course Syllabus

Course title	Ship Design
Course number/code	U0563
Credits/ECTS	6 ECTS
Total contact and self-study load/hours	48 hours of frontal lessons + 102 self study
Prerequisites/co-requisites	Ship Stability – Resistance – Propulsion -Seakeeping
Level and type (compulsory, elective)	Masters' mandatory course
Description	<p>Present and future scenarios of Ship Design. Types of ships, reference regulations, DWT, net capacity, stowage factor, evaluation of main dimensions, modular payloads and their influence on dimensions. Database analysis and MADM for comparison of existing projects. Tonnage, Load Lines, General Plans. Hull form definition and modifications. Ergonomics, comfort and conditions of wellness. High Speed and Small Craft. Technical aspects of Ship management. Regulations and performance indices. Sustainability indices. Energy Saving. Zero Emission Capabilities. References for evaluation of displacement, powering and manoeuvrability performances</p>
Objectives	<p>Adequate knowledge of the various aspects of the ship design:</p> <ul style="list-style-type: none"> Data base analysis and comparison with reference ships; Main dimension and displacement evaluation and hull form definition. Preliminary layout and GA plans. Powering and maneuverability performances assessment Regulatory frameworks references, including the most recent relating to environmental sustainability. <p>Adequate knowledge of technical and design aspects of environmental indexes and zero emission capabilities.</p> <ul style="list-style-type: none"> General knowledge of the interaction between ship design and ship management. Energy saving issues. Basic knowledge of future scenarios of ship propulsion.
Intended learning outcomes	At the end of the course the student will have to demonstrate that he is able to set up the preliminary design of a ship on the basis of defined functional specifications and/or mission profiles.
Teaching and learning formats and methods	<p>Development is promoted through the following teaching and learning methods:</p> <ul style="list-style-type: none"> The student attends the class presentations and guest lectures. The student chooses a reference ship among a given list and develops a basic design on the basis of a mission profile defined together with the teacher.

Learning resources, readings, references	<ul style="list-style-type: none"> • Illustrative slides of the lessons available on the Teams channel of the course of each academic year • References for Displacement assessment, Powering performances and Maneuverability Assessment available on the Teams channel of the course of each academic year • Apostolos Papanikolaou, Ship Design Methodologies of Preliminary Design, Springer • A Seaman's Dictionary by Ranger Hope (2007) 								
Evaluation tools/methods	<p>Opportunities to demonstrate achievement are provided through the following assessment tools:</p> <table> <tr> <th>Assessment tool</th><th>Mark</th></tr> <tr> <td>Course oral exam</td><td>60 %</td></tr> <tr> <td>Basic Design presentation</td><td>40 %</td></tr> <tr> <td>Total</td><td>100%</td></tr> </table>	Assessment tool	Mark	Course oral exam	60 %	Basic Design presentation	40 %	Total	100%
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Assessment criteria	Final mark is obtained as combination of the Basic Design Presentation and final oral exam (3 theoretical questions)								
Technical requirements	The student should have a computer and internet connection.								
Additional information	None								