



## Subject card

Subject name and code	Introduction to Design and Engineering Graphics, PG_00053770							
Field of study	Engineering Management							
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 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			3.0			
Learning profile	general academic profile	Assessment form			assessment			
Conducting unit	Department of Informatics in Management -> Faculty of Management and Economics							
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Krzysztof Redlarski					
	Teachers		dr inż. Krzysztof Redlarski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM	
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60	
	E-learning hours included: 0.0							
Podstawy projektowania i grafika inżynierska - STAC - Moodle ID: 1794 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=1794">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=1794</a>								
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	60		0.0		0.0	60	
Subject objectives	The student knows the basics of design methodology, has the ability to apply them in practice design works, is able to independently make basic technical drawings and properly them read. Can use IT tools used in the design process, i.e. AutoCAD.							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	[K6_W05] knows the statistical and IT methods and tools that enable the acquisition and presentation of data on the organisation's resources, including technical resources		knows the basics of design methodology			[SW3] Assessment of knowledge contained in written work and projects		
[K6_U06] uses basic theoretical knowledge to solve selected organizational problems, design technical solutions and manage projects, including engineering projects		knows the principles of drawing and is able to apply them in practice			[SU3] Assessment of ability to use knowledge gained from the subject			
Subject contents	<b>LECTURE</b>  Presentation of design theory. Determination of the features of technical drawings. The concept of scale and tolerance drawing. Types of drawing lines, rules and areas of their application. Projection rules rectangular. Principles of creating sections and sections of solids. Principles of dimensioning technical drawings. Drawing sheet formats. Elements of technical drawing.  <b>LABORATORY</b>  Preparation of technical drawings with the use of AutoCAD software. Drawing rules various elements of technical machine drawing. Drawing, dimensioning and labeling technical drawings. Drawing connections of machine and device elements. Drawing drawings executive, assembly and isometric. Drawing diagrams from various fields of technology.							

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory	60.0%	70.0%
	Exam	60.0%	30.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Tadeusz Dobrzański: Rysunek techniczny maszynowy (wyd. 24), WNT Warszawa, 2005</li> <li>2. Wojciech Gasparski: Projektowanie, PWN, Warszawa 1978 i nowsze.</li> <li>3. Jaskulski, A. (2016). AutoCAD 2016/LT2016/360+: kurs projektowania parametrycznego i nieparametrycznego 2D i 3D. Wydawnictwo Naukowe PWN.</li> <li>4. J. Mazur, K. Kosiński, K. Polakowski: Grafika inżynierska z wykorzystaniem metod CAD, Wydawnictwo Politechniki Warszawskiej 2006r.</li> </ol>	
	Supplementary literature	Other design subject literature available.	
	eResources addresses	Podstawowe <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26162-ecourse">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=26162-ecourse</a>	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. List the features of the assembly technical drawing.</li> <li>2. List the features of the executive technical drawing.</li> <li>3. List the basic drawing sheet formats.</li> <li>4. Describe the method of obtaining other sheet formats from the standard A4 format.</li> <li>5. Define the concept of technical drawing scale.</li> <li>6. List the basic drawing scales used in the engineering drawing.</li> <li>7. List the types of drawing lines used in engineering drawing.</li> <li>8. Indicate the areas of application for particular types of drawing lines used in the drawing technical machinery.</li> <li>9. List the order of priority of the drawing lines used in the engineering drawing.</li> <li>10. Indicate the elements of a technical drawing.</li> <li>11. Indicate the characteristics of the technical writing type A or type B.</li> <li>12. Discuss the principle of submitting technical drawings to the basic format.</li> <li>13. Discuss the principle of creating a rectangular projection.</li> <li>14. Characterize the concept of an axonometric projection.</li> <li>15. Define the concept of isometric axonometry.</li> <li>16. Present the method of rectangular projection, according to European method.</li> <li>17. Present the method of rectangular projection, according to American method.</li> <li>18. Indicate the difference between the concepts of view - layout used in the technical drawing machine.</li> <li>19. Indicate the properties and area of application for half-views and quarter-views.</li> <li>20. Describe the method of creating a cross-section and indicate its advantages.</li> <li>21. List the basic principles of dimensioning</li> <li>22. Discuss the principle of non-closing of dimensional sequences.</li> <li>23. Describe the principle of specifying the necessary dimensions.</li> <li>24. Discuss the principle of dimension uniqueness.</li> <li>25. Discuss the properties of dimension lines and auxiliary lines in a machine engineering drawing.</li> <li>26. Discuss the dimensioning method in series.</li> <li>27. Discuss the dimensioning method in a parallel system.</li> <li>28. Give an example of dimensioning openings and arches on any technical drawing.</li> <li>29. Give the definition of the surface roughness.</li> <li>30. Give the definition of surface waviness.</li> <li>31. List the methods of marking surface roughness on technical drawings.</li> <li>32. Define the concept of dimension tolerance.</li> <li>33. Define the terms nominal dimension, lower limiting dimension and upper limiting dimension.</li> <li>34. Define the terms upper deviation and lower deviation of the dimension.</li> <li>35. Give the definitions of the term fit and indicate its variants.</li> </ol>		
Work placement	Not applicable		