GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Designing elements of transportation systems, PG_00064990		
Field of study	Projektowanie architektury elementów systemów transportowych		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Specialty subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Hydromechanics and Ship Design -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. sztuki Paweł Gełesz	
	Teachers	dr hab. sztuki Paweł Gełesz	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	30.0	0.0	45

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	45	4.0	26.0	75

Subject objectives

The subject area of the didactic programme is design activities falling within the scope of the widely understood architecture of waterborne transport systems (ships), aggregating interdisciplinary knowledge from the fields of technology, ergonomics and aesthetics. A fundamental form of student activity is exploration. The programme envisages the use of: design experiments (e.g. in virtual space), the method of successive approximations (the so-called design spiral), research laboratories, synthesising results (e.g. as part of team work) and a final author's design proposal that also takes into account legal requirements and limitations. An important feature of the programme is the systematic development of students' competences on an analytical and creative level

Course objectives:
- Creation of new concepts in the area of naval architecture through the active use of design and creative thinking (design mindset) emphasising creative thinking, innovation and problem solving through the design process.
- Responsibility-based attitude as a creator and coordinator of innovation in the field of naval architecture
- Development of creative skills and attitudes in the area of (water) transport system component architecture

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U15] evaluates the feasibility of advanced methods and tools for solving complex engineering tasks of a practical nature, characteristic of the field of study, and selects and applies appropriate methods and tools for this purpose	The student has advanced knowledge in the implementation of the design process. Consciously selects and applies analytical and creative methods.	[SU1] Ocena realizacji zadania [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu
[K7_U13] evaluates the feasibility and potential for utilizing new technical and technological achievements in accomplishing tasks characteristic for the field of study	The student has basic competences related to the design of modern transport systems (in particular intermodal, operating at the interface between land and water).	[SU1] Ocena realizacji zadania [SU4] Ocena umiejętności korzystania z metod i narzędzi
[K7_W13] explains the main principles of individual and teamwork organization, including various forms of entrepreneurship utilizing knowledge from the field of engineering and technical sciences and disciplines relevant to the course of study	The student has basic knowledge in connection with creative work carried out in particular in a small project team.	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym

<table>
<tr><td>Subject contents</td><td>Course content – lecture
A ship, a floating object considered in contexts that extend the typical - technical - view, e.g. as a component of a multimodal transport system.

A conceptual (ideational) study defining the key features of an innovative object that can form the basis for further design work.

Architecture of a floating object as a field for own research method of organisation and realisation of the design process, author's take on a selected issue, team work, 3d model, rendering, information report, progress report.

Conceptual design drawing, virtual model, teamwork, simple technical drawing, description

Research through design</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>A student starting the course should be enrolled in the 2nd year of a second degree programme. The requirements in terms of knowledge, skills and competences derive from obtaining the required credits, in particular the following are expected:
- advanced knowledge of design methods (including teamwork),
- competences related to analytical skills and communicating the results of one's work using various information techniques.

- to critically appraise their knowledge and skills and to recognise the importance of knowledge in solving advanced cognitive and practical problems, including the consultation of experts

- Independently integrate acquired and continuously developed competences and experience in order to consciously develop a creative attitude that enables one to formulate and solve complex problems,

- proficiency in spoken and written Polish</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td></td><td>50.0%</td><td>25.0%</td></tr>
<tr><td></td><td>50.0%</td><td>75.0%</td></tr>
</table>
</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>A.Papanikolaou, Ship Design - Methodologies of Preliminary Design , ISBN: 978-94-017-8750-5

M. Nowak. Metodyka postępowania jako kluczowy element projektowania architektury okrętowej. Na przykładzie projektu koncepcyjnego jednostki badawczej MEWO, rozprawa doktorska (nie wydana, dostęp via Biblioteka ASP).</td></tr>
<tr><td>Supplementary literature</td><td>A.Lerch. Architektura statków niepasażerskich. Inspiracje projektowe, ISBN 83-908796-4-6</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Conceptual design of the architecture of a small container ship performing the transport function within short sea shipping. An attempt to define the technical characteristics of a ship adapted to the transport of INNO-type containers (www.innofreight.com).</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.