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>Bachelor's degree</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="6"></td><td>Study profile</td><td>academic</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="6" rowspan="2">General Building Engineering II</td><td>Course code</td><td>19284106H</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>4</td></tr>
<tr><td>16</td><td></td><td></td><td>32</td><td></td><td></td><td></td><td>No. of ECTS credits</td><td>3</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Technical drawing & engineering graphics, Statics, Strength of materials, General building engineering I, Civil engineering materials</td></tr>
<tr><td>Course objectives</td><td colspan="9">The purpose of this module is to present students with basics of the structural design in accordance to EC0, actions on structures in accordance to EC1, basics of timber structures design in accordance with EC5 and basics of masonry structures design in accordance with EC6 Part 3.</td></tr>
<tr><td>Course content</td><td colspan="9"><u>Lecture</u> (16 teaching hours): Structural design based on EN 1990 (EC0) Eurocode - Basis of structural design. Actions on structures based on EN 1991-1 Eurocode 1: Actions on structures: EN 1991-1-1 General actions–Densities, self-weight, imposed loads for buildings, EN 1991-1-3 General actions–Snow Loads, EN 1991-1-4 General actions-Wind actions. Basics of timber structures design based on EN 1995-1-1 Eurocode 5: Design of timber structures. Basics of masonry structures design in accordance with EN 1996-3 Eurocode 6 - Design of masonry structures - Part 3: Simplified calculation methods for unreinforced masonry structures

<u>Practical</u> (Project) (32 teaching hours): Technical drawings of a multi-family brick-built residential building - timber truss as a roof structure and two details of a building; Dimensioning of elements of a timber roof truss in accordance with Eurocode 5: rafter, purlin and post; Calculation of the bearing capacity of the brick wall in accordance with EN 1996-3.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">A series of lectures to provide students with an overview of the issues relating to structural design in accordance to EC0, actions on structures in accordance to EC1, basics of timber structures design in accordance with EC5 and basics of masonry structures design in accordance with EC6 Part 3.</td></tr>
<tr><td>Assessment method</td><td colspan="9">Lecture - written examination; Project – completion of the student's projects (drawings and calculations) and written 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">Graduates know the basis of structural design according to Eurocodes</td><td colspan="2">K_B1_W05, K_B1_W06</td></tr>
<tr><td>LO2</td><td colspan="7">Graduates identify and make combinations of actions on individual building elements of construction objects</td><td colspan="2">K_B1_W06, K_B1_K01</td></tr>
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LO3	Graduates know how and can dimension elements of simple timber and masonry structures	K_B1_W05, K_B1_U08
LO4	Graduates select and apply construction materials in designed objects	K_B1_W04, K_B1_U05, K_B1_U07
LO5	Graduates can communicate using specialized construction terminology	K_B1_U12
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	exam, completion of the student's project, test	L, P
LO2	completion of the student's project, test	P
LO3	exam, completion of the student's project, test	L, P
LO4	completion of the student's project	P
LO5	exam, completion of the student's project, test	L, P
Student workload (in hours)		**No. of hours**
Calculation	lecture attendance	**16**
	participation project classes	**32**
	preparation for project	**32**
	preparation for project test	**7**
	participation in examination	**10**
	participation in student-teacher sessions related to the course	**2**
	TOTAL:	**99**

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	48	1,92
Student workload – practical activities	73	2,92

Basic references	1. European Standards - Eurocodes: EC0, EC1, EC5, EC6 Part 3. 2. H. Gulvanessian, J.-A. Calgaro and M. Holický: *Designers' Guide to EN 1990 Eurocode: Basis of Structural Design*, Thomas Telford Ltd 2002. 3. H. Gulvanessian, P. Formichi, J. -A. Calgaro and G. Harding: *Designers' Guide to Eurocode 1: Actions on Buildings: EN 1991-1-1 and -1-3 to -1-7 (Designers' Guide to Eurocodes),* Thomas Telford Ltd 2008 4. Porteous J., Kermani A.: *Structural Timber Design to Eurocode 5*, Wiley-Blackwell 2013.
Supplementary references	
Organisational unit conducting the course	Facutly of Civil Engineering and Environmental Science
Author of the programme	Dorota Małaszkiewicz, PhD, Eng. Natalia Stankiewicz, PhD, Eng.

Date of issuing the programme: **20.02.2025**

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