

Code: 53 „Design of Ships and Marine Structures - part 2”

ECTS credits: 6	Number of hours per week: 2+0+2
Forms of assessments: Exam	Types of assessment: Exam - written with oral discussion
Department, providing instruction on the discipline: Department: <i>NAVAL ARCHITECTURE AND MARINE ENGINEERING</i> <i>FACULTY OF SHIPBUILDING</i>	

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**Annotation:** The subject "Design of ships and marine structures" summarizes the knowledge of the students gained during the education in this specialty. The lectures on the first and second part chronologically follow the ship's design process, giving the theoretical bases that are modelled in the laboratory exercises by modern and accessible software products (MS Excel and AutoCAD). The obtained knowledge is used to develop individually the course project. The second part analyses the basic equations of the theory of floating structures, allowing the initial stages of designing to justify effective solutions best suited to the project assignment. These basic equations are based on the hull form. Both traditional methods and approaches to computer design of the ship hull (theoretical lines of the ship) are set out. It is a part of the modern mathematical apparatus used in 3D modelling of the form in CAD systems. The course includes analyses the properties of the designed ship related to the intact stability at small and large angles of inclination and damage stability. Particular attention is paid to the modern Rules and Requirements resulting from the main international conventions: the Load Lines Convention (ICLL 66), the protection of marine waters from pollution (MARPOL), the protection of marine life at sea (SOLAS), and of International Stability Code (18 February 2008).

**Main issues of the syllabus content:**

- Parameters affecting ship stability
- Ship hull form design
- Stability calculation
- Special features of bulk carriers
- Special features of ship for unified cargoes
- Assessment of ship floating position
- Requirements for damage stability of ships

**Content presentation:**

- Lectures
- Laboratory exercises