

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Engineering Drawing		Code 1010604211010640054
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 14 Classes: - Laboratory: - Project/seminars: 10		No. of credits 5
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 5 100%
Responsible for subject / lecturer: Ph. D. Aleksander Bober email: aleksander.bober@put.poznan.pl tel. 61 665-2845 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań		Responsible for subject / lecturer: Ph. D. Krzysztof Moskalewski email: krzysztof.moskalewski@put.poznan.pl tel. 61 665-2845 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Fundamental knowledge on geometry and stereometry. Fundamental knowledge on theory of machines and machine parts.
2	Skills	Problem solving skills with the use of the knowledge and skills of information acquisition from the selected sources.
3	Social competencies	Understanding the necessity of enlarging the competences, willingness to take a cooperation in a team.
Assumptions and objectives of the course: 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.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Has a structured, theoretically founded knowledge in the field of engineering graphics and machine construction: technical drawing, objects projecting, the basic principles of engineering graphics, use of CAD (Computer Aided Design) graphics in the construction of machines - [K1A_W13]		
Skills: 1. Is able to obtain information from the literature, internet, databases and other sources in Polish and English. Can integrate the information to interpret and learn from them, create and justify opinions. - [K1A_U01] 2. Is able to communicate using a variety of techniques in a professional environment and other environments using the formal record of the design, technical drawings, concepts and definitions in the scope of the study area. - [K1A_U02]		
Social competencies: 1. Understands the need and knows the possibilities of lifelong learning, knows the need for acquiring new knowledge for professional development - [K1A_K01] 2. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions in short and long-term aspect. - [K1A_K02] 3. Is able to act in a professional manner, comply with the rules of professional ethics and respect for cultural diversity. - [K1A_K03] 4. Has a sense of responsibility for one's own work and is willing to comply with the principles of teamwork and taking responsibility for collaborative tasks. - [K1A_K04]		

Assessment methods of study outcomes		
Written exam, project.		
Course description		
<ol style="list-style-type: none"> 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. 		
Basic bibliography:		
<ol style="list-style-type: none"> 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 		
Additional bibliography:		
<ol style="list-style-type: none"> 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. 		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	14	
2. Memorizing the knowledge from lectures	10	
3. Consultations concerning the knowledge from lectures	2	
4. Preparation to exam	10	
5. Participation in exam	2	
6. Participation in project classes	10	
7. Preparation to project classes	10	
8. Elaboration of project	5	
9. Consultations concerning the knowledge from project classes	5	
10. Preparation to project classes exam	5	
11. Participation in project classes exam	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	75	5
Contact hours	35	2
Practical activities	37	2