

Academic Year: 2019/2020		
Course: Applied Remote Sensing and GIS to the Spatial Planning		
Coordinator: António Lopes		
Teaching Staff: António Lopes, César Capinha and António Monteiro		
ECTS: 6	Weekly Hours: 2,5	Typology: Theory and practices
Contents		
<p>1. Remote sensing (RS) and spatial studies: physical principles of RS, characteristics of the main RS programs, examples of application, data management and analysis, result validation.</p> <p>2. Modelling of physical variables using Geographical Information Systems: Introduction to GIS, Basic concepts on Numerical Terrain Modelling, morphometry and terrain analysis, analysis of spatial data with multiple variables.</p> <p>3. Applications of remote sensing and GIS to research and spatial planning.</p>		
Objectives and skills		
<p>Objectives:</p> <p>This course aims at teaching the basic principles and techniques for characterizing and analysing the spatial distribution of physical phenomena. Geomatics will be used for collecting, organizing and analysing geoinformation. These will include remote sensing data analysis, application of GIS tools to develop models and to produce maps. Several case-studies focusing at applications of remote sensing and GIS for spatial planning will be analysed.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Searching and selecting data to be used in environmental studies based on GIS and remote sensing techniques, - Analysing and classifying satellite imagery, - Processing different types of geographical data aiming at characterizing and analysing biophysical systems, - Applying GIS, RS and spatial modelling techniques to spatial planning procedures, - Using RS and GIS software - Conducting research and obtaining new skills as an autonomous individual. 		
References		
<p>Hengl T, Reuter HI (eds) 2008. Geomorphometry: Concepts, Software, Applications. Developments in Soil Science, vol. 33, Elsevier.</p> <p>Kelly R, Drake N, Barr S (Eds.) 2004. Spatial Modelling of the Terrestrial Environment. John Wiley & Sons, Chichester.</p> <p>Lillesand T, Kiefer W, Chipman J 2015. Remote sensing and image interpretation. John Wiley</p> <p>Mather PM 2004. Computer processing of remotely-sensed images. An introduction.</p> <p>Schowengerdt RA 2007. Remote sensing: models and methods for image processing. Elsevier, Amsterdam.</p>		
Knowledge evaluation methods and their partial grades		
<p>Normal regime:</p> <ul style="list-style-type: none"> - Practical exercise and report (group): 40% - Oral presentation of the report (group): 20% - Participation in the practical classes on the preparation of the report (individual): 10% - Final exam (individual) 30% <p>Special regime</p> <ul style="list-style-type: none"> - Practical exercise and report (individual): 30% - Oral presentation of the report (individual): 10% - Final exam (individual) 60% 		