

§ GDAŃSK UNIVERSITY § OF TECHNOLOGY

Subject card

Subject name and code	Two-dimensional stru	uctures and reli	ability of engin	eering structure	es, PG_0	000443	33	
Field of study	Civil Engineering							
Date of commencement of studies	October 2024		Academic year of realisation of subject			2025/2026		
Education level	second-cycle studies		Subject group			Optional subject group 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		3.0			
Learning profile	general academic profile		Assessme	Assessment form		exam		
Conducting unit	Structural Mechanics Department -> Faculty of Civil and Environmental Engineering							
Name and surname	Subject supervisor		dr inż. Marek Skowronek					
of lecturer (lecturers)	Teachers							
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	t	Seminar	SUM
	Number of study hours	10.0	10.0	0.0	0.0	0.0		20
	E-learning hours included: 0.0							
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	20		7.0		48.0		75
Subject objectives	2D structures: theor systems Reliability of engine variables of selected to loads and resistan	eering structur	es: uncertainty	/ analysis in civ , three levels o	il engine f reliabili	eering,	defining basi	c random

Examine outcomes Description Description If "	Learning outcomes		Subject outcome	Mothed of varification				
Buignostics of originosition goldes. work of various construction types Head is included and the includes. https://www.includes.com/structures/struct	Learning butcomes	Course outcome	Subject outcome	Method of verification				
Subject contents Continuum Mechanics, krows and dynamics of complex rob internal action onlinear regime Identifies the 2D Continuum Mechanics models Image: Subject contents Image: Subject contents Image: Subject contents Image: Subject contents Image: Subject contents Image: Subject contents Subject contents Image: Subject contents Image: Subject contents Image: Subject contents Subject contents Image: Subject contents Image: Subject contents Image: Subject contents Image: Subject contents Subject contents Image: Subject contents Image: Subject contents Image: Subject contents Image: Subject contents </td <td></td> <td>diagnostics of engineering objects, has knowledge about different kinds of defects in constructions and its reasons; knows means of fixing and reinforcing of</td> <td colspan="2"></td>		diagnostics of engineering objects, has knowledge about different kinds of defects in constructions and its reasons; knows means of fixing and reinforcing of						
statual and dynamical analysis of rance and test). both statuctury well as urfue a structures (butes, membranes and shells) membranes and shells) The student recognizes the estimation methods essential in engineering process IV 11 (a bid boratory experiments to evaluate quality of construction materials and to determine strength of construction elements in the student structures (butes, membranes and shells) The student recognizes the estimation methods essential in engineering process IV 11 (bid boratory experiments weature quality of construction elements in the student structures (bid watering construction elements) The student structures the estimation methods essential in engineering process Subject contents 20 structures: "Intercent analysis of engineering constructions and grademing constructions an		Continuum Mechanics, knows rules of static analysis, stability and dynamics of complex rod, shell and volume structures, both in linear and basic nonlinear	identifies the 2D Continuum					
Subject contents Subject contents estimation methods essential in engineering process IVE_VOID The strongth of materials, modeling and optimisation of materials and constructions; has knowledge of fundamentals of grang monitorizer analysis of grang monitorizer and years The structural modeling Subject contents 20 structures: * The structural modeling The structural modeling Subject contents 20 structures: * Theoretical background on 2D structures - plane stress analysis in Cartesian and polar systems, Airy stress function * planes at bending - theory and examples Prerequisites and correcupisites Engineering structures: * assaic random variables of a variety of structural problems, * examples of structural robbiers, * examples of structural robbiers, * examples of structural robbiers, * examples of structural reliability assessment. Prerequisites and co-requisites Engineering Mechanics, Structural Mechanics, Strength of Materials Assessment methods and criteria Subject passing criteria Passing threshold Percentage of the final grade test 20.0% 80.0% 20.0% 20.0% 20.0% Recommended reading 1. Girkmann K: Davigary powierschniowe. Arkady, Warszawa 1987, turaszewa, 1980. 1. Girkmann K: Davigary powierschniowe. Arkady, Warszawa 1987, turaszewa, 1989. 3. Krineck M, Wirzmur M, Bielewicz E: Analiza nieliniowa tarcz i pyl. PG, Gdanak 1995 4. Murzzewski J: Niezawodno		statical and dynamical analysis of rod structures stability (trusses, frames and ties), both statically determined and undetermined as well as surface structures (plates,	selected structural types under					
advanced strength of materials, modeling and optimisation of Finite Element Method and general nonlinear analysis of engineering constructions and systems on structural modelling Subject contents 2D structures: "theoretical background on 2D structures - plane stress analysis in Cartesian and polar systems, Airy stress trunction" plates at bending - theory and examples Reliability of angineering structures: "basic random variables of a variety of structural problems, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural reliability assessment, "examples of structural reliability assessment, "readom approach to loads and resistances, "examples of structural structures, structural modeling," Recommended reading Basic literature 0.0% 0.0% 0.0% 2. Kaczkowski Z: Plyty obliczenia statyczne, Arkady, Warszawa 1980, "Kmieck M, Wiznewski J: Niezawodność konstrukcji inzynierskich, Arkady, Warszawa, 1989. Supplementary literature no items		execute laboratory experiments to evaluate quality of construction materials and to determine	estimation methods essential in					
* theoretical background on 2D structures - plane stress analysis in Cartesian and polar systems, Airy stress function * plates at bending - theory and examples		advanced strength of materials, modeling and optimisation of materials and constructions; has knowledge of fundamentals of Finite Element Method and general nonlinear analysis of engineering constructions and						
Assessment methods and correquisites Subject passing criteria Passing threshold Percentage of the final grade Assessment methods and criteria Subject passing criteria Passing threshold Percentage of the final grade activity, including presentation 60.0% 20.0% Recommended reading Basic literature 1. Girkmann K.: Dźwigary powierzchniowe. Arkady, Warszawa 1957, tłumaczenie R. Dąbrowski. 2. Kączkowski Z.: Płyty obliczenia statyczne. Arkady, Warszawa 1980 3. 3. Kmiecik M., Wizmur M., Bielewicz E.: Analiza nieliniowa tarcz i płyt. PG, Gdańsk 1995 4. Murzewski J.: Niezawodność konstrukcji inżynierskich. Arkady, Warszawa, 1989. 5. Woliński S., Wróbel K.: Niezawodność konstrukcji budowlanych. Wydawnictwo Politechniki Rzeszowskiej, 2001. Supplementary literature no items	Subject contents	 * theoretical background on 2D structures - plane stress analysis in Cartesian and polar systems, Airy stress function * plates at bending - theory and examples Reliability of engineering structures: * basic random variables of a variety of structural problems, * definitions of reliability * three levels of reliability assessment, * random approach to loads and resistances, 						
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eResources addresses Adresy na platformie eNauczanie:		Supplementary literature	no items					
		eResources addresses	Adresy na platformie eNauczanie:					

example questions/ tasks being completed	draw the stress diagrams along the thickness of 2D plane stress structure and the plate at bending enlist and characterize three levels of reliability assessment
Work placement	Not applicable