

Faculty of Civil and Environmental Engineering										
Field of study	Civil Engineering							Degree level and programme type	Full - time Master Degree	
Specialization/ diploma path	Building Structures							Study profile	Academic profile	
Course name	Complex metal structures							Course code	IS-FCEE-00173-1S	
								Course type		
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer	
	15			30				No. of ECTS credits	4	
Entry requirements	General building. Structural mechanics. Strength of materials, Base of designing of the steel structure									
Course objectives	Introduction of students with selected complex steel structures made of hollow sections with their execution. Teaching of design rules of selected hollow sections structures. Education of skills of the efficient using standards and design guidelines.									
Course content	Resistance of hollow sections structures. Loads on the structure. Column and beam design Roofs with the big span made of hollow sections. The geometrical shaping. Principles of computing internal forces. Technical solutions. Workshop fabrication and on-site erection									
Teaching methods	presentations on lectures, methods of projects									
Assessment method	lecture – written test, project – project completion, presentation and discussion									
Symbol of learning outcome	Learning outcomes								Reference to the learning outcomes for the field of study	
EU1	Student knows and understands in a deepened and extended extent the principles of analysis, construction and dimensioning of elements made of hollow sections. He/ She can correctly define the calculation model of the structures and perform advanced analysis in a linear range.								K_B2_W02, K_B2_U05	

EU2	Student knows and understands in extended extent the principles of analysis, design and construction of selected objects in the area of complex metal structures.	K_B2_W03, K_B2_U04
EU3	Student has extended knowledge about currently used	K_B2_W05

	products and building elements used in the implementation of hollow section structures, string constructions, large span crossings and structural crossings.	
EU4	Students knows and understands in extended scope standard rules as well as regulations and guidelines regarding the design of selected complex structures and their elements.	K_B2_W07
EU5	Student can prepare detailed documentation of the hollow section structures design.	K_B2_U10
EU6	Student is ready critically assess his/ her knowledge.	K_B2_K01
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
EU1	Written test, corrections, discussion, colloquium, project defence.	L, P
EU2	Written test, corrections, discussion, colloquium, project defence.	L, P
EU3	Written test, corrections, colloquium, project defence.	L,P
EU4	Written test, colloquium, project defence.	L,P
EU5	Corrections, discussion, project defence.	P
EU6	Written test, corrections, colloquium, project defence.	L,P
Student workload (in hours)		No. of hours
Calculation	lecture attendance	15
	participation in project classes,	30
	preparation for passing the lecture and presence on it	19
	implementation of project tasks, preparation for project classes and passing the project,	35
	participations in consultations	1
	TOTAL:	100

Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		48	1.5
Student workload – practical activities		85	3,0
Basic references	1. J. Wardenier, Hollow sections in Structural applications. CIDECT. 2001.		
Supplementary references	SSAB Domex, Structural Hollow Sections, EN 1993 Handbook		
Organisational unit conducting the course	Department of Building Structures	Date of issuing the programme	
Author of the programme	Mirosław Broniewicz, PhD, Eng. Prof.	2023.02.24	

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

S – seminar