Subject name	Geomatics	
Subject code		
Department	Laboratory of Geomatics; Department of Forest Management, Geomatics and Forest Economics; Institute of Forest Resources Management	
Faculty	Faculty of Forestry	
Subject supervisor/Lecturer	Piotr Wężyk, Ph.D. D.Sc. Associate Professor p.wezyk@ur.krakow.pl Phone: +48 126625082; mobile: +48 603 374 386 Fax: +48 124119715 Strona pracownicy UR; Google Scholar; LinkedIn; Facebook	
General information	Teaching period	summer semester
	ECTS credit	2
	Total	24
	Lectures	12
	Classes	12
Objective and general description	Introduction to the Remote Sensing in the environmental studies. Theoretical basis of Remote Sensing (electromagnetic spectrum, spectral resolution of different sensors/ active and passive sensors). Earth Observation systems (EO): LANDSAT, SPOT, ASTER, IRS, IKONOS, QUICKBIRD including multi- and hyperspectral airborne and satellite scanners, radar sensors (SRTM). Generating and 3D Analyses of: DTM, DSM, nDSM. Georeferencing of RS imaging, orthorectification, classification (methods) based on the VHR satellite data (QUICKBIRD). Ground truth (ROI) collection and verification of the results of image processing. Image processing of RS digital data based on the GEOBIA and pixel-based approach.	
Lectures **6× 2 hours**	1. Introduction to Remote Sensing and Image Interpretation. 2. Earth Observation Systems. Multi - and hyperspectral airborne and satellite scanners, radar sensors. 3. Global Elevation Models (SRTM, ASTER Global DEM) 4. Raster based spatial analyses (hydrology). 5. Image Processing 6. Georeferencing of RS imaging, orthorectification, classification.	
Classes 6 × 2 hours	1. Satellite systems – basic characteristics of different sensors 2. Digital Terrain Model - TIN/GRID. SRTM, ASTER 3. 3D spatial analyses. 4. Introduction to Remote Sensing - Image interpretation. 5. Image processing. Pixel-based classification. 6. Verification of the results of image processing.	
Literature	• Lillesand T., Kiefer R.W., Chipman J., 2007. Remote Sensing and Image Interpretation • Joseph G., 2005. Fundamentals of Remote Sensing. • Aronoff S., 2005. Remote Sensing for GIS Managers. Esri Press. • Avery T.E., 1977. Interpretation of Aerial Photographs. Burgess Publishing Company • Clevers J., 2000. RS – Digital Lectures - http://www.geoinformatie.nl/courses/ grs20306/lectures/introduction.htm • International Archives of the Photogrammetry, Remote Sensing and Spatial	

	Information Sciences - http://www.isprs.org/publications/archives.aspx
Assessment method	practical course - self presentation by students, report, final note - oral exam