COURSE DESCRIPTION CARD

<table>
<tr><td colspan="11">FACULTY OF CIVIL ENGINEERING AND ENVIRONMENTAL SCIENCES</td></tr>
<tr><td>Field of study</td><td colspan="6">Building</td><td colspan="2">Level and form of studies</td><td colspan="2">first degree
full time</td></tr>
<tr><td>Specialty / diploma path</td><td colspan="6">Buildings Structures</td><td colspan="2">Education profile</td><td colspan="2">general academic</td></tr>
<tr><td rowspan="2">Item Name</td><td colspan="6" rowspan="2">Static analysis of structures in computer terms - the use of BIM technology</td><td colspan="2">Item Code</td><td colspan="2">B1S61147</td></tr>
<tr><td colspan="2">Item type</td><td colspan="2">Elective SD</td></tr>
<tr><td rowspan="2">Forms of course and number of hours</td><td>L</td><td>E</td><td>L</td><td>P</td><td>SL</td><td>T</td><td>S</td><td colspan="2">Semestr</td><td colspan="2">VI</td></tr>
<tr><td>15</td><td></td><td></td><td></td><td>30</td><td></td><td></td><td colspan="2">Points ECTS</td><td colspan="2">4</td></tr>
<tr><td>Introductory subjects</td><td colspan="10">Theoretical Mechanics, Strength of Materials, Structural Mechanics</td></tr>
<tr><td>Objectives of the course</td><td colspan="10"><u>Lecture</u>: To acquaint students with the methods of computerized determination of internal forces and displacements in planar and spatial bar, disc, plate and surface systems, with static and dynamic structure calculation methods, correct interpretation of calculation results and their application in advanced design processes.
<u>Specialist laboratory</u>: Application of computer methods for the determination of internal forces and displacements in planar and spatial bar, disc, plate and surface systems - tasks, application of static and dynamic structure calculation methods, practice of correct interpretation of calculation results and their application in advanced design processes.</td></tr>
<tr><td>Program content</td><td colspan="10">Layouts of flat and spatial frames, beams. Shear and plate systems. Surface systems. Statics of building systems. Basic construction tools. Application of results in design processes.</td></tr>
<tr><td>Teaching methods</td><td colspan="10">Information lecture, specialist laboratory - construction of computational models, computer analysis, presentation of results and their interpretation</td></tr>
<tr><td>The form of completing the course</td><td colspan="10">Lecture – passing the subject, specialist laboratory – execution of tasks with the correct interpretation of the results</td></tr>
<tr><td>Learning outcome symbol</td><td colspan="8">Assumed learning outcomes</td><td colspan="2">Reference to directional learning outcomes</td></tr>
<tr><td>EU1</td><td colspan="8">He knows issues in the field of mechanics, including statics and dynamics of structures. He has knowledge</td><td colspan="2">K_B1_W03
K_B1_W10</td></tr>
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	of the principles of general shaping of building structures. Knows BIM (Building Information Modelling) issues	
EU2	Knows the principles of analysis, modeling, design, dimensioning of general construction objects. Can correctly define computational models of structures and their elements, used for analytical and computer analysis of structures and carry out their analysis	K_B1_W05 K_B1_U06
EU3	He knows issues in the field of computer science, in particular information technologies and selected computer programs supporting the calculation and design of structures. Knows how to assess the usefulness of methods and tools for solving problems of modeling, analysis and design of building objects.	K_B1_W02 K_B1_U07
EU4	Is ready to critically evaluate your knowledge and received content in the field of Material Strength	K_B1_K01

Learning outcome symbol	Ways to verify learning outcomes	Form of classes on which verification takes place
EU1	Written credit	W
EU2	Written credit, passing tasks from the laboratory	W, Ps
EU3	Written credit, passing tasks from the laboratory	W, Ps
EU4	Written credit, passing tasks from the laboratory	W, Ps

Balance of student workload (in hours)		Number of hours
Enumeration	Participation in lectures	15
	Participation in: auditorium exercises + laboratory + design classes + specialist laboratory	30
	Preparation of laboratory or laboratory reports and/or performance of homework (homeworks)	15
	Participation in consultations related to exercises/seminar/project	5
	Implementation of project tasks (including preparation of presentations)	30
	Preparation for design exercises	15
	RAZEM:	110

Quantitative indicators	HOURS	ECTS
Student workload related to classes requiring direct participation of the teacher	50	2
Student's workload related to practical classes	95	4

Basic literature	1. Zienkiewicz O.C.: Finite Element Method, 3rd or newer edition
Supplementary literature	1. Stolarski T., Nakasone Y. Yoshimoto S.: Engineering Analysis with ANSYS Software

Execution unit	Department of Geotechnics and Structural Mechanics	Date of development of the program
The program was developed by	Assoc. Prof.. Tadeusz Chyży,	8.12.2021