

Course name: Satellite Data Sources

ECTS	3
Course status	<i>Basic, obligatory</i>
Course final assessment /evaluation of outcomes	<i>graded credit</i>
Prerequisite	<i>Ability to use and understand Geographic Information Systems</i>

Main field of study: Land management, Land Surveying, Environmental Sciences, Agriculture

Educational profile	<i>General academic</i>
Code of studies and education level	<i>Master</i>
Semester of studies	<i>Winter</i>
Language of instruction	<i>English</i>

Course offered by:

Name of faculty offering the course	<i>Faculty of Environment Engineering and Land Surveying</i>
Name of department offering the course	<i>Department of Land Management and Landscape Architecture</i>
Course coordinator	<i>dr inż. Barbara Czesak, dr inż. Renata Różycka-Czas</i>

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands:			
SDS_W1	principles and sources for browsing and acquiring satellite data		
SDS_W2	the provisions and effects of Polish and European space policy in acquiring and using satellite data; knows the conditions for using Copernicus data		
SDS_W3	formats for recording satellite data and metadata structures in various satellite systems		
SKILLS – student is able to:			
SDS_U1	use platforms and applications for searching, browsing, and downloading satellite data; able to select appropriate data sources, acquire optical and radar images		
SDS_U2	effectively carry out tasks in the field of cloud computing data processing		
SDS_U3	prepare satellite images for further analytical work		
SOCIAL COMPETENCIES – student is ready to:			
SDS_K1	respect social rules and exhibit appropriate behaviour in social situations, including during teamwork		
SDS_K2	conduct effective self-presentation and presentation of their work results		

Teaching contents

Lectures:		15 hours
Topics	<p>Earth observation missions; Polish and European space policy; selected missions and data acquisition programs</p> <p>Characteristics of satellite data; satellite data storage formats; metadata recording structure in various satellite systems</p> <p>Access to data – searching, browsing, and downloading using dedicated platforms and applications</p> <p>Data processing services in cloud computing</p>	
Accomplished learning outcomes		SDS_W1, SDS_W2, SDS_W3, SDS_K1, SDS_K2
Means of verification, rules and criteria of assessment		<i>To pass with a grade of 3.0, it is required to achieve a minimum of 50% of the points from the lecture assessment. Higher grades are calculated proportionally to the score. The assessment can be conducted in the form of a mixed test (multiple and single choice questions, closed and open questions) or in the form of open questions. The weight of this grade in the final grade: 50%.</i>
Classes:		15 hours
Topics	<p><i>Practical use of platforms and applications for searching, browsing, and downloading satellite data – testing selected solutions</i></p> <p><i>Data processing services in cloud computing – DIAS services, Google Earth Engine</i></p> <p><i>Working with satellite data in QGIS – work preparation, introductory activities</i></p> <p><i>Downloading and preliminary processing of satellite data (QGIS SCP Plugin / SNAP)</i></p>	
Accomplished learning outcomes		SDS_U1, SDS_U2, SDS_U3, SDS_K1, SDS_K2
Means of verification, rules and criteria of assessment		<i>To pass, it is required to positively complete partial project exercises. The grade is the average of the partial grades. The weight of this grade in the final grade: 50%.</i>
Field practicals:		... hours
Topics		
Accomplished learning outcomes		
Means of verification, rules and criteria of assessment		
References:		
Basic	<ol style="list-style-type: none"> 1. Chuvieco, E., 2020 <i>Fundamentals of Satellite Remote Sensing: An Environmental Approach</i> 2. J.A. Cardille, M.A. Crowley, D.Saah, N. E. Clinton., 2024 <i>Cloud-Based Remote Sensing with Google Earth Engine Fundamentals and Applications</i>, Springer 3. Marten Wegmann, Jakob Wschwalb-Willmann & Stefan Dech, 2020, <i>An Introduction to Spatial Data Analysis - Remote Sensing and GIS with Open Source Software</i> 	

Supplementary	1. Longley P. A., Goodchild M. F., Maguire D. J., Rhind D. W., 2008 <i>Geographic Information Systems and Science</i>
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Structure of learning outcomes

Area of academic study: R – Agricultural, forestry and veterinary sciences	...	ECTS **
Area of academic study: T – technical sciences	3	ECTS**

Structure of student activity

Contact hours	32	hrs.	ECTS**
Including: lectures	15	hrs.	
classes and seminars	15	hrs.	
consultations	1	hrs.	
participation in research		hrs.	
obligatory field trips		hrs.	
participation in examination	1	hrs.	
e-learning		hrs.	ECTS**
student own work	43	hrs.	ECTS**

*Areas of academic study in the fields of: A – the arts; H – humanities; M – medical, sport and health sciences; N – natural sciences; P – biological sciences; R – agricultural, forestry and veterinary sciences; S – social studies; T – engineering and technology

** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25–30 hours of classes