



## Subject card

Subject name and code	Satellite Sensing of the Earth Environment, PG_00050029						
Field of study	Space and Satellite Technologies, Space and Satellite Technologies						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-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	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Geoinformatics -> Faculty of Electronics, Telecommunications and Informatics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Tomasz Berezowski					
	Teachers	dr inż. Tomasz Berezowski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	0.0	30
	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	30		5.0		15.0	50
Subject objectives	The aim of the course is to acquaint the student with advanced methods and techniques for processing data from Earth's satellite observation systems for the purposes of monitoring the environment and changes occurring in it. The subject will discuss advanced methods for the interpretation of observational data, theoretical models used in the field and satellite data processing technologies. As part of the project, students will develop a case study based on knowledge of the subject.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K7_U09	Student is able to plan and perform research on earth observation	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
	K7_U06	Student is able to plan and perform research on earth observation	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information
	K7_W05	The student is able to prepare a report on the completed task of earth observation	[SW3] Assessment of knowledge contained in written work and projects
	[K7_K03] Can analyse and implement assigned tasks while maintaining high technical standards. Is able to work and interact in a group, taking on different roles. Adheres to the principles of professional ethics and respects the diversity of views and cultures.	The student is able to prepare, as a team work, a study on earth observation	[SK2] Assessment of progress of work [SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness [SK3] Assessment of ability to organize work
K7_W12	The student knows what tools and data can be used to observe the earth	[SW2] Assessment of knowledge contained in presentation	
Subject contents	<p>During the lectures in which students will actively participate, methods and tools for observing the earth's environment from recent years will be discussed based on articles from international magazines.</p> <p>As part of the project, students will develop a case study with varying degrees of difficulty, e.g. model (subpixel classification), or pixel classification for selected types of surfaces in the Gdansk area. Students should choose training points based on the local vision. You can use ready-made tools or develop a tool in R or python.</p>		
Prerequisites and co-requisites	Knowledge of remote sensing of the environment, basic knowledge of scripting languages is recommended.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	50.0%	50.0%
	Presentation	50.0%	50.0%
Recommended reading	Basic literature	The fundamentals of Satellite Remote Sensing: An environmental approach, Emilio Chuvieco, CRC Press, Taylor & Francis Group	
	Supplementary literature	Environmental Sensing: Analytical Techniques for Earth Observation, James K. Lein, ISBN 978 1-4614-0142-1	
	eResources addresses	Adresy na platformie eNauczanie: Satelitarne Badanie Środowiska Ziemi - 23/24 - Moodle ID: 33697 <a href="https://enauzanie.pg.edu.pl/moodle/course/view.php?id=33697">https://enauzanie.pg.edu.pl/moodle/course/view.php?id=33697</a>	
Example issues/ example questions/ tasks being completed	Presentation of the content of the article from the scientific journal with a personal assessment		
Work placement	Not applicable		