28958 - Irrigation Networks

Información del Plan Docente

Academic Year	2017/18
Faculty / School	201 - Escuela Politécnica Superior
Degree	437 - Degree in Rural and Agri-Food Engineering
ECTS	6.0
Year	4
Semester	Second semester
Subject Type	Optional
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

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.

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

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.Syllabus

- **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.Course planning and calendar

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	C2	C3	C3	C4	C5	C5	C6	C6	C7
	2h	2h	2h	2h	2h	2h	2h	2h	2h	2h
T2 Exercises					C4	C5	C5	C6	C6	C7
					2h	2h	2h	2h	2h	2h
T3 Practicum	P1	P2	P3	P4						
	2h	2h	2h	2h						
T6 Case						C4		C5		C6
						6h		6h		6h
T7 Study	C1	C2	C3	C3	C4	C5	C5	C6	C6	C7
	3h	4h	4h	4h	4h	2h	4h	2h	4h	2h
T8 Evaluation.							C4		C5	
							1h		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

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

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BC	Servicio de Publicaciones de la Universidad de Córdoba, D.L. 2004 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
BC	Granados, A. (1986). Infraestructuras de regadíos. Redes colectivas de riego a presión. Madrid: ETS de Ingenieros de Caminos

LISTADO DE URLs:

Lamaddalena, N., Sagardoy, J.A. (2000). Performance analysis of on-demand pressurized irrigation systems. Roma: FAO [ftp://ftp.fao.org/agl/aglw/docs/idp59.pdf]

The updated recommended bibliography can be consulted in:
http://psfunizar7.unizar.es/br13/egAsignaturas.php?id=8119