

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Descriptive Geometry</b>		Code <b>1010101211010340005</b>
Field of study <b>Environmental Engineering First-cycle Studies</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>full-time</b>	
No. of hours Lecture: <b>15</b> Classes: <b>15</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>2</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 Marian Liskowski email: marian.liskowski@put.poznan.pl tel. (61)665 2842 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Basic knowledge of the geometry defined by the core curriculum of mathematics education at the advanced level in secondary school.
2	<b>Skills</b>	The ability to reason and the ability to reflect.
3	<b>Social competencies</b>	Focus on increased knowledge and new skills in order to more fully participate in professional and social life.
<b>Assumptions and objectives of the course:</b> 1. Equipment student's ability to visualize the spatial formations of an engineering and geometrical methods to solve some of the problems in the field of engineering. 2. Developing the capacity of spatial vision.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. The student knows the rules on the presentation of spatial formations on the plane using method projection into planes perpendicular. - [K_W01] 2. The student knows the rules of reading drawings received by this method. - [K_W01] 3. The student knows the rules on the presentation of spatial formations on the plane by axonometry. - [K_W01]		
<b>Skills:</b> 1. Students are able to present on the plane data explicitly or created imaginary geometric figures. - [K_U01, K_U02] 2. Students are able to imagine a spatial solution on the basis of flat image. - [K_U02, K_U07] 3. Students can construct sections, penetration lines and development of the surfaces and polyhedrons. - [K_U02, K_U07] 4. Students are able to perform axonometric projections solid figures taken from the practice of engineering. - [K_U02, K_U07]		
<b>Social competencies:</b> 1. The student is aware of the importance of technical drawing as a way to communicate relevant technical sciences. - [K_K07] 2. The student has the habit of thorough and careful execution drawings and critically evaluate solutions to the problems. - [K_K02] 3. The student has the ability to work in a team. - [K_K03]		

<b>Assessment methods of study outcomes</b>		
<p>Tutorials:</p> <ul style="list-style-type: none"> <li>- two written tests during the semester (7 and 14 weeks) to verify the practical skills, each test is evaluated based on a point scale of 0-20 points.</li> <li>- continuous evaluation for each course.</li> </ul> <p>Completion of the course is obtained from the completion of each test.</p>		
<b>Course description</b>		
<ol style="list-style-type: none"> <li>1. Projections point, straight line and plane into two mutually perpendicular projection planes.</li> <li>2. Sections and developed polyhedrons.</li> <li>3. Conical constructions. The rules for determining sections of the cone. Sections and developed conical and cylindrical surfaces.</li> <li>4. Penetration of the surfaces.</li> <li>5. Axonometry.</li> </ol>		
<b>Basic bibliography:</b>		
<ol style="list-style-type: none"> <li>1. B. Grochowski, Geometria wykreślna z perspektywą stosowaną, Wydawnictwo Naukowe PWN, 2010</li> <li>2. J. Korczak, Cz. Prętki, Przekroje i rozwinięcia powierzchni walcowych i stożkowych, Wydawnictwo Politechniki Poznańskiej, 2007</li> </ol>		
<b>Additional bibliography:</b>		
<ol style="list-style-type: none"> <li>1. W. Mierzejewski, Geometria wykreślna, Oficyna Wydawnicza Politechniki Warszawskiej, 2006</li> <li>2. W. Jankowski, Geometria wykreślna, Wydawnictwo Politechniki Poznańskiej, 1999</li> </ol>		
<b>Result of average student's workload</b>		
Activity	Time (working hours)	
1. Preparing for classes	10	
2. Preparing for written tests	20	
<b>Student's workload</b>		
Source of workload	hours	ECTS
Total workload	60	2
Contact hours	30	1
Practical activities	0	0