

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	Monolithic construction							Course code	IS-FCEE-00111-1S	
								Course type	Erasmus	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer	
	15			15				No. of ECTS credits	2	
Entry requirements	Construction works part I, Concrete technology									
Course objectives	Developing the ability to understand the processes occurring in monolithic works and changes occurring in the concrete mixture. Strengthening and expanding knowledge on the principles of selection of methods, machines and devices for the correct implementation of monolithic works in the aspect of concrete durability. Developing competence in the design and supervision of the correct implementation of the monolithic works process.									
Course content	Lecture: The process of monolithic works - simple and auxiliary processes. Formwork - classification, requirements, errors in the selection of formwork. Special formwork, e.g. tunnel, lost, ACS. Preparation of the concrete mix - concrete mixing plants (division and characteristics). Modern mobile concrete plants. Far and near concrete mix transport. Conditions for laying concrete. Pressure of the concrete mix for formwork. Concrete compaction. Special concreting methods (spraying, underwater concreting, two-stage). Concrete care in winter and summer conditions. Concreting of massive structures and diaphragm walls. Nanotechnology in concrete. Concrete mix recycling. Project - a project for comparative analysis of variant solutions of monolithic slab formwork.									
Teaching methods	lecture - written exam, project - completion, discussion of the project									
Assessment method	Lecture - written exam, project - project implementation, project defense									
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study		
LO1	Knows and understands in depth selected issues in the field of monolithic works technology							K_B2_W01		
LO2	Knows and understands the principles of analysis and design of simple processes in a complex process of monolithic works. Selects machines and devices for individual processes. Can							K_B2_W03 K_B2_W05 K_B2_U02		

	make a critical analysis of existing solutions and evaluate these solutions.		
L03	In an extended scope knows the standard rules and guidelines for the design of processes in monolithic robots in terms of concrete durability. He knows the safety rules	K_B2_W07 K_B2_W09 K_B2_W11	
L04	Knows the main development trends in monolithic construction. Knows modern technologies and devices necessary for the implementation of monolithic construction	K_B2_W12	
L05	Is able to assess threats in the implementation of a complex process of monolithic works and implement appropriate principles of safety and health protection.	K_B2_W09 K_B2_U07	
L06	Is ready to recognize the importance of knowledge in solving problems in the field of monolithic construction and the responsible fulfillment of professional duties and continuous training.	K_B2_K02 K_B2_K06	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	Completing the lecture	L	
L02	Completing the lecture, defending the project	L, P	
L03	Completing the lecture, defending the project	L, P	
L04	Completing the lecture, defending the project	L, P	
L05	Completing the lecture, defending the project	L, P	
L06	Completing the lecture, defending the project	L, P	
Student workload (in hours)		No. of hours	
Calculation	participation in lectures	15	
	participation in design exercises	15	
	preparation for design exercises and project implementation	10	
	preparation for project defense	2	
	preparation for passing the lecture and presence on it (8h + 2h passing the lecture)	15	
	participation in consultations	3	
	TOTAL:	60	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		35	1
Student workload – practical activities		30	1
Basic references	1. Neville, A.M. Concrete technology, Harlow: Prentice Hall, 2010. 2. Kurdowski W. Cement and Concrete Chemistry, Springer, 2014 3. Advanced Concrete Technology 3, Edited by Newman J., London, UK, 2003 4. Day K.W, Aldred J., Hudson B. Concrete Mix Design, Quality Control and Specification, Fourth Edition, CRC Press, 2013		

Supplementary references	Articles, papers, websites, catalogues of modern formwork	
Organisational unit conducting the course	Department of Construction and Road Engineering	Date of issuing the programme
Author of the programme	Edyta Pawluczuk, PhD, Eng.	03.03.2020

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

S – seminar