

Academic Year: 2019/2020		
Course: Creating and Structuring GIS Databases		
Coordinator: Paulo Morgado		
Teaching Staff: Paulo Morgado, Patrícia Abrantes		
ECTS: 6	Weekly Hours: 3,0	Typology: Theoretical-Practical
Contents		
<ol style="list-style-type: none"> 1. Principles for databases structuring <ol style="list-style-type: none"> 1.1. Database concepts and architectures 1.2. Database models and data modeling 1.3. Geographic data systems and spatial databases 2. Creating and managing geographic databases <ol style="list-style-type: none"> 2.1. Spatial reference 2.2. Working accuracy 2.3. Structures and models of spatial data 2.3. Information acquisition: feature and raster sets 2.4. Structuring Geographic Information 3. Geographical elements <ol style="list-style-type: none"> 3.1. Geometry 3.2. Domains 3.3. Spatial relationships 3.4. Generalization 4. Information exploration <ol style="list-style-type: none"> 4.1. Normalization 4.2. Indexing and crossing data 4.3. Spatial query: topological operators 4.4. Alphanumeric query: SQL Language 5. Creating, manging and explorind geographic databases in open code (open source): postgresSQL/postGIS 		
Objectives and skills		
<p>Objectives:</p> <ul style="list-style-type: none"> - Understand and characterize different database structures and models. - Understand the processes of acquiring information for spatial databases; - Understand the processes of information structuring; - Understand the processes of spatial and alphanumeric queries. <p>Skills:</p> <ul style="list-style-type: none"> - Know how to build a spatial database; - Know how to adjust the databases (structure and model) to the problems typology; - Know how to determine the best mechanisms for exploration, analysis, visualization and representation of geographic data. 		
References		
ESRI (2005) Building a Geodatabase. ESRI, Redlands. 369p. ESRI (2005) Geodatabase workbook. ESRI, Redlands. 249p. Rigaux P, Scholl M, Voisard A (2002) Spatial Databases With Application to GIS. Elsevier Science, San Francisco. 410 pp. Yeung A K W, Hall G B (2007) Spatial Database Systems: Design, Implementation and Project Management. Springer, Netherlands. 553p. Zeiler M (1999) Modeling Our World: The ESRI Guide to Geodatabase Design. ESRI, Redlands. 199p.		
Knowledge evaluation methods and their partial grades		
1 individual Test (40% of the final evaluation), 1 group work (25% of the final evaluation) + Presentation and individual discussion (25%), individual evaluation (10% of the final evaluation). Students with special evaluation privileges will have to perform 1 individual test (55% of the final evaluation) and 1 Group work (45% of the final evaluation).		