COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Bialystok University of Technology</td></tr>
<tr><td>Field of study</td><td colspan="6">Civil Engineering</td><td>Degree level and programme type</td><td>Bechelor’s degree</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6">-</td><td>Study profile</td><td>academic profile</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">Design of Concrete Structures</td><td>Course code</td><td>19284124H</td></tr>
<tr><td>Course type</td><td>Obligatory</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td>Semester</td><td>5</td></tr>
<tr><td></td><td></td><td></td><td>32</td><td></td><td></td><td></td><td>No. of ECTS credits</td><td>2</td></tr>
<tr><td>Entry requirements</td><td colspan="9">-</td></tr>
<tr><td>Course objectives</td><td colspan="9">To acquaint students with the methods of designing reinforced concrete structures per the current regulations and standards requirements.
Teaching the procedures of designing the cross-sections of reinforced concrete structural elements in terms of the ultimate and serviceability limit states.
Acquainting with the principles of constructing reinforcement of simple reinforced concrete elements (slabs, beams, columns). Teaching the design of simple elements of reinforced concrete structures and performing basic experimental tests of reinforced concrete structures.</td></tr>
<tr><td>Course content</td><td colspan="9">Project: Design of a monolithic slab-rib ceiling in the building. Listing of loads and static calculations of the floor using analytical methods. Dimensioning and structure of the reinforcement slab in terms of ULS and SLS of reinforced concrete elements. Preparation of construction drawings of the slab.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">design exercise, presentation</td></tr>
<tr><td>Assessment method</td><td colspan="9">project - corrections and execution of the project, practical test</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="7">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="7">He knows the rules of analysis and modeling of selected elements of reinforced concrete structures, is able to correctly define calculation models and carry out their analysis</td><td colspan="2">K_B1_W05
K_B1_W06
K_B1_U06</td></tr>
<tr><td>LO2</td><td colspan="7">Has knowledge and is able to select materials (concrete, steel), dimension reinforcement cross-sections and calculate the load-bearing capacity of reinforced concrete structures (ultimate limit states)</td><td colspan="2">K_B1_W04
K_B1_W05
K_B1_W06
K_B1_U05
K_B1_U08</td></tr>
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LO3	Has knowledge and is able to check the scratching and deflection of elements of reinforced concrete structures (serviceability limit states)	K_B1_W05 K_B1_W06 K_B1_U08
LO4	He knows the code rules and is able to construct reinforcement systems of reinforced concrete elements and prepare graphic documentation (construction drawings)	K_B1_W06 K_B1_U08 K_B1_U03
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	Proofreading and project defense	P
LO2	Proofreading and project defense	P
LO3	Proofreading and project defense	P
LO4	Checking point, presentation and defense of the project	P
Student workload (in hours)		**No. of hours**
Calculation	Participation in class	32
	Preparation for project classes and a test, project implementation,	20
	preparation for project defense	5
	~~Preparation for the test and attendance at it~~ (20h + 2h exam)	0
	Participation in consultations	2
	TOTAL:	69

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	**34**	**1,2**
Student workload – practical activities	**69**	**2**

Basic references	EN 1990 Eurocode 0: Basis of Structural Design EN 1991 Eurocode 1: Actions on structures EN 1992 Eurocode 2: Design of concrete structures V. Tur, M. Kosior-Kazberuk, R. Grygo, A. Tur, J. Krassowska, Concrete Structures, OFICYNA WYDAWNICZA POLITECHNIKI BIAŁOSTOCKIEJ, BIAŁYSTOK 2020, 2020. https://pb.edu.pl/oficyna-wydawnicza/wp-content/uploads/sites/4/2020/12/Concrete-Structures.pdf (accessed May 11, 2021)	
Supplementary references	A. Lapko. Mechanics and design of reinforced concrete members in the ligth of Eurocode 2. Edited by Universidade da Beira Interior, Covilha, 1996. J. G Mac Gregor „Reinforced Concrete" Mechanics and Design. New Jersey, 1992.	
Organisational unit conducting the course	Department of Building Structures	**Date of issuing the programme**
Author of the programme	Dr inż. Julita Krassowska	13.10.2022

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