

Faculty of Civil and Environmental Engineering						
Study programme:	Civil Engineering		Degree level: First degree undergraduate full-time courses			
Specialization			Diploma path:			
Module name:	Theoretical mechanics		Module ID: B01316			
Module type:	obligatory	Semester: 1	Points ECTS ¹⁾ 4			
No. of hrs in semester:	W - 30	C- 30	L- 0	P- 0	Ps- 0	S- 0
Prerequisites:	<i>Mmathematics, physics</i>					
Aims and objectives:	Students become familiar with statics general notions and principles. Students can learn how identify statically determinate and over-rigid structures, can learn to create the equations of equilibrium and calculate reactions for beams and frames and determine forces in planar trusses. Student can draw internal forces diagrams for beams and frames. Students become familiar with the way of determination the centre of figure and solid. Students learn to analyse kinematic and dynamic problems of particle and rigid bodies.					
Teaching methods:	Lecture - written exam, exercises – tests					
Module content:	Statics general notions and principles. Force system resultants. Static equilibrium. Centre of figure and solid. Types of rod structures. Reactive forces and moments of beam and frame structures. Structural analysis of planar trusses. Internal forces diagrams for beams, frames and arches. Static and kinetic friction. Basis of kinematic and dynamic analysis of problems of particle and rigid bodies.					
Learning outcomes	<i>student who passed the exam:</i>				<i>Relevance to the programme learning outcomes</i>	
EK1	has ordered knowledge at the range of statics, can define constraints and its reactions, can describe static and kinetic friction				K_B1_W01, K_B1_W05, K_B1_W06	
EK2	has ordered knowledge how to analyse kinematic and dynamic problems of particle and rigid bodies				K_B1_W05, K_B1_W06,	
EK3	can identify statically determinate and over-rigid structures				K_B1_W05, K_B1_U11	
EK4	can create the equation of equilibrium and calculate reactions for beams and plane and spatial frames, can calculate forces in planar trusses				K_B1_W05, K_B1_U11	
EK5	Can draw internal forces diagrams for statically determinate plane rod structures				K_B1_W05, K_B1_U11	
EK6	can determine the centre of figure and solid				K_B1_W06, K_B1_U11	
EK7	knows how to use references.				K_B1_U23	
EK8						

student workload	participation for lectures	15 x 2h =	30
	participation for exercises	15 x 2h =	30
	preparation for exercise	15 x 1h =	15
	homework	15 x 1h =	10
	consultations	5 x 1h =	5
	Realizacja zadań projektowych (w tym przygotowanie prezentacji)		
	preparation for and participation in exams		15
	preparation for and participation in tests		15
	work on projects, reports, etc.		
		TOTAL: ¹⁾	120
quantitative indicators	Student workload - activities that require direct teacher participation 30h+30h+5h+2h=67	67	ECTS ^{4,5)}
	Student workload - practical skills activities 30h+5h+15h+10h+15h+15h=90	90	2,5
basic references:	1. Wilde P: Wismur M., <i>Mechanika teoretyczna</i> , PWN, Warszawa 1984, 2. Misiak J: <i>Mechanika ogólna, tom 1</i> , WNT, Warszawa 1993, 3. Misiak J: <i>Zadania z mechaniki ogólnej, cz.1</i> , WNT, Warszawa 1993, 4. Misiak J: <i>Mechanika ogólna, tom 2</i> , WNT, Warszawa 1997, 5. Dyląg Z., Jakubowicz A., Orłoś Z.: <i>Wytrzymałość materiałów, t.1</i> , 6. Grabowski J., Iwanczewska A.: <i>Zbiór zadań z wytrzymałości materiałów</i>		
supplementary references:	1. Leyko J: <i>Mechanika ogólna, tom 1</i> , PWN, Warszawa 1996. 2. I. Mieszczerski - <i>Zbiór zadań z mechaniki</i> , 3. Romicki R: <i>Rozwiązania zadań z mechaniki zbioru I.N. Mieszczerskiego</i> , PWN, Warszawa 1971, 4. T.C.Bradbury: <i>Theoretical mechanics</i> , Malabar, Fla., Krieger Pub. Co. 1981.z <i>mechaniki ogólnej, cz.1</i> , WNT, Warszawa 1993, 4. Misiak J: <i>Mechanika ogólna, tom 2</i> , WNT, Warszawa 1997, 5. Dyląg Z., Jakubowicz A., Orłoś Z.: <i>Wytrzymałość materiałów, t.1</i> , 6. Grabowski J., Iwanczewska A.: <i>Zbiór zadań z wytrzymałości materiałów</i>		
learning outcomes	methods of assessing learning outcomes	type of class (if more than one) where the outcomes are assessed	
EK1	written exam (lecture)	L	
EK2	written exam (lecture),	L,	
EK3	written exam (lecture), test (exercise)	L, Ex.	
EK4	written exam (lecture), test (exercise)	L, Ex.	
EK5	written exam (lecture), test (exercise)	L, Ex.	
EK6	written exam (lecture),	L,	
EK7			
EK8			
division:	Department of Structural Mechanics	Group instructors:	dr inż. Joanna Krętowska, mgr inż. Damian Siwik
Date:	18.01.2012	Coordinator:	dr inż. Joanna Krętowska