



Subject card

Subject name and code	Engineering Graphics , PG_00029506						
Field of study	Nanotechnology						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group 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	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Zakład Konstrukcji Maszyn i Inżynierii Medycznej -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Katarzyna Zasińska					
	Teachers	mgr inż. Marek Łubniewski dr inż. Katarzyna Zasińska					
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	5.0		50.0	100	
Subject objectives	Introduction to engineering graphics. Engineering graphics a fundamental tool for conveying information about machine components. Representation of bodies (machine components) by projection: perpendicular, axonometry etc.. Technical drawing - fundamental tool for engineering information exchange.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_K04	Student interprets technical documentation created accordingly to technical drawing standards			[SK1] Assessment of group work skills [SK4] Assessment of communication skills, including language correctness		
	K6_U03	Student can create simple 2D drawings and 3D models using a selected industry standard CAD package.			[SU1] Assessment of task fulfilment		
	K6_W04	Student has basic knowledge of creating 3D models and technical documentation in CAD programs.			[SW1] Assessment of factual knowledge		
Subject contents	A role of graphics in engineering activity. Introduction to an individual graphical description of technical objects. Orthogonal and axonometric projections. Orthogonal projections: points, lines, planes, polyhedrons, solids. True sizes of geometrical elements. Relations of geometrical elements. Intersection of surfaces. Projections of partial solids. Geometrical designing of technical objects by the use of polyhedrons, solids and planes. Views, sections, revolved and removed sections of machine elements. Dimensioning of lengths, diameters, angles. Tolerances of dimensions, fits. Description of surface attributes of machine elements. Location of elements on a drawing. Drawing rules of working and assembly drawings. Standardization in engineering graphics. Principles of assembly drawings. Permanent joints presentation of machine elements (welded, glue, rivet joints). Temporary fastenings presentation of machine elements (screw, shaft-hub joints). Presentation ways of standardized machine elements (bearings, gears, clutches, brakes, shafts and axles). Basic information about technical drawings in electrotechnics and electronics, electric diagrams. Pneumatics and hydraulics diagrams. Drawings and machine diagrams practical reading. Introduction to computer graphics.						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Midterm colloquium	56.0%	20.0%
	Laboratory exercise reports	100.0%	80.0%
Recommended reading	Basic literature	Technical Drawing for Mechanical Engineers Handbook Fundamentals of machine design Mechanical Engineering	
	Supplementary literature	No recommendations	
	eResources addresses	Adresy na platformie eNauczanie: Grafika Inżynierska II, W, L, Nanotechnologia, sem 05, zimowy 2023/2024 (NAN1B0021) - Moodle ID: 34746 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=34746	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		