

Subject card

Subject name and code	Introduction to satellite remote sensing - lecture, PG_00150836						
Field of study	Oceanography						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study 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	5		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Physical Oceanography -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Katarzyna Bradtke				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		1.0		14.0	30
Subject objectives	Familiarizing students with • basic concepts in the field of satellite remote sensing, • physical basis of remote sensing of the marine environment and coastal zone using devices recording electromagnetic radiation, • satellite missions and devices used in Earth observations, • the specificity of satellite data and their processing						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	OCEANL3-W05		The student has advanced knowledge of research techniques and methods used in the work of an oceanographer to describe and interpret processes and phenomena occurring in the marine environment using data		[SW4] test/exam - oral or written		
	OCEANL3-W01		The student knows and understands at an advanced level the terminology used in satellite remote sensing, the physical basis of satellite remote sensing of the marine environment and the coastal zone, as well as the processes that can be studied remotely using devices recording electromagnetic radiation.		[SW4] test/exam - oral or written		

Subject contents	1. Physical basis of satellite remote sensing - electromagnetic radiation, basic concepts of satellite remote sensing 2. Satellite orbits and systems used in Earth observations, image resolution 3. Passive recording techniques in various spectral ranges - sensors' types - features of images - surface phenomena and properties affecting the recorded signal, limitations 4. Imaging geometry, geolocation, data processing steps 5. Sources of satellite data and examples of their applications in marine research		
Prerequisites and co-requisites	knowledge of physics within the scope of the "Physics for Oceanographers" course, knowledge of the basics of physical, chemical and biological oceanography		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		51.0%	100.0%
Recommended reading	Basic literature	1. Hejmanowska B., Wężyk P. (ed.), Dane satelitarne dla administracji publicznej, Polska Agencja Kosmiczna 2020; https://polsa.gov.pl/wp-content/themes/polsa/files/Podrecznik.pdf 2. Emery W., Camps A., 2017, Introduction to Satellite Remote Sensing. Atmosphere, Ocean, Land and Cryosphere Applications, Elsevier	
	Supplementary literature	1. Martin S., 2014, An introduction to ocean remote sensing. Wydanie drugie. Cambridge University Press 2. Robinson I.S., 2004, Measuring the oceans from space : the principles and methods of satellite oceanography, Springer 3. Emilio Chuvieco, 2016, Fundamentals of Satellite Remote Sensing, CRC Press 4. Adamczyk J., Będkowski K., 2007, Metody cyfrowe w teledetekcji. Wyd. SGGW, Warszawa	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Assessment criteria: • understanding basic concepts in the field of satellite remote sensing • understanding the physical basis of remote sensing and knowledge of processes occurring in the marine environment that can be studied remotely using devices recording electromagnetic radiation • knowledge of satellite recording techniques, their possibilities and limitations • knowledge of satellite data processing steps		
Work placement	Not applicable		

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