



## Subject card

Subject name and code	Geometry and Graphics for Engineers, PG_00058333						
Field of study	Hydrogen Technologies and Electromobility						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2022/2023		
Education level	first-cycle studies		Subject group		Obligatory subject group 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	1		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Biomechatronics -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Wiktor Waszkowiak				
	Teachers		dr inż. Wiktor Waszkowiak				
			dr inż. lek. Piotr Tojza				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	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		1.0		4.0	50
Subject objectives	The ability to create technical documentation, including electrical documentation, with the use of CAD software supporting design						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] can apply the learned methods to the analysis and design of electrical elements, devices and systems		The student prepares technical documentation in accordance with applicable standards.		[SU1] Assessment of task fulfilment		
	[K6_W09] knows the principles of designing electrical installations, controlling electrical devices in hydrogen installations, making technical drawings and documentation		The student describes the principles of rectangular projection and explains the methods of presenting views and sections of machine elements.		[SW1] Assessment of factual knowledge		
	[K6_U11] has the ability to self-educate in order to improve professional qualifications		The student selects the appropriate tools to support design in terms of teamwork		[SU1] Assessment of task fulfilment		
Subject contents	Graphical representation of spatial elements on a plane: orthographic projection; basic concepts concerning the structure and rules of its drawing, types of structure notation, drafting paper sizes and scales; methods of graphical representation of the structure and dimension system; graphic representation of construction connections; detachable and non-detachable connections; assembly drawings and detail drawings; the rules for creating drawings using of AutoCad software; graphic representation of electrical systems; presentation of selected graphic symbols used in mechanics, electrical engineering, automatics and power engineering.						
Prerequisites and co-requisites	Basic computer skills						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Theory test		50.0%		50.0%		
	Design task during laboratory classes		50.0%		50.0%		

Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Dobrzański T.: Rysunek techniczny maszynowy. Warszawa: WNT, 1998</li> <li>2. Mazur J., Kosiński k., Polakowski K. Grafika inżynierska z wykorzystaniem metod CAD. Oficyna Wydawnicza Politechniki Warszawskiej. Warszawa 2004.</li> <li>3. Pikoń A. AutocAD PL. Helion. Gliwice 2006.</li> </ol>
	Supplementary literature	www.cad.pl
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Perform technical documentation stated object.	
Work placement	Not applicable	

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