GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	SURVEYING OF THE MONITORING OF CONSTRUCTIONS A, PG_00044851		
Field of study	Geodesy and Cartography		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	first-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	3	Language of instruction	Polish
Semester of study	6	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Mechanics of Materials and Structures -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Jasina	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	15.0	0.0	15.0	0.0	45

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	45	6.0	24.0	75

Subject objectives

Obtain the knowledge to design a structural health monitoring system with use of geodetic displacement measurements and special sensing technologies.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W11] understands the concepts and has in-depth knowledge in the field of geodetic building monitoring, extended with basic knowledge in the field of statics and dynamics of engineering structures	Student has knowledge of methods used for the implementation of geodetic service engineering structures, ability to perform displacement measurements.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
[K6_U09] can design geodetic monitoring of engineering structures and carry out measurements with at least two methods, taking into account statics and dynamics of construction	Student exhibits practical knowledge about measurement systems and devices used in structural health monitoring systems for civil structures. Student designs a health monitoring system taking into account the issues of static and dynamic response of a civil engineering objects like bridges, dams, towers, arenas (halls), embankments, buildings etc.	[SU1] Assessment of task fulfilment

Subject contents

Mathematical models used for structure displacement determination. Physical conditions for identification of the reference system. Relationships between displacements and the reference system. Overview of the measurement technology for structural health monitoring system (SHM). Presentation of the selection rules of measurement points location on civil structures. Continuous condition monitoring based on measurement data. Presentation of measured and numerical data in communication panels of SHM system.

Prerequisites and co-requisites

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>project</td><td>40.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. Prószyński W., Kwaśniak M., 2006, Podstawy geodezyjnego wyznaczania przemieszczeń. Pojęcia i elementy metodyki.
2. Wilde K., i inni: System ciągłej obserwacji stanu technicznego hali Olivia w Gdańsku. Inżynieria i Budownictwo, 10, 2009.
3. Wilde, K.: Możliwości zastosowania systemów monitoringu technicznego w infrastrukturze elektroenergetycznej. Acta Energetica, 2009/02, str. 107-114.</td></tr>
<tr><td>Supplementary literature</td><td>Not applicable</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Describe the choice of measurement technology for a given civil engineering structure?
Develop a project of structural health monitoring system for a given civil engineering structure.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
</table>

Document generated electronically. Does not require a seal or signature.