

28958 - Irrigation Networks

Información del Plan Docente

Academic Year	2016/17
Academic center	201 - Escuela Politécnica Superior
Degree	437 - Degree in Rural and Agri-Food Engineering
ECTS	6.0
Course	4
Period	Second semester
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

This subject is focused in applied technological knowledge. The skills acquired in it apply to professional practice and require internalization by the students.

The theoretical contents are taught with the support of ppt, animations, interactive examples, enlisting the active participation of students.

Professional contents of the subject are focused on the work with practical cases, using the tools that are supplied in the

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course. These tools will be available for further professional use by students. The informatics tools will be installed either in the computer room, where the subject is taught, or in the student`s personal computer.

The practical sessions will focus on training in the use of operational resources of the computer applications.

5.2.Learning activities

1 Theory and problems (30 hours).

2 Troubleshooting and cases (20 hours).

3 Lab and computer (10 hours).

4 Case of study (30 hours Homework)

5 Study (48 hours Homework).

6 Evaluation (12 hours).

5.3.Program

• Theory Programme

- C1 Presentation and applications.
 - C2 Typology of distribution networks and uses
 - C3 Components, valves and adjustment elements.
 - C4 Calculating design flows per session and on demand.
 - C5 Optimal sizing for ramified networks.
 - C6 Pumping equipment and pumping stations.
 - C7 Hydraulic and energy analysis of distribution networks.
 - C8 Managing collective networks.
 - C9 Optimal sizing, analysis and operation of plot networks (sprinkler, drip)
1. **Practical Programme**

P1 Basic handling of network calculation IT tools

P2 Input output operations

P3 Database communication.

P4 AutoCad communication.

P5 Programming and validating irrigation demand.

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5.4.Planning and scheduling

The following table shows the weekly organization proposed for this subject. The course is divided into themes (identified as contents C1, C2, ...) and for each themes it is specified the hours of theory, exercises, practices and evaluation as well as hours of study and work

In the last column reflects the total hours that students should devote to each activity

Week	1	2	3	4	5	6	7	8	9	10
T1 Theory	C1 2h	C2 2h	C3 2h	C3 2h	C4 2h	C5 2h	C5 2h	C6 2h	C6 2h	C7 2h
T2 Exercises					C4 2h	C5 2h	C5 2h	C6 2h	C6 2h	C7 2h
T3 Practicum	P1 2h	P2 2h	P3 2h	P4 2h						
T6 Case						C4 6h		C5 6h		C6 6h
T7 Study	C1 3h	C2 4h	C3 4h	C3 4h	C4 4h	C5 2h	C5 4h	C6 2h	C6 4h	C7 2h
T8 Evaluation.							C4 1h		C5 1h	

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Week	11	12	13	14	15	16	17	18	19	TOT.
T1		C7		C8	C8	C9	C9			30
Theory		2h		2h	2h	2h	2h			
T2 Exercises		C7			C8	C9	C9			20
		2h			2h	2h	2h			
T3 Practicum				P5						10
				2h						
T6 Case				C7		C8				30
				6h		6h				
T7 Study		C7		C8	C8	C9	C9			49
		4h		2h	4h	2h	4h			
T8 Evaluation.		C6			C7		C8		6h	11
		1h			1h		1h			

5.5. Bibliography and recommended resources

Basic References

- Paco López-Sánchez, José Luis de. Fundamentos del cálculo hidráulico en los sistemas de riego y drenaje / José Luis de Paco López-Sánchez . Madrid : Mundi-Prensa : MAPA-IRYDA, D.L. 1993
- Problemas de hidráulica para riegos / José Roldán ... [et al.] . 2ª ed. corr. Córdoba : Servicio de Publicaciones de la Universidad de Córdoba, D.L. 2004
- Arviza Valverde, Jaime. Problemas de hidráulica / Jaime Arviza Valverde, Iban Balbestre Peralta . Valencia : Editorial de la UPV, D. L. 2008

Further References

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- Automatización y telecontrol de sistemas de riego / [coordinadores, Antonio Ruiz Canales, José Miguel Molina Martínez] . Barcelona : Marcombo ; Murcia : Colegio Oficial de Ingenieros Agrónomos de la Región de Murcia, 2010
- Granados, A. (1986). Infraestructuras de regadíos. Redes colectivas de riego a presión. Madrid: ETS de Ingenieros de Caminos