GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Structural Analysis , PG_00044389		
Field of study	Civil Engineering		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2021/2022
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Part-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	8.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Structural Mechanics Department -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Marcin Kujawa	
	Teachers	dr inż. Łukasz Smakosz dr hab. inż. Marcin Kujawa	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	20.0	0.0	10.0	0.0	60

E-learning hours included: 0.0

Adresy na platformie eNauczanie:

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	60	7.0	133.0	200

Subject objectives

Understanding of the behavior of statically indeterminate structure, differences in behavior of statically determinate and indeterminate rod structures. Ability to determine the influence lines in statically determinate systems. Ability to determine the internal forces in statically indeterminate systems.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W05] knows laws of mechanics used in rod constructions in scope of statics and stability, has an elementary knowlege on dynamics		
[K6_W04] has knowledge of general mechanics, strength of materials and general rules of construction		
[K6_U03] can analyze simple rod constructions in scope of: calculations of constructions statically determined and undetermined; determining of modal frequencies; calculations of linear stability and bearing capacity in critical and boundary states		

<table>
<tr><td>Subject contents</td><td>

- Determination of influence lines for statically determinate systems
- Basic theorems in Structural Mechanics - the principle of virtual work for rigid and deformable body.
- Fundamentals of behaviour of statically indeterminate bar structures
- Force method

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<tr><td>Prerequisites and co-requisites</td><td>Completion of courses: General Mechanics, Strength of Materials</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>tests</td><td>50.0%</td><td>40.0%</td></tr>
<tr><td>project</td><td>50.0%</td><td>20.0%</td></tr>
<tr><td>exam</td><td>50.0%</td><td>40.0%</td></tr>
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</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>1. Branicki C.(red.): Zadania z Mechaniki Budowli, Tom II, Układy statycznie niewyznaczalne, Skrypt PG, 1976.
2. Cywiński Z.: Mechanika budowli w zadaniach Tom II, PWN, 1984 (i wydania późniejsze).
3. Dyląg Z., Krzemińska-Niemiec E.: Mechanika budowli, Tom 2 i 3, Wyd. Pol. Białostockiej 1993 (i wydania późniejsze).
4. Przewłocki J., Górski J.: Podstawy Mechaniki Budowli, Arkady, 2006 (i wydania późniejsze).
4. Praca zbiorowa: Mechanika Budowli z elementami ujęcia komputerowego, Tom 1 i 2, Arkady, 1984 (i wydania późniejsze).
5. Praca zbiorowa: Mechanika Budowli ujęcie komputerowe, Tom 1 i 2, Arkady, 1991/1992 (i wydania późniejsze).</td></tr>
<tr><td>Supplementary literature</td><td>not specified</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>- influence lines of in statically determinate bar structures (straight beams, frames, trusses, mixed systems)

- use the force method in static analysis of indeterminate systems

- theory test concerning the material covered in class</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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