

MODULE SPECIFICATION

Module code	
Module title in Polish	Structure Material Behaviour under Service Load
Module title in English	Structure Material Behaviour under Service Load
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 Strength of Materials and Concrete Structures
Module co-ordinator	Prof. Wiesław Trąpczyński, PhD hab., Eng.
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 5
Semester in the academic year in which the module is taught	Summer/Winter semester <i>(winter / summer)</i>
Pre-requisites	None <i>(module code/module title, where appropriate)</i>
Examination required	No <i>(yes / no)</i>
ECTS credits	3

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

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

C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	After lectures students should: <ul style="list-style-type: none"> - have basic knowledge of English terminology, - have basic knowledge considering mechanical properties of materials, - have basic knowledge to determine relations between external loadings, stresses, and strains
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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 familiar with basic vocabulary on materials strength.	l	B_W06	T1A_W06
U_01	A student can use basic specialist vocabulary in English.	l	B_U26	T1A_U01 T1A_U13
K_01	A student can work both individually and in a team.	l	B_K01 B_K05 B_K07	T1A_K03 T1A_K05 T1A_K07
K_02	A student is responsible for the reliability of his/her work.	l	B_K02 B_K03 B_K07	T1A_K03 T1A_K04 T1A_K05 T1A_K06 T1A_K07

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1	Stress and strain (normal stress, Saint-Venant's principle, shear stress, Mohr's circle, volume strain, shear strain).	W_01 U_01 K_01, K_02
2	Stress-Strain experiments (stress-strain diagram, Characteristic points, Material parameters, Material behaviour during unloading).	W_01 U_01 K_01, K_02
3	Stress-Strain relations, Poisson's ratio, Hooke's law, Hooke's law for general stress state, Baushinger effect, Kinematic and isotropic hardening, Material models.	W_01 U_01 K_01, K_02
4	Equilibrium of a deformable body, calculation of reactions, free body diagram.	W_01 U_01 K_01, K_02
5	Calculation of the resultant force and moment acting within the body, force and moment diagrams.	W_01 U_01 K_01, K_02
6	Geometric properties of an area, Stress calculation in the case of simple structures (beams).	W_01 U_01 K_01, K_02
7	Theories of failure.	W_01 U_01 K_01, K_02

2. Topics to be covered in the classes
3. Topics to be covered in the laboratories
4. Topics to be covered in the projects

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	A paper and a discussion in a team
U_01	A paper and a discussion in a team
K_01	A paper and a discussion in a team
K_02	A paper and a discussion in a team

C. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	15
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	3
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	
8		2
9	Number of contact hours	20 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit =25-30 hours of study time)</i>	0.8
11	Private study hours: background reading for lectures	22
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	
14	Private study hours: preparation for laboratories	
15	Private study hours: writing reports	20
16	Private study hours: preparation for a final test in laboratories	
17	Private study hours: preparation of a project/a design specification	
18	Private study hours: preparation for an examination	13
19		
20	Number of private study hours	55 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	2.2
22	Total study time	75
23	Total ECTS credits for the module <i>(1 ECTS credit =25-30 hours of study time)</i>	3
24	Number of practice-based hours <i>Total practice-based hours</i>	20
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	0.8