Name of the course: Remote Sensing Methods and Technologies	Total credits: 6
Code:	
Type: lecture	
Total hours of per semester: 1.5 hours/week (15 weeks x 1.5h) lecture: 100% practice: consultation: Other:	
Type of testing: exam Other:	
Semester: 1	
Description	
This course introduces the principles, the methods and the techniques of remote sensing. The imaging and non-imaging optical data acquisition workflow will be discussed with special attention to multi- and hyperspectral measurements. Different active and passive platforms (handheld, UAV, airborne, underwater, etc.) will be shown with their application areas. The state-of-the-art of science and technology in a domestic and international approach will be presented, while highlighting the future developments. Special attention will be given to new scientific results, industrial applications and comparative studies. After having completed this course, the students will be able to select and apply remote sensing techniques and methods to support their own scientific work and research.	
Literature	
Compulsory	
Richards, John A., and John A. Richards. Remote sensing digital image analysis. Vol. 5. New York: Springer, 2022. ISBN-103-03082-326-1 Toro, F. G., Tsourdos, A. (Eds.). (2018) UAV sensors for environmental monitoring. MDPI Publishing. MDPI, ISBN 978-3-03842-754-4 Gonzalez, F. and Tsourdos, A. (Eds) (2018) UAV or Drones for Remote Sensing Applications (Volume 1). MDPI, ISBN 978-3-03897-092-7	
Recommended Chen, Chi-hau, ed. Signal and image processing for remote sensing. CRC/Taylor & Francis, 2020. ISBN 978-0-36786-614-3	
Lillesand, Thomas, Ralph W. Kiefer, and Jonathan Chipman. Remote sensing and image interpretation. John Wiley & Sons, 2015. ISBN: 978-1-118-34328-9	
Competencies	
Knowledge	
- The student knows geospatial technologies including geographic information systems (GIS), remote sensing, global positioning systems (GPS), and spatial statistics. - His/her knowledge can be used in various fields, such as environmental management, urban planning, natural resource management, disaster management, agriculture, transportation, and	

health. It allows researchers and professionals to collect, analyze, and visualize spatial data to make informed decisions and solve complex problems.
Competencies
Key competences in remote sensing are: Understanding of remote sensing principles, image processing, interpretation of remote sensing data, integration of remote sensing data with other geospatial data, knowledge of remote sensing applications, technical skills.
Attitude
- Attention to Detail: Remote sensing involves analyzing large volumes of data, often at very high resolutions. An attention to detail is essential for identifying patterns, anomalies, and other features in the data. - Curiosity: A curious attitude can lead to asking questions that lead to a deeper understanding of the data and the Earth's surface. This can lead to new discoveries and insights. - Flexibility: Remote sensing often involves working with data that can be incomplete, noisy, or difficult to interpret. A flexible attitude can help in adapting to these challenges and finding creative solutions.
Autonomy and responsibility
- Ethical Use of Data: Remote sensing data can have implications for privacy, security, and other ethical considerations. It is important to use remote sensing data responsibly and with consideration for ethical principles. - Accuracy and Quality of Data: Remote sensing data must be accurate and of high quality to be useful. It is important to ensure that the data is collected, processed, and analyzed with a high degree of accuracy and quality control. - Environmental Responsibility: Remote sensing data can have significant implications for the environment. It is important to consider the environmental impact of remote sensing activities and take steps to minimize any negative impact.