



### INTRODUCTION TO REMOTE SENSING

<b>Enrollment year</b>	2013/2014
<b>Academic year</b>	2015/2016
<b>Regulations</b>	DM270
<b>Academic discipline</b>	ING-INF/03 (TELECOMMUNICATIONS)
<b>Department</b>	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
<b>Course</b>	ELECTRONIC AND COMPUTER ENGINEERING
<b>Curriculum</b>	PERCORSO COMUNE
<b>Year of study</b>	3°
<b>Period</b>	2nd semester (29/02/2016 - 10/06/2016)
<b>ECTS</b>	6
<b>Lesson hours</b>	45 lesson hours
<b>Language</b>	ITALIAN
<b>Activity type</b>	WRITTEN AND ORAL TEST
<b>Teacher</b>	DELL'ACQUA FABIO (titolare) - 6 ECTS
<b>Prerequisites</b>	Knowledge of physics and mathematics at the undergraduate level.
<b>Learning outcomes</b>	Introductory course to remote sensing. Basic knowledge of remote sensing, of the essential sensor structure in ground-based, airborne or space-borne platforms; of data generated by different systems, and their usage. Basic familiarity with images generated by remote sensing systems and with their possible exploitation in environmental and other types of applications. Capability to evaluate the usefulness of the different types of remotely sensed images to a geointelligence problem. Basic skills in remote sensing data processing
<b>Course contents</b>	Physical grounds of remote sensing propagation, reflection, refraction of electromagnetic waves in Earth Observation spectral features

Digital remotely sensed images  
 spectral and spatial characteristics  
 contrast, enhancement, visual interpretation  
 Multispectral remote sensing  
 photographic systems  
 optical-mechanical scanning  
 along-track and across-track scanning  
 data correction  
 Classification  
 Image classification  
 Main types of classification algorithms  
 Multitemporal classification  
 Accuracy estimation  
 Microwave remote sensing  
 Radar principles  
 Basic elements of radar operation in its various types  
 Basic interpretation techniques for radar data

**Teaching methods**

Lectures (hours/year in lecture theatre): 45  
 Practical class (hours/year in lecture theatre): 0  
 Practicals / Workshops (hours/year in lecture theatre): 0

**Reccomended or required readings**

Titolo del riferimento da modificare. \* Thomas Lillesand, Ralph W. Kiefer, Jonathan Chipman. Remote Sensing and Image Interpretation. Wiley. ISBN-13: 978-0470052457. .

Titolo del riferimento da modificare. \* Mark A. Richards (Editor), James A. Scheer (Editor), William A. Holm (Editor). Principles of Modern Radar: Basic Principles. SciTech Publishing, Raleigh NC USA. ISBN: 978-1891121524. .

Titolo del riferimento da modificare. \* Course slides, available at <http://tlclab.unipv.it/>.

**Assessment methods**

Oral examination. At the end of the course it is usually organized a written test which, if successful, entitles to directly registering the mark.

**Further information**

Oral examination. At the end of the course it is usually organized a written test which, if successful, entitles to directly registering the mark.

**Sustainable development goals - Agenda 2030**

[\\$ibl legenda sviluppo sostenibile](#)