

MODULE SPECIFICATION

Module code	
Module title in Polish	Budownictwo Ogólne
Module title in English	General Civil Engineering
Module running from the academic year	2016/2017

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Civil Engineering
Level of qualification	First cycle <i>(first cycle, second cycle)</i>
Studies profile	Academic <i>(academic/practical)</i>
Mode of study	Full-time <i>(full-time / part-time)</i>
Specialism	
Organisational unit responsible for module delivery	The Department of General Civil Engineering
Module co-ordinator	Leszek Faryniak, PhD hab., Eng., Professor of the University
Approved by	Marek Iwański, Professor

B. MODULE OVERVIEW

Module type	Core module <i>(core/programme-specific/elective HES*)</i>
Module status	Compulsory module <i>(compulsory / non-compulsory)</i>
Language of module delivery	English
Semester in the programme of study in which the module is taught	Semester 3
Semester in the academic year in which the module is taught	Winter semester <i>(winter / summer)</i>
Pre-requisites	None <i>(module code/module title, where appropriate)</i>
Examination required	Yes <i>(yes / no)</i>
ECTS credits	5

Mode of instruction	lectures	classes	laboratories	project	others
Total hours per semester	45	15		30	

* elective HES – elective modules in the Humanities and Economic and Social Sciences

C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to familiarise students with the knowledge of general civil engineering. Another aim is to design buildings and control load bearing capacity of basic building structure elements.
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Module outcome code	Module learning outcomes	Mode of instruction (l/c/lab/p/ others)	Corresponding programme outcome code	Corresponding discipline-specific outcome code
W_01	A student is knowledgeable about architectural solutions as well as material and construction ones of a building (including its elements, i.e. fundamentals, walls, anti-water insulations, and the elements of shaping wall surface).	l/c/p	B_W13 B_W19 B_W20	T1A_W01 T1A_W02 T1A_W03 T1A_W04 T1A_W06 T1A_W08
W_02	A student is familiar with legal principles connected with designing a building.	l/c/p	B_W08	T1A_W03 T1A_W07 T1A_W08
W_03	A student knows the principles of designing a building and making calculations controlling load bearing capacity as regards construction elements.	l/c/p	B_W05 B_W09 B_W10	T1A_W01 T1A_W02 T1A_W03 T1A_W04 T1A_W05 T1A_W07 T1A_W08
U_01	A student can use the norms, regulations, and guidelines concerning building design.	c/p	B_U13 B_U27	T1A_U01 T1A_U02 T1A_U04 T1A_U05 T1A_U07 T1A_U09 T1A_U11 T1A_U15 T1A_U16
U_02	A student can make a technical project of a residential building made with the traditional method.	l/c/p	B_U01 B_U06 B_U27	T1A_U01 T1A_U02 T1A_U03 T1A_U04 T1A_U05 T1A_U07 T1A_U08 T1A_U09 T1A_U15 T1A_U16
U_03	A student is capable of determining, classifying, and providing a set of loads interacting with the selected elements of a building.	c/p	B_U02 B_U13	T1A_U05 T1A_U07 T1A_U11 T1A_U13 T1A_U15 T1A_U16
K_01	A student can work individually and in a team.	c/p	B_K01 B_K07	T1A_K01 T1A_K03 T1A_K04 T1A_K07
K_02	A student is responsible for the reliability of the obtained results.	l/c/p	B_K03	T1A_K01 T1A_K05 T1A_K06
K_03	A student can formulate conclusions and describe the results of the accomplished work.	c/p	B_K04	T1A_K01 T1A_K07

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1-3	The scope of the subject, initial information, basic and further reading list. The	W_01

	characteristics and requirements of building law as regards designing and realising building object. Technical norms.	W_02 U_01 U_02 U_03
4-5	Structure elements. Setting out buildings, excavations.	W_01
6	Terrain drainage for building objects, dehumidifying the existing buildings. The principles of organising drainage works.	W_01
7-8	The foundations of a building.	W_01 U_02
9-10	Anti-moisture and waterproof insulations, the division of insulations, the principles of designing and realising them.	W_01 U_02
11-13	Bearing walls: wooden, masonry and brick ones. Chimney walls. The principles of binding brick walls.	W_01 U_02
14-15	The principles and realisation conditions of walls from fine-dimension elements. Cavity, layer walls, and reinforced walls. Calculations concerning walls.	W_01 U_02
16-17	The dilatation of buildings, cover walls, elements shaping wall surface (pilasters, pedestals, and cornices). The stability and rigidity of the structure. Headers (their types and principles of designing them).	W_01 U_02
18-20	Ceilings. General principles of work concerning ceilings (loads). Wooden, Klien, steel-ceramic flooded, thick-ribbed ceilings, and balconies.	W_01 W_02 U_02
21-22	Full and ventilated flat roofs, terraces. Ventilation and exhaust fume ducts.	W_02
23-25	Roofs: their types of roofs drawing attention to their shapes, wooden structures, reinforced concrete and steel (roof lights), roofs	W_02 U_02
26-27	Wooden engineering structures (nailed connections, joints).	W_02
28-30	Rooftops (drainage of roof slopes, sheet-metal works.	W_02 U_02
31-32	Stairs (the principles of designing them, the types of stairs, and the structure of the balustrade).	W_01
33-34	Constructional division. The fundamentals of structure physics.	W_01
35-36	Constructional carpentry. Protecting appropriate microclimate conditions.	W_02 U_02
37-38	Industrial civil engineering (types, elements, nodes, and the principles of assembly).	W_01 W_02 U_02
39-41	Discussing the problems connected with the assessment of the environmental influence on wooden structure (taking the methods of protecting them into consideration). Mycology, concrete corrosion and other types of corrosion.	W_01 U_02
42-43	Fire protection.	W_02 U_02

2. Topics to be covered in the classes

No.	Topics	Module outcome code
1-2	Loads in static calculations (the principles of carrying loads, the systems and combinations of loads, discussing norms: fixed and variable loads, snow and wind loads, the loads of a roof area).	W_01 W_02 W_03 U_01 U_02 U_03
3	Static calculations: basic information on the theory of calculating reinforced concrete structures (also steel, masonry, and wooden ones).	W_01 W_02

		W_03 U_01 U_03
4-5	Designing densely-robbed ceilings (determining loads, loading with division walls, static diagrams, the conditions of partial ceiling fixing, calculating moments, selecting the DZ-3, Fert 45, and Terriva ceiling beam).	W_01 W_02 W_03 U_01 U_03
6	The principles of calculating masonry structures (discussing the masonry structure, accepting material indicators, slenderness, controlling stresses).	W_01 W_02 W_03 U_01 U_03
7	Calculating the selected masonry structures (determining loads concerning various masonry structures, e.g. inter-door, inter-window, external and internal wall pillars; slabs, beams, and ceramic poles; the order of calculations while controlling load bearing capacity).	W_01 W_02 W_03 U_01 U_03
8-10	Load bearing capacity of an inter-window pillar (selecting a pillar, determining loads from ceilings and walls; reducing loads; the issue of eccentricity; selecting wall parameters; slenderness and spatial rigidity; checking load bearing capacity; procedures in the case of exceeding load bearing capacity).	W_01 W_02 W_03 U_03
11	The principles of calculating wooden structures (discussing a wooden norm, accepting material indicators, homogeneous and complex sections, joints, slenderness, controlling stresses).	W_01 W_02 W_03 U_03
12-14	Dimensioning rafter framing (loading a rafter framing; calculating loads for particular rafter framing elements; static diagrams; controlling stresses in: the rafter, corner rafter, purlin, pole, and the foundation).	W_01 W_02 W_03 U_03

3. Topics to be covered in the laboratories

4. Topics to be covered in the projects

Project number	Topics	Module outcome code
1-2	Discussing the design of a masonry multi-floor building (its scope, issuing subjects).	W_01 W_02
3-6	Discussing the norms of designing residential housings (technical conditions concerning rooms, the distribution of rooms, lighting and ventilation; the size of rooms; the location of sanitary rooms; leading installation and location of chimneys).	W_01 W_02 W_03 U_01 U_02
7-10	A projection of a repeatable floor (constructional elements of external and internal load bearing walls, division walls, ceilings, binders, chimney trunks; the size and location of windows, doors, balconies, and loggias).	W_02 W_03 U_01 U_02
11-12	A projection of a staircase of a ground floor (the selection and the construction of stairs on all floors; ground floor; alternative solutions of an entrance enclosure; the walls of a staircase, and an entrance to the basement).	W_02 W_03 U_01 U_02
13-14	A projection of a basement (constructional elements of external and internal load bearing walls of basements; anti-moisture protection of walls; the location of garages; the ventilation of basements and garages; window, door,	W_02 W_03 U_01

	and door carpentry).	U_02
15-18	A projection of a rafter framing (typical dimensions of constructional elements; the location and connection details; insulating a rafter framing and insulation layers for a loft; fire protection; roof lights; hatchways; and chimney benches).	W_02 W_03 U_01 U_02
19-23	A horizontal section through a staircase (the variant of a building with a loggia and with a balcony; foundation elements; the details of wall, ceiling, stairs, and balconies connections; horizontal anti-moisturising protections; insulating the ceiling and basement walls; floor layers on various floors; drawing levels, leading chimney out of roofs).	W_02 W_03 U_01 U_02
24-25	Basic issues concerning building physics (heat conduction, calculating the coefficient of heat infiltration; the systems of insulation layers, and moisture issues).	W_01 W_02 W_03 U_01 U_02
26-27	New material and constructional solutions in civil engineering (new technologies of anti-moisture protections; thermal and acoustic protection; system solutions; new material solutions of constructional and finishing elements).	W_02 W_03 U_01 U_02
28-29	The principles of preparing a technical description (elements considered in a technical description; tables on drawings, and folding drawings).	W_01 W_02

Assessment methods

Module outcome code	Assessment methods <i>(Method of assessment; for module skills – reference to specific project, laboratory and similar tasks)</i>
W_01	An examination, a test, and a project
W_02	An examination, a test, and a project
W_03	An examination
U_01	An examination, a test, and a project
U_02	An examination and a project
U_03	An examination and a project
K_01	An examination, a test, and a project
K_02	An examination, a test, and a project
K_03	An examination and a project

C. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	45
2	Contact hours: participation in classes	15
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	
5	Contact hours: participation in project-based classes	30
6	Contact hours: meetings with a project module leader	3
7	Contact hours: attendance at an examination	4

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9	Number of contact hours	97 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit =25-30 hours of study time)</i>	3.9
11	Private study hours: background reading for lectures	
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	2
14	Private study hours: preparation for laboratories	
15	Private study hours: writing reports	
16	Private study hours: preparation for a final test in laboratories	10
17	Private study hours: preparation of a project/a design specification	10
18	Private study hours: preparation for an examination	6
19		
20	Number of private study hours	28 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	1.1
22	Total study time	125
23	Total ECTS credits for the module <i>(1 ECTS credit =25-30 hours of study time)</i>	5
24	Number of practice-based hours <i>Total practice-based hours</i>	53
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	2.1