

Updated On	2022/02/24																																								
Curricular Year / Period	2021/22 / S2																																								
Course	Agronomia																																								
Curricular Unit	Regadio																																								
Language(s) of Instruction	Português																																								
ECTS/tempo de trabalho (horas)	<table border="1"> <thead> <tr> <th rowspan="2">ECTS</th> <th rowspan="2">Total</th> <th colspan="9">Horas de contacto semestral</th> </tr> <tr> <th>T</th> <th>TP</th> <th>PL</th> <th>S</th> <th>TC</th> <th>E</th> <th>O</th> <th>OT</th> <th>EC</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>160</td> <td>32</td> <td></td> <td>32</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>T - Theoretical; TP - Theoretical and practical; LP - Laboratory Practice; S - Seminar; TG - Tutorial guidance; FW - Fieldwork; T - Training; ; EC - Clinical teaching; O* - Other hours typified as Clinical Training under the Directive 77/453/EEC of June 27, adapted by Directive 2005/36/EC.</p>										ECTS	Total	Horas de contacto semestral									T	TP	PL	S	TC	E	O	OT	EC	6	160	32		32						
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Teacher in charge (GDPR consent) <small>[complete name, email]</small>	José António Vaz Caraças Telo Da Gama / jose.gama@ippportalegre.pt																																								
Prerequisites <small>[Curricular Units that must precede and specific entry competences]</small>	It does not have curricular units as precedence, but it is recommended that the student has knowledge in the area of Meteorology and Climatology, Biophysics, Pedology and Topography and Cartography,																																								
Learning outcomes <small>[Description of the overall and specific objectives] [Knowledge, skills and competences to be developed by students]</small>	<p>This curricular unit aims to provide competences on the estimation of crop water requirements and on how the water is to be applied. It is intended that the student, in the light of current knowledge, acquires competences on irrigation water management, i.e. when, how much and how to irrigate a crop. In particular, it is intended that the student acquires: notions on the importance of irrigation uniformity and water use efficiency; skills in the use of soil water balance and irrigation management models; knowledge and skills in the setup of small and medium dimension drainage and irrigation networks, and that, in more complex projects, be able to dialogue with specialists and develop integrated team work. At the end of the curricular unit on Irrigation, the student must be able to:</p> <ol style="list-style-type: none"> 1. Understand the importance of irrigation at the world scale, and in Portugal in particular; 2. Understand the objectives of irrigation and relate them with different irrigation methods; 3. Understand the advantages and disadvantages of each irrigation system and to be able to select the most adequate irrigation method for each case; 4. Understand the importance of irrigation uniformity and irrigation water use efficiency; 5. Recognize the importance of the soil for water storage of plants, and measure, compute and estimate parameters related water availability to plants; 6. Understand the importance of measuring and estimating soil water infiltration; 7. Relate various soil characteristics with irrigation capacity; 8. Estimate crop water requirements; 9. Determine irrigation parameters; 10. Use soil water balances for irrigation management and irrigation scheduling in real time; 11. Understand basic notions of hydraulics when setting up an irrigation system; 12. Know the main sprinkler irrigation systems and respective operation modes; 13. Know how to setup, from an agronomic and hydraulic point of view, a localized irrigation system and the more relevant characteristics of a stationary sprinkler irrigation system; 14. Define filtration needs based on the quality of irrigation water and irrigation system needs; 15. Have basic notion of automation in agriculture; 16. Understand the most relevant aspects for setting up a furrow irrigation system; 17. Choose the most adequate irrigation system and respective equipment from existing limitations; 18. Understand the main types of surface drainage. 																																								
Syllabus	<ol style="list-style-type: none"> 1. Introduction to irrigation agriculture 2. Classification and characterization of irrigation methods 3. Soil-water 4. Crop water requirements 5. Irrigation scheduling 6. Basic notions of hydraulics 7. Localized irrigation 9. Sprinkler irrigation 8. Furrow irrigation 																																								

<p>Teaching methodologies (including assessment) [Specify the types of assessment and the weights and evaluation criteria]</p>	<p>10. Drainage</p> <p>1 - Teaching methodologies The teaching methodology includes a set of theoretical classes, necessary for the presentation of the contents and that will cover all chapters. Within practical classes, work sheets will be proposed and solved that will constitute the basis of the preparation of the team project work.</p> <p>2 - Period assessment The evaluation will consist of two frequencies and a project work, to be carried out in groups. Each frequency will have a weighting of 35% and the group work of 30%. The first frequency covers chapters 1 to 5 and the second covers chapters 6 to 10. The final classification of the work is individual and depends on the discussion/defense of the average grade given to the group as a whole.</p> <p>3 - Examination assesement In order to pass the curricular unit and for access to the exam, it is mandatory to obtain a grade equal to or greater than 9.5 in group work. There are no assignments during the exam period. The entire subject appears in the exam (there are no parts).</p>
<p>Bibliography</p>	<p>1 - Main Bibliography COTR (2004). Guia de Rega. Beja: COTR. http://www.cotr.pt/utills/guias.php MARTIN-BENITO, J.M.T (1995). El riego por aspersion y su tecnología. Madrid: Ediciones Mundi-Prensa. OLIVEIRA, I. (1993). Técnicas de regadio (Vols. 1-2). Lisboa: Instituto de Estruturas Agrárias e Desenvolvimento Rural. PEREIRA, L. S. (2004). Necessidades hídricas das culturas e métodos de rega. Mem Martins: Publicações Europa-América. PIZARRO, F. (1996). Riegos localizados de alta frequência. Madrid: Mundi Prensa. RAPOSO, J.R. (1996). A rega. Dos primitivos regadios às modernas técnicas de rega. Lisboa: Fundação Calouste Gulbenkian. YAGÜE, J. L. F. (1998). Técnicas de riego. Madrid: Mundi-prensa. www.cba.gov.ar/wp-content/.../2015/09/Tecnicas-de-Riego.pdf ALLEN R.G., PEREIRA, L.S., RAES D., SMITH, M. (1998). Crop evapotranspiration, FAO Irrigation and drainage, 56, Rome https://www.researchgate.net/publication/235704197_Crop_evapotranspiration-Guidelines_for_computing_crop_water_requirements-FAO_Irrigation_and_drainage_paper_56</p> <p>2 - Complementary Bibliography DOORENBOS, J., KASSAM, A.H. (1980). Efectos del agua sobre el rendimiento de los cultivos, FAO, Riego y Drenaje, nº33; Roma. DOORENBOS, S., PRUITT, W.O. (1977). Necessidades de água de los cultivos, FAO, Riego y Drenaje; nº24, Roma. RAPOSO, J.R. (1994). A rega localizada (gota-a-gota) e miniaspersão. Ed. Correio Agrícola, Lisboa. RAPOSO, J.R. (1997). A rega em Portugal. MAPA, Lisboa, Cad. de Divulgação, nº 2. SERRALHEIRO, R.P. (1997). Perspectiva da Agricultura de Regadio em Portugal. Publicações Universidade de Évora, série Ciências Agrárias, nº 5. CARDOSO, J. C. (1965). Os solos de Portugal sua classificação, caracterização e génese (A sul do Tejo). Direcção Geral dos Serviços Agrícolas, Lisboa. FAO (2000). Materials for subsurface land drainage systems. FAO Irrigation and Drainage Paper nº 60, Rome</p>
<p>Special Situations [Students with special status]</p>	<p>1 - Period assessment - Students with special status The evaluation will consist of two frequencies and a project work, to be carried out in groups. Each frequency will have a weighting of 37,5% and the group work of 25%. The first frequency covers chapters 1 to 5 and the second covers chapters 6 to 10. The final classification of the work is individual and depends on the discussion/defense of the average grade given to the group as a whole.</p> <p>2 - Examination assesement - Students with special status In order to pass the curricular unit and for access to the exam, it is mandatory to obtain a grade equal to or greater than 9.5 in group work. There are no assignments during the exam period.</p>

The entire subject appears in the exam (there are no parts).
