GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Stability of Structures , PG_00041314		
Field of study	Civil Engineering		
Date of commencement of studies	February 2025	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	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Structural Mechanics Department -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Agnieszka Tomaszewska	
	Teachers		

Lesson types and methods of instruction

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

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	60	5.0	35.0	100

Subject objectives

Presentation of the theory of structural stability and its application in stability analysis of different structures. Presentation of computer software application in stability analysis. Students' work in a field of linear and nonlinear stability analysis.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W03] has knowledge of Continuum Mechanics, knows rules of static analysis, stability and dynamics of complex rod, shell and volume structures, both in linear and basic nonlinear regime	Student can model structures using finite elements method in a field of statics and stability of beams, frames, slabs and shells	[SW1] Assessment of factual knowledge
[K7_W04] has knowledge on 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 systems	Student knows software for stability analysis	[SW1] Assessment of factual knowledge
[K7_U03] can perform classic statical and dynamical analysis of rod structures stability (trusses, frames and ties), both statically determined and undetermined as well as surface structures (plates, membranes and shells)	Student can design a structure with respect of stability problem	[SU1] Assessment of task fulfilment

Subject contents

Fundamentals of theory of stability in problems of bars, frames, plates and shells.

Prerequisites and co-requisites

Knowledge of structural mechanics and strength of materials

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
laboratories	33.0%	60.0%
lectures	33.0%	40.0%

Recommended reading	Basic literature	1.Timoshenko S. P., Gere J. M.: Teoria stateczności sprężystej. Arkady, Warszawa, 1963. 2.Marcinowski J.: Stateczność konstrukcji sprężystych. Struktury prętowe, łuki, powłoki. Dolnośląskie Wydawnictwo Edukacyjne, Wrocław, 2017. 3.Andrzej Gawęcki - „Mechanika materiałów i konstrukcji prętowych" , 2003r, Politechnika Poznańska, Alma Mater. 4.Thompson J. M. T., Hunt G. W.: A general theory of elastic stability. John Wiley & Sons, London, 1973.
	Supplementary literature	5.Rykaluk K.: Zagadnienia stateczności konstrukcji metalowych. Dolnośląskie Wydawnictwo Edukacyjne, Wrocław, 2012.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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