

COURSE DESCRIPTION CARD

Faculty of Civil Engineering and Environmental Sciences										
Field of study								Degree level and programme type		
Specialization/ diploma path								Study profile	Academic profile	
Course name	Descriptive geometry							Course code	IS-FCEE-00016-1W	
								Course type	Erasmus	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter	
	15			30				No. of ECTS credits	4	
Entry requirements	Mathematics, Technical Engineering, AutoCAD drawing									
Course objectives	The scope of subject is greatly increased, and it becomes valuable in solving many engineering problems and a useful tool in engineering research and development. Descriptive Geometry is a method to study 3D geometry through 2D images thus offering insight into structure and metrical properties of spatial objects, processes and principles. The education in DG provides a training									
Course content	Basic concepts of projective geometry. Parallel projection and invariants. Pohlke' theorem and axonometry: isometry, military, cavalry, orthogonal. Applicable perspective. Topographic projection. Basic constructions in axonometry. Monge orthographic projection. Multiview orthographic projection of solid figures and its shadows. Third projection surface, transformations and its application. Profile projection. Intersection of two and more solid figures in frame representation in axonometry. Geometry of roofs, revolution and revolved section, roofs with constraints – Monge projection and axonometry. CAD programs and descriptive geometry in creation of graphic part of engineering documentation.									
Teaching methods	Information lecture, problem lecture, multimedia presentation, design classes, project method									
Assessment method	Hand-drawn pencil or computer design 12 projects (exercitations), two tests (hand-drawn pencil design and computer).									
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study		
LO1	Student characterizes standard technical projections							K_W02, K_K01		
LO2	Student maps models of simple architectural objects							K_W02		
LO3	Student reads the graphic parts of a technical documentation							K_U04		
LO4	Student reproduces spatially mapped construction works							K_U04		
LO5	Student reconstructs using the CAD a drawing construction							K_U04		

L06	Student uses geometry design techniques	K_U04, K_K01, K_K07	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	Test	W	
L02	Test, term paper (project)	W	
L03	Test	P	
L04	Test	P	
L05	Test, term paper (project)	W	
L06	Test, term paper (project)	W,P	
Student workload (in hours)		No. of hours	
Calculation	Lectures participation	15 x 1h =15	
	Class participation	15 x 2h=30	
	Participation in the consultation for students	5 x 0,2h=1	
	Preparation for training in classes	12 x 0,5h=6	
	Realization of 12 tasks (pencil worksheets)	12	
	Preparation for lectures exam	6	
	TOTAL:	70	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		46	1,5
Student workload – practical activities		49	2,5
Basic references	1. Bieniasz J., Januszewski B., Piekarski M.: Rysunek techniczny w budownictwie. Oficyna Wyd. PRz, 2008. 2. Koźniewski E.: Wykłady i zadania z geometrii odwzorowań inżynierskich. Preskrypt. Białystok 2007.3. Pottmann H. et al.: Architectural Geometry. Bentley Institute Press, Exton, Pennsylvania, USA 2007. 4. Jankowski M.: Elementy grafiki komputerowej. WN-T, Warszawa 2006.		
Supplementary references	1. Slaby S.M.: Descriptive Geometry. BARNES & NOBILE, Inc. New York 1956.2. Warner F.M., McNeary M.: Applied Descriptive Geometry. McGRAW-HILL Book Company, Inc. New York, Toronto, London 1959.		
Organisational unit conducting the course	Department of Energy-Efficient Construction and Geodesy	Date of issuing the programme	
Author of the programme	dr inż. Marcin Orłowski	28.01.2020	

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar