

Course code:

Plan position:

A. INFORMATION ABOUT THE COURSE

B. Basic information

Name of course	Industrial Structures
Field of studies	Civil engineering
Level of studies	Second
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	Structural mechanics
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
summer	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	Students have knowledge in design of concrete structures	K_W14	P6S_WG
SKILLS			
U1	Students are able to make an appropriate selection of building materials to the assumed technological and design solutions	K_U06, K_U16, K_U21	P6S_UW,, P6S_UU
SOCIAL COMPETENCES			
K1	Students understand the need and knows the possibility of continuous training (second-and third-degree, postgraduate courses) - improving professional, personal and social skill	K_K07	P6S_KK, P6S_KO, P6S_KR,

K2	Students are aware of the responsibility for the consequences of the design in terms of safety	K_K09	P6S_KK
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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 report

5. SCOPE

Lectures	Foundations for machines - integrated design and materials, loads, foundation, methods for reducing the level of vibration. The foundation block. Vibration isolation. Proceeds seismic and paraseismic on the buildings. Wind effects on tall buildings. The choice of material and solutions - design, computational model, static and dynamic analysis. Chimneys, cooling towers - structures subjected to the influence of thermal and paraseismic load. Masts. High-strength concrete. Methods of high performance buildings. Chimneys, towers.
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6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Project	Presentation
W1	x	x	-	-	-	
U1	x	x	-	-	-	
K1	x	x	-	-	-	
K2	x	x	-	-	-	

7. LITERATURE

Basic literature	1.Eurocode 2, 1992-1-1, Design of concrete structure part 1-1, General rules and rules for buildings 2.Nilson, A. H, Darwin D., Dolan Ch. W. , Design of concrete structures, 3.Macginley T.J., Choo B.S., Reinforced Concrete, Design Theory and Examples, Taylor & Francis, 2003
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	4. Ciesielski R., Maciąg E., 1990, Drgania drogowe i ich wpływ na budynki, WKŁ, 5. Lipiński J., 1985, Fundamenty pod maszyny, Arkady,
Supplementary literature	6. Gawroński W.K., 1998, Dynamics and Control of Structures, Springer,

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