



Subject card

Subject name and code	Marine Applied Informatics, CAE and Design Tools, PG_00041715						
Field of study	Ocean Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			English		
Semester of study	1	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Ocean Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Aleksander Kniat				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60		5.0		60.0	125
Subject objectives	The aim of the subject is to improve skills in using computer tools for solving problems in the design process of ocean engineering objects.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_U01] can obtain information from literature, databases and other sources, can verify and organize the obtained information, interpret them and form conclusions and justified opinions		
	[K7_W01] has a deepened and widened knowledge on certain fields of maths, used to formulate, solve and verify complex problems in ocean-technology		
	[K7_W02] has a widened knowledge in the range of modelling technological processes, including knowledge necessary to describe and assess the functioning of selected elements of ocean technology objects and systems		
	K7_W04		
	[K7_U04] can apply mathematical methods and models and computer simulations to analyse, design, and assess the functioning of ocean technology objects and systems and their elements		
		Student is able to use computer programs to model processes occurring in exploitation of ocean engineering mechanisms.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
		Student knows principles of algorithm creation and can use structural/objective language to implement algorithms.	[SW1] Assessment of factual knowledge
		Student understands and correctly interprets information from professional literature sources.	[SU2] Assessment of ability to analyse information
		Student implements algorithm in programming language. Student handles events in window graphics system. Student solves equations in Matlab. Student solves optimization tasks in Matlab.	[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
		Student applies methods of mathematical analysis to solve problems in ocean engineering.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
Subject contents	<p>PROGRAMMING: programming language syntax, program design phases: algorithm, implementation, debugging, dialog with user : command line, windows interface, file system (files & streams): types of files and streams, opening, searching, reading/writing, closing.</p> <p>MATLAB: solving equation systems, vectors and matrices processing, interpolation and approximation, optimization, graphic results presentation: two and three dimensional graphs, importing and exporting data.</p>		
Prerequisites and co-requisites	<p>Proficiency in using PC computer. Completed course of Mathematics for mechanical engineers.</p>		

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		exercises during classes	60.0%
Recommended reading	Basic literature	Maxwell D., C#: Handbook Learn the Basics of C# Programming in 2 Weeks, 2016 Mueller J.P., Visual C#.NET Developer's Handbook, John Wiley & Sons, 2002 Petzold C., Programming Windows, Microsoft Moler C., Numerical Computing with MatLab, Copyright 2004, Cleve Moler	
	Supplementary literature	Wirth N., Algorithms + Data Structures = Programs, Prentice Hall	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		