

## 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	Urban structures							Course code	IS-FCEE-00174-1W
								Course type	Erasmus
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter
	30			30				No. of ECTS credits	4
Entry requirements									
Course objectives	Presentation of the classification of urban buildings and the principles of forming the construction systems. Learning the methods of ensuring the spatial stiffness of multi-storey buildings. Presentation of calculation of internal forces in structural elements using analytical and computational methods. Presentation of principles of designing the multi-storey structures made of various structural materials.								
Course content	<p><u>Lecture.</u> Classification and types of buildings and construction systems of urban buildings. Spatial stiffness of multi-story building constructions. Models and calculation methods of reinforced building structures in the field of statics and dynamics - plate, frame, plate, shaft, mixed. Application of computer methods.</p> <p><u>Project.</u> Design of multi-storey concrete and masonry buildings. Formation of the building's structural system, ensuring spatial stiffness. Collection of loads. Loads applied to the elements of the structure due to its stiffness. Variant determination of internal forces in structural elements using various methods, including the FEM.</p>								
Teaching methods	lecture, design project								
Assessment method	lecture – written exam; project – project completion, correction during the semester and final discussion								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	Student identifies and describes principles of structural analysis of complex structures							K_B2_W01	
LO2	Student is able to construct multi-storey urban buildings							K_B2_W02 K_B2_U05	
LO3	Student solves problem using computational analysis							K_B2_W06 K_B2_U05	

L04	Student is able to define the analytical model and provides complex analyses of multi-storey urban buildings	K_B2_U05	
L05	Student is able to assess the usefulness of methods and tools used to solve the problem	K_B2_W06 K_B2_U06	
L06	Student recognizes the importance of knowledge and uses the new technologies and applications	K_B2_K02	
<b>Symbol of learning outcome</b>	<b>Methods of assessing the learning outcomes</b>	<b>Type of tuition during which the outcome is assessed</b>	
L01	exam	L	
L02	exam; project evaluation	L, P	
L03	exam; project evaluation	L, P	
L04	exam; project evaluation	L, P	
L05	exam	L	
L06	exam; project evaluation	L, P	
<b>Student workload (in hours)</b>		<b>No. of hours</b>	
<b>Calculation</b>	lecture attendance	30h	
	participation in projects	30h	
	participation in student-teacher sessions related to the classes/project	5h	
	preparation and working on projects	25h	
	preparation for and participation in exams (18h+2h)	20h	
	<b>TOTAL:</b>	<b>110h</b>	
<b>Quantitative indicators</b>		<b>HOURS</b>	<b>No. of ECTS credits</b>
<b>Student workload – activities that require direct teacher participation</b>		67	2,5
<b>Student workload – practical activities</b>		70	2,5
<b>Basic references</b>	1. Chew Yit Lin M.:Construction Technology for Tall Buildings NUS, Singapore, 2012; 2. Günel M.H., Ilgin H.E.: Tall buildings : structural systems and aerodynamic form, London ; New York : Routledge/Taylor a. Francis Group, 2014 3. Taranath B.S: Structural analysis and design of tall buildings, New York : McGraw-Hill, 1988		
<b>Supplementary references</b>			
<b>Organisational unit conducting the course</b>	<b>Department of Geotechnics and Structural Mechanics</b>	<b>Date of issuing the programme</b>	
<b>Author of the programme</b>	<b>Dr inż. Michał Baszeń</b>	<b>09.03.2021</b>	

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

S – seminar