

## 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	Durability and safety of structures with BIM elements							Course code	IS-FCEE-00097-1W	
								Course type	Erasmus	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter	
	15							No. of ECTS credits	1	
Entry requirements	Materials durability, Building materials, Concrete structures, Steel structures, Timber structures									
Course objectives	Acquainting with the physical and chemical effects of the destruction of concrete and construction steel. Discussion of modern methods of measuring physical quantities in structures. Acquainting with the methods of conducting experimental research on models and objects "in situ". Getting to know the rules of carrying out test loads in building structures. Analysis of contemporary research methods in the areas of research interests of Erasmus students.									
Course content	Material destruction of concrete and construction steel. Non-destructive testing of existing structures. Laboratory tests on samples taken from the structure. Methods of measurement of deformation states in structures under temporary and long-term loads. Destructive strength tests of structural elements. Analysis of modern research methods in the areas of scientific interest of Erasmus students (independent presentations of students).									
Teaching methods	lecture, project									
Assessment method	lecture – written exam; project – project completion, presentation and discussion									
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study		
LO1	correctly interprets the phenomena of material destruction in building structures							B3_W02		
LO2	can use Internet and other sources of databases							K_U23		
Symbol of learning outcome	Methods of assessing the learning outcomes							Type of tuition during which the outcome is assessed		
LO1	oral test, evaluation and defense of a presentation							L, P		
LO2	oral test, evaluation and defense of a presentation							L, P		

Student workload (in hours)		No. of hours	
Calculation	lecture attendance	15	
	participation in classes, laboratory classes, etc.		
	working on projects, reports, etc.		
	participation in student-teacher sessions related to the classes/seminar/project		
	implementation of project tasks		
	preparation for and participation in exams/tests	10	
	<b>TOTAL:</b>	<b>25</b>	
Quantitative indicators		HOURS	No. of ECTS credits
<b>Student workload – activities that require direct teacher participation</b>		15	0,6
<b>Student workload – practical activities</b>			
<b>Basic references</b>	Malkotra V. M., Carino N. J.: Handbook on nondestructive testing of concrete. CRC Press 2004		
<b>Supplementary references</b>	Structural Engineering International, Journal IABSE		
<b>Organisational unit conducting the course</b>	<b>Department of Building Structures</b>	<b>Date of issuing the programme</b>	
<b>Author of the programme</b>	<b>dr inż. Aleksander Wawrusiewicz</b>	<b>15.03.2021</b>	

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