

Academic Year: 2019/2020		
Course: Flood Dynamics and Spatial Planning		
Coordinator: Eusébio Reis		
Teaching Staff: Eusébio Reis; Pedro Santos		
ECTS: 6	Weekly Hours: 2,5 h	Typology: Theoretical-practical
Contents		
<p>Module I. Floods: extreme element of the river system</p> <ol style="list-style-type: none"> 1 The hydro-climatic regions of floods 2. Classification and typology of floods <p>Module II. Watersheds and their components as conditioning factors of floods</p> <ol style="list-style-type: none"> 1. Quantitative analysis of biophysical components of the basins 2 Time of concentration of basins: definition and calculation methods 3. Evaluation of flood peak 4. Methodologies for floodplains definition <p>Module III. Flood hazard and susceptibility assessment</p> <ol style="list-style-type: none"> 5. Methods for assessing susceptibility to the occurrence of floods 6. Hydrologic and Hydraulic modelling <p>Module IV. River dynamics and human intervention</p> <ol style="list-style-type: none"> 1. Conceptual Model assessment and management of flood risk 2. Typology of mitigation and adaptation measures to flood risk 3. Legislation for Assessment and Management of Flood Risks in European and Portuguese context 		
Objectives and skills		
<p>Objectives:</p> <ul style="list-style-type: none"> - knowledge of river systems behaviour and triggering and increasing flood factors; - Knowledge of the types of territorial intervention, which can be implemented in order to minimize the adverse consequences of floods, at the basin, valley bottom and river channel scales; - Knowledge of the consequences of human intervention on the river systems. <p>Skills:</p> <ul style="list-style-type: none"> - to grasp the fundamental concepts related to floods, components of the watershed, valley bottoms and river channels; - to combine the spatial and temporal dimensions in the interpretation of floods and dynamics of the valleys bottoms and river channels as well as the natural and human processes that influence them; - to adapt the methods and techniques to different perspectives and problems to be solve in riparian areas; - to propose strategies and interventions of spatial planning at different geographical scales (watershed and riparian areas). 		
References		
<p>Brierley, G.J. & Fryirs, K.A. (2005) – <i>Geomorphology and River Management</i>. Blackwell Publishing, Oxford.</p>		

- Hipólito, J. e Vaz, A. (2011) – *Hidrologia e Recursos Hídricos*. Coleção Ensino da Ciência e da Tecnologia – 41, IST Press, Lisboa.
- Johnson, L. (2009) – *Geographical Information Systems in Water Resources Engineering*. CRC Press, Boca Raton.
- Ramos, C. (2009) - *Dinâmica Fluvial e Ordenamento do Território* (Unidade Curricular do 2º Ciclo). C.E.G., SLIF 6 –, Universidade de Lisboa, Lisboa.
- Smith, K. e Ward, R. (1998) – *Floods. Physical Processes and Human Impacts*. John Wiley & Sons, Chicester.
- Thorne, C.R.; Hey, R.D. & Newson, M.D. (eds.), (2003) - *Applied Fluvial Geomorphology for River Engineering and Management*. John Wiley & Sons, Chicester.

Knowledge evaluation methods and their partial grades

Four elements:

- an individual practical exercise about modelling (15 %)
- a practical group work (45 %);
- an individual theoretical exercise (35 %);
- personal evaluation (5 %), based on class participation and performance, and progression along the course.