

COURSE DESCRIPTION CARD

Bialystok University of Technology										
Field of study	Civil Engineering							Degree level and programme type	Bachelor's degree	
Specialization/ diploma path	-							Study profile	academic profile	
Course name	Statics							Course code	19282102H-2	
								Course type	obligatory	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	3	
	16			16				No. of ECTS credits	2	
Entry requirements	Static & Dynamic Mechanics									
Course objectives	Students can learn how identify statically determinate and over-rigid structures, can draw internal forces diagrams for plane bar structures. Students become familiar with the geometric characteristics of plane sections: center of gravity and moments of inertia. Students can determine the deflection and slope of simple and complex beams.									
Course content	<p><u>Lecture:</u> Types of bar structures. Statically determinate and indeterminate bar structures. Degree of static indeterminacy. Internal forces in statically determinate beams, frames and arches - equations of internal forces and their diagrams. Geometric characteristics of plane sections - center of gravity, moments of inertia, principal moments of inertia. The deflection and slope of simple and complex beams.</p> <p><u>Project:</u> project 1 : Internal forces diagrams for statically determinate beams and frames. Project 2 : Moment of inertia of plane section with respect to principal axes, the deflection and slope of beams.</p>									
Teaching methods	Informative lecture, problem lecture, discussion and solving computational problems on the board.									
Assessment method	Lecture – test, projects – discussion on the project and assessment of student's activity									
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study		
LO1	Student can identify statically determinate and over rigid structures.							K_B1_W03 K_B1_U06		
LO2	Student has knowledge about internal forces, can determine internal forces for statically determinate plane bar structures and draw its diagrams.							K_B1_W01 K_B1_W03 K_B1_U06		

L03	Student has knowledge about geometric characteristics of plane sections - center of gravity, moments of inertia, principal moments of inertia and can determine it.	K_B1_W01 K_B1_W03 K_B1_U06	
L04	Student has knowledge about the deflection and slope of simple and complex beams and can calculate it.	K_B1_W03 K_B1_U06	
L05	Student can critically assess his knowledge in the field of statics.	K_B1_K01	
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed	
L01	Lecture – test,	L	
L02	Lecture – test, project – discussion and assessment of student's activity,	L, P	
L03	Lecture – test, project – discussion and assessment of student's activity,	L, P	
L04	Lecture – test, project – discussion and assessment of student's activity,	L,P	
L05	Lecture – test, project – discussion and assessment of student's activity,	L, P	
Student workload (in hours)		No. of hours	
Calculation	lecture attendance	16	
	participation in project	16	
	preparation for projects	7	
	preparation for lecture test	7	
	participation in student-teacher sessions related to the course	4	
	TOTAL:	50	
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		36	1,44
Student workload – practical activities		27	1,08
Basic references	<ol style="list-style-type: none"> 1. Andy Ruina and Rudra Pratap: Introduction to Statics and Dynamics, Oxford University Press, 2002, 2. Russell Charles Hibbeler: Engineering mechanics : statics, Hoboken : Pearson Education, 2017, 3. R. Subramanian: Strength of Materials, Oxford University Press, 2010. 4. 5. Dyląg Zdzisław, Filip Franciszek, Krzemińska-Niemiec Eugenia: Mechanika budowli T.1, PWN, 1989 (in polish) 5. 9. Jastrzębski P., Mutermilch J., Orłowski W.: Wytrzymałość materiałów, cz.1 i cz.2., Arkady, 1985, (in polish) 		
Supplementary references	<ol style="list-style-type: none"> 1. Surya N. Patnaik Dale A Hopkins Hopkins,Dale; Surya Hopkins,Dale Patnaik: Strength of Materials, 2003. 		

	2. Dyląg Z., Jakubowicz A.: Orłós Z. Wytrzymałość materiałów T 1., WNT 2007 (in polish)	
Organisational unit conducting the course	Department of Geotechnics and Structural Mechanics	Date of issuing the programme
Author of the programme	PhD. Eng. Joanna Krętowska	27.08.2022

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