



Subject card

Subject name and code	Computer Systems in Design, PG_00045095						
Field of study	Ocean Engineering, Ocean Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2022/2023		
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Ship Manufacturing Technology, Quality Systems and Materials Science -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Karol Niklas				
	Teachers		mgr inż. Dariusz Duda				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	45.0	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		5.0		25.0	75
Subject objectives	Use of modern computer tools in designing on selected examples.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems	Student uses the basis of design, mechanics, strength material and technology to design selected product using modern CAD/CAM/FEA systems. Through practical exercises student obtains skills: - creative thinking with use of CAD systems, - considering technological aspects, - taking into consideration economical aspects, - performing simulation using Finite Element Method (FEM), - making technical documentation, - making marketing visualization (drawings, animations) Student through practical exercises and making project gain practical skills of usage the best CAD/CAM/FEA systems available on the market.	[SW3] Assessment of knowledge contained in written work and projects
	[K6_U04] has self-education skills in order to improve professional qualifications, is ready to work in industrial environment, adheres to HSE rules and regulations	Student uses the basis of design, mechanics, strength material and technology to design selected product using modern CAD/CAM/FEA systems. Through practical exercises student obtains skills: - creative thinking with use of CAD systems, - considering technological aspects, - taking into consideration economical aspects, - performing simulation using Finite Element Method (FEM), - making technical documentation, - making marketing visualization (drawings, animations) Student through practical exercises and making project gain practical skills of usage the best CAD/CAM/FEA systems available on the market.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
	[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	Student uses the basis of design, mechanics, strength material and technology to design selected product using modern CAD/CAM/FEA systems. Through practical exercises student obtains skills: - creative thinking with use of CAD systems, - considering technological aspects, - taking into consideration economical aspects, - performing simulation using Finite Element Method (FEM), - making technical documentation, - making marketing visualization (drawings, animations) Student through practical exercises and making project gain practical skills of usage the best CAD/CAM/FEA systems available on the market.	[SU4] Assessment of ability to use methods and tools

	Course outcome	Subject outcome	Method of verification
	[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems	Student uses the basis of design, mechanics, strength material and technology to design selected product using modern CAD/CAM/ FEA systems. Through practical exercises student obtains skills: - creative thinking with use of CAD systems, - considering technological aspects, - taking into consideration economical aspects, - performing simulation using Finite Element Method (FEM), - making technical documentation, - making marketing visualization (drawings, animations) Student through practical exercises and making project gain practical skills of usage the best CAD/CAM/FEA systems available on the market.	[SW3] Assessment of knowledge contained in written work and projects
Subject contents	Practical lab. exercises showing potential of novel CAD/CAM/FEA systems. Building parametric CAD geometry. Performing numerical simulations with use of Finite Element Method (FEM). Making technical documentation. Preparing marketing visualization (drawings, animations). Managing a family of products and CAD database. Usage computer-aided design to solve project tasks.		
Prerequisites and co-requisites	Computer literacy. At least basic in English. Basis of CAD systems is pleasantly welcome. Basis of design, mechanics, strength of materials and technology.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project	60.0%	100.0%
Recommended reading	Basic literature	1. Software documentation: Unigraphics NX, Solid Edge, Maxsurf, Nupas Cadmatic, Rhino 3D, ccm+, Finemarine 2. G. Farin, J. Hoschek, M. Kim: Handbook of computer aided geometric design, 2002 Elsevier, ISBN: 978-0-444-51104-1 3. J. Hoschek, D. Lasser: Fundamentals of Computer Aided Geometric Design, 1993 A K Peters. Ltd. , ISBN 1-56881-007-5 4. Taylor, Dean: Computer-Aided Design. Reading, 1992 Addison-Wesley Publishing Company, ISBN: 020116891X	
	Supplementary literature	1. P. Szalapaj: CAD Principles for Architectural Design, 2001 Elsevier, ISBN: 978-0-7506-4436-5 2. An International Journal: Computer Aided Geometric Design, 2010 Elsevier, ISSN: 0167-8396 3. An International Journal for Innovations in Computational Methodology and Application: Finite Elements in Analysis and Design, 2010 Elsevier, ISSN: 0168-874X	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1. Design of the foundation of the anchor winch.2. Design of hull shape of a motor / sailing yacht.3. Conceptual design of chosen ship, yacht, device.4. other defined by a student		
Work placement	Not applicable		