



## 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	Katedra Biomechatroniki -> 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. 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	1. Dobrzański T.: Rysunek techniczny maszynowy. Warszawa: WNT, 1998 2. Mazur J., Kosiński k., Polakowski K. Grafika inżynierska z wykorzystaniem metod CAD. Oficyna Wydawnicza Politechniki Warszawskiej. Warszawa 2004. 3. Pikoń A. AutocAD PL. Helion. Gliwice 2006.						

	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	