

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Engineering graphics and CAD</b>		Code <b>1011101221011125037</b>
Field of study <b>Safety Engineering - Full-time studies - First-</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 2</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>full-time</b>	
No. of hours Lecture: <b>30</b> Classes: <b>15</b> Laboratory: <b>30</b> Project/seminars: <b>-</b>		No. of credits <b>4</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		ECTS distribution (number and %)
<b>Responsible for subject / lecturer:</b>  dr hab. inż. Józef Gruszka, prof. nadzw. email: jozef.gruszka@put.poznan.pl tel. 6653408 Faculty of Engineering Management ul. Strzelecka 11 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Basic knowledge from high school. The necessary information in the field of technology and machine parts will be explained subsequently.
2	<b>Skills</b>	Efficient drawing
3	<b>Social competencies</b>	Understanding the importance of technical drawing in a work of an engineer.
<b>Assumptions and objectives of the course:</b> The aim of the course is to familiarize students with the most important information in the field of technical drawings including PN. Based on information from the machine drawing the student gets acquainted with electrical drawings, architectural - construction and other as well as develops the ability to read technical drawings.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. Knows fundamental methods, techniques, tools and materials that are applied in solving simple engineering tasks relating building and machines? exploitation - [K04-InzA_W02]		
<b>Skills:</b> 1. Is able to identify the project tasks and solve simple design tasks within the construction and operation of machinery - [K01-InzA_U6] 2. . Can apply typical methods for dealing with simple problems existing in the construction and operation of machinery - [InzA_U06-K01, K01-InzA_U7] 3. Can design a simple structure and technology of simple machinery parts and components as well as design the organization of the production units of the first complexity degree - [K01-InzA_U8]		
<b>Social competencies:</b> 1. Understands the need and knows means how to self-study ( first, second and third cycle studies, postgraduate studies, qualification courses)- improving professional, personal and social competence - [K01-InzA_K1]		
<b>Assessment methods of study outcomes</b>		

<p>Formative assessment:  Classes: on the basis of the progress of the project tasks from technical drawing  Lectures: on the basis of the answers to the questions regarding the covered material during previous lectures</p> <p>Collective assessment:  Lecture: exam- multiple choice test  Classes: public presentation of the prepared drawing, conducting a discussion connected with the presentation as well as the quality form of the prepared materials</p>		
<b>Course description</b>		
<p>The course covers the following topics : types of drawings, sheet formats, standard elements of technical drawing, drawings and their location, views and sections, dimensioning, tolerance dimensions, the shape and position, designation of roughness and waviness, connections of machine parts, axles, shafts, bearings, clutches and brakes. Drawing and reading: schemas :: mechanical, hydraulic, pneumatic, thermal energy and vacuum techniques, elements of electrical, chemical and architectural ? construction drawings. Drawings: charts and nomograms.</p>		
<b>Basic bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Rysunek Techniczny Maszynowy (Construction drawing), Dobrzański T., WNT, W - wa, 2004</li> <li>2. Zbiór norm Rysunek Techniczny maszynowy, (Set of standards.Technical machine drawing) ,Zbior norm, WNT, W - wa, dow.</li> <li>3. Dowolne podręczniki z rysunku technicznego. ( Any books on technical drawing)</li> <li>4. Programy komputerowe (Computer programs), C A D</li> </ol>		
<b>Additional bibliography:</b>		
<ol style="list-style-type: none"> <li>1. Auto CAD. Pierwsze kroki (First steps), Pikoń A., Helion, W - wa, 2006</li> </ol>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. lecture	30	
2. Classes	15	
3. consultation	30	
4. preparation for classes	15	
5. revision of the material	15	
6. preparation for an exam	15	
7. exam	0	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	120	4
Contact hours	90	3
Practical activities	45	1