



Subject card

Subject name and code	Engineering graphics, PG_00055863						
Field of study	Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study 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	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Machine Design and Vehicles -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Waldemar Karaszewski					
	Teachers	dr hab. inż. Waldemar Karaszewski mgr inż. Marek Łubniewski mgr inż. Barbina Makurat-Kasprolewicz mgr inż. Bartosz Bastian mgr inż. Katarzyna Mazur					
Lesson types and methods of instruction	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	6.0		49.0	100	
Subject objectives	The aim of the course is to shape the 3D imagination, to learn the principles of projection and defining drawings in accordance with the applicable standards and rules of technical drawing, to learn the principles of presenting connections and components of drive systems in a technical drawing.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U04] is able to design a simple device structure and prepare the accompanying technical documentation, conduct a basic technical and economic analysis of energy systems, including technologies using renewable and pro-ecological energy sources as well as conventional and nuclear energy, design energy installations for them and their basic elements (including electric lighting)); select, operate and control the most commonly used electrical devices and drive systems.	A student draws space elements based on orthographic projection. He presents the rules of presentation elements in engineering drawing. He draws and reads structural forms of three-dimensional mechanical elements. He describes surface attributes of elements. He draws of machine elements dimensions and creates working drawings of machine elements according to machine technical drawing standards. He creates working and assembly drawings of machine elements. He reads information about machine elements based on presented elements and units drawings. He draws and reads structural forms of three-dimensional mechanical elements and mechanical units. He reads diagrams of complex mechanical systems.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
	[K6_K01] is aware of the need for training and self-improvement in the profession of energy and the possibility of further education; can think and act in a creative and entrepreneurial manner; can define priorities for the implementation of an individual or group task	A student draws space elements based on orthographic projection. He presents the rules of presentation elements in engineering drawing. He draws and reads structural forms of three-dimensional mechanical elements. He describes surface attributes of elements. He draws of machine elements dimensions and creates working drawings of machine elements according to machine technical drawing standards. He creates working and assembly drawings of machine elements. He reads information about machine elements based on presented elements and units drawings. He draws and reads structural forms of three-dimensional mechanical elements and mechanical units. He reads diagrams of complex mechanical systems.	[SK2] Assessment of progress of work
Subject contents	The LECTURE of describing the geometric elements and objects. Reference system. Main and additional projecting plane. Axonometric and perpendicular projections. The methods of the machine systems drawing presentation, assembly and working drawings. Standardization of machine parts - selection and specification of standard elements. EXERCISES Perpendicular projections of the geometric figures and three-dimensional objects. Section of figures and 3d objects. Presentation of the objects in typical projections. Working out the assembly and working drawings. Drawing the connections and elements of drives.		
Prerequisites and co-requisites	Knowledge of the subjects: "Mathematics" and "Machine constructions"		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Colloquium at the end of semester	50.0%	100.0%
	Practical exercise	50.0%	0.0%
Recommended reading	Basic literature	Dobrzański T.: Rysunek techniczny maszynowy. Wydawnictwo Naukowo-Techniczne, W-wa 2006.	
	Supplementary literature	Rigall A., Sadaj J.: Zapis konstrukcji, cz. I. Wydawnictwo "JESAD" Gdańsk	
	eResources addresses	Adresy na platformie eNauczenie: Grafika Inżynierska, W, P, ENERGETYKA, sem01, zimowy, 2023/2024 (PG_00055863) - Moodle ID: 32515 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=32515	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. Sectional views. 2. Add missing projected views. 3. Make a workshop drawing for a detail. 4. Make an assembly drawing of screen connection. 		

Work placement	Not applicable
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