

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Engineering Drawing</b>		Code <b>1010604311010640054</b>
Field of study <b>Transport</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>part-time</b>	
No. of hours Lecture: <b>9</b> Classes: <b>-</b> Laboratory: <b>-</b> Project/seminars: <b>9</b>		No. of credits <b>5</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>5 100%</b> <b>5 100%</b>
<b>Responsible for subject / lecturer:</b> Ph. D. Maciej Berdychowski email: Maciej.Berdychowski@put.poznan.pl tel. 61 224 4512 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań		<b>Responsible for subject / lecturer:</b> Ph. D. Dominik Wilczyński email: dominik.wilczynski@put.poznan.pl tel. 61 224-4512 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Fundamental knowledge on geometry and stereometry. Fundamental knowledge on theory of machines and machine parts.
2	<b>Skills</b>	Problem solving skills with the use of the knowledge and skills of information acquisition from the selected sources.
3	<b>Social competencies</b>	Understanding the necessity of enlarging the competences, willingness to take a cooperation in a team.
<b>Assumptions and objectives of the course:</b> Mastership of basic principles of image construction of spatial objects on the plane. Training of spatial imagination. Learning the methods and principles of engineering drawing. Practical skills of preparing the technical documentation. Skills of "reading" the engineering drawing.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. knows the basic techniques, methods and tools used in the process of solving transport tasks, mainly of an engineering nature - [T1A_W07]		
<b>Skills:</b>		
1. is able to obtain information from various sources, including literature and databases, both in Polish and in English, appropriate to integrate them, make their interpretation and critical evaluation, draw conclusions, and fully justify the opinions they formulate - [T1A_U01]		
2. is able to properly use information and communication techniques, applicable at various stages of transport undertakings - [T1A_U02]		
<b>Social competencies:</b>		
1. is aware of the social role of a technical university graduate, in particular, understands the need to formulate and communicate to the public, in an appropriate form, information and opinions on engineering activities, technical achievements, and the legacy and traditions of the profession of transport engineer - [T1A_K04]		
<b>Assessment methods of study outcomes</b>		
Written exam, project.		

<b>Course description</b>		
1.	Introduction, standardization in engineering drawing.	
2.	Projection of 3D objects on the plane of the drawing.	
3.	Presentation of object interior with the use of sectional views, types of sectional views.	
4.	Presentation of object cross-section with the use of revolved section.	
5.	The application of geometrical constructions for drawing the objects.	
6.	Lines of intersection of typical solids.	
7.	Dimensioning.	
8.	Tolerances for production drawings and fits for assembly drawings.	
9.	Geometrical Product Specification.	
10.	Production drawings for shaft and hub. Splines.	
11.	Production drawings for gear wheels.	
12.	Assembly drawings of screw joints and splined connections.	
13.	Simplifications for rolling bearings drawings.	
14.	The principles of drawing welds and welded joints.	
15.	The design of bearing modulus.	
16.	The analysis ("reading") of assembly drawings.	
<b>Basic bibliography:</b>		
1.	Dobrzański T., Rysunek techniczny maszynowy, WNT, W-wa 1997.	
2.	Lewandowski T., Rysunek techniczny dla mechaników, WSiP, W-wa 2009.	
3.	Bober A, Dudziak M., Zapis konstrukcji, PWN, W-wa 1999.	
4.	Jankowski W. Geometria Wykreślna. Wydawnictwo P.P. 1999 r.	
5.	Korczak J., Prętki Cz. Przekroje i rozwinięcia powierzchni walcowych i stożkowych. Wydawnictwo P.P. 1999 r.	
6.	Loska J., Zbiór zadań ćwiczeniowych z rysunku technicznego, Wyd. Politechniki Śląskiej, Gliwice 1982	
<b>Additional bibliography:</b>		
1.	Freuch T.E., Vierck C.I., Fundamentals of engineering drawing, McGraw-Hill Book Co., New York 1960.	
2.	Freuch T.E., Vierck C.I., Engineering drawing and graphic technology, McGraw-Hill Book Co., New York 1972.	
<b>Result of average student's workload</b>		
Activity	Time (working hours)	
1. Participation in lectures	9	
2. Memorizing the knowledge from lectures	21	
3. Consultations concerning the knowledge from lectures	6	
4. Preparation to exam	10	
5. Participation in exam	2	
6. Participation in project classes	9	
7. Preparation to project classes	21	
8. Elaboration of project	15	
9. Consultations concerning the knowledge from project classes	15	
10. Preparation to project classes exam	15	
11. Participation in project classes exam	2	
<b>Student's workload</b>		
Source of workload	hours	ECTS
Total workload	125	5
Contact hours	43	2
Practical activities	77	3