Course code: ……. **Plan position:** ……

A. INFORMATION ABOUT THE COURSE

B. Basic information

Name of course	STRENGTH OF MATERIALS
Field of studies	CIVIL ENGINERRING
Level of studies	FIRST
Profile of studies	ACADEMIC
Form of studies	FULL-TIME
Specialty	Civil Engineering Structures
Unit responsible for the field of studies	Faculty of Civil and Environmental Engineering and Architecture, Bydgoszcz University of Science and Technology
Name and academic degree of teacher(s)	Dr hab. inż. Maciej Dutkiewicz, PhD, Dsc, Professor
Introductory courses	Mechanics, Strength Of Materials, Construction Mechanics, Civil Engineering
Introductory requirements	Basic construction mechanics

C. Semester/week schedule of classes

Semester	Lectures (W)	Auditorium classes (Ć)	Laboratory classes (L)	Project classes (P)	Seminar (S)	Field classes (T)	Number of ECTS points
I	30	-	-	-	-	-	6

2. LEARNING OUTCOME

No.	Learning outcomes description	The reference to the learning outcomes of specific field of study	The reference to the learning outcomes for the area
KNOWLEDGE			
W1	Student has knowledge in the field of determining internal forces in statically determinate planar bar systems	K_W06	P6S_WG
W2	Student knows the elementary boundary problem of linear theory flexibility, has knowledge of simple and complex strength cases, determination methods displacements, stresses and deformations in bar systems, has elementary knowledge of stability straight bar, has basic knowledge of research experimental materials and structural systems and their importance in engineering practice	K_W06 K_W10	P6S_WG
SKILLS			

U1	Student is able to adopt an objective static scheme of flat planes bar systems	K_U17, K_U18, K_U30	P6S_UW
U2	Student is able to determine the internal forces in plane systems statically determinate rods, can define w reasonably complex strength cases, designate stress values and distributions, can calculate displacements in statically determinate beams, can perform strength tests construction materials, interpret test results laboratory, is prepared for independent preliminary design of elementary sections transversals in flat bar systems	K_U08, K_U17, K_U18, K_U30	P6S_UW
SOCIAL COMPETENCES			
K1	Student understands the importance of accuracy and validity of calculations static, their impact on the final effect and consequences adopted solutions, cares for the best performance the task entrusted to him	K_K02, K_K03, K_K04, K_K05, K_K07	P6S_KK, P6S_KO, P6S_KR
K2	Student works independently, can work in a team; demonstrates responsibility for own and team work through the appropriate setting of priorities aimed at for timely and correct completion of the task	K_K01, K_K02, K_K04, K_K05, K_K08	P6S_KK, P6S_KO, P6S_KR

3. TEACHING METHODS

A. Traditional methods used ***

lecture, presentation, discussion, case study

B. Distance learning methods used ***

Synchronous method (classes conducted in a way that ensures direct interaction between the student and the teacher in real time, enabling immediate flow of information, the method can be used only if it is provided for in the study plan for a given cycle of education):
e.g. remote lecture in the form of videoconference, remote discussion, etc.

Asynchronous method used as an auxiliary (a method that does not ensure direct interaction between the student and the teacher in real time, used only as an auxiliary / complementary method):

e.g. online educational videos, online multimedia presentations, etc.

4. METHODS OF EXAMINATION

Oral and written exam, written project / thesis

5. SCOPE

Lecture	Selected basic elements of the linear theory of elasticity. Internal forces in statically determinate bar systems. Simple strength cases: tension, compression, pure bending. Complex strength cases: simple, oblique and eccentric bending stretching, bending with the participation of transverse forces. Fundamentals of experimental research of materials.

	Calculation of beam deflections. Stability of a straight bar. Selected elements concerning the design of building structures

6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Project	Presentation	Thesis
W1	x	x				x
U1	x	x				x
K1	x	x				x

7. LITERATURE

Basic literature	1. Jastrzębski P. i in., 1985. Wytrzymałość materiałów, Arkady, Warszawa 2. Dyląg Z., Jakubowicz A., Orłoś Z., 1996. Wytrzymałość materiałów, tom 1 i 2, Arkady, Warszawa 3. Gawęcki A., 1998. Mechanika materiałów i konstrukcji prętowych, tom I i II, Wydawnictwo Politechniki Poznańskiej 4. Wichniewicz S., 2002. Wytrzymałość materiałów. Ćwiczenia laboratoryjne, Oficyna Wydawnicza Politechniki Warszawskiej 5. Kowalewski Z.L., Popielski P., Imiełowski S., 2013. Ćwiczenia laboratoryjne z wytrzymałości materiałów, Wydawnictwo Politechniki Warszawskiej 6. Podhorecki A., 2000. Wytrzymałość materiałów, tom I, Wydawnictwo Akademii Techniczno-Rolniczej w Bydgoszczy, Bydgoszcz
Supplementary literature	1.Wrześniowski K., 1986. Wytrzymałość materiałów. Zarys teorii. Przykłady, zadania, Skrypt Politechniki Poznańskiej 2. Grabowski J., Iwanczewska A., 2001. Zbiór zadań z wytrzymałości materiałów, Oficyna Wydawnicza Politechniki Warszawskiej

8. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload– number of hours
Classes conducted under a direct supervision of an academic teacher or other persons responsible for classes	Participation in classes indicated in point 1B	30
	Supervision hours	10
Student's own work	Preparation for classes	40
	Reading assignments	50
	Other (preparation for exams, tests, carrying out a project etc)	50
	Total student workload	180
	Number of ECTS points	6