28747 - Fluvial Hydraulics

Información del Plan Docente

Academic Year	2016/17
Academic center	175 - Escuela Universitaria Politécnica de La Almunia
Degree	423 - Bachelor's Degree in Civil Engineering
ECTS	6.0
Course	4
Period	First semester
Subject Type	Compulsory
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

The learning process designed for this subject is based on the following:

Strong interaction between the teacher/student. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

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The current subject Hidráulica Fluvial (River Hydraulics) is conceived as a stand-alone combination of contents, yet organized into three fundamental and complementary forms, which are: the theoretical concepts of each teaching unit, the solving of problems or resolution of questions and real-world projects, at the same time supported by other activities

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The organization of teaching will be carried out using the following steps:

— **Theory Classes** : Theoretical activities carried out mainly through exposition by the teacher, where the theoretical supports of the subject are displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them.

— **Practical Classes** : The teacher resolves practical problems or cases for demonstrative purposes. This type of teaching complements the theory shown in the lectures with practical aspects.

— **Project Development Support Classes** : The lecture group is divided up into various groups, according to the number of registered students, but never with more than 20 students, in order to make up smaller sized groups. The students will develop real-world projects using the concepts learned in the theory and practical classes

— **Individual Tutorials** : Those carried out giving individual, personalized attention with a teacher from the department. Said tutorials may be in person or online.

5.2.Learning activities

Involves the active participation of the student, in a way that the results achieved in the learning process are developed, not taking away from those already set out, the activities are the following:

— **Face-to-face generic activities** :

● **Theory Classes** : The theoretical concepts of the subject are explained and illustrative examples are developed as support to the theory when necessary.

● **Practical Classes** : Problems and practical cases are carried out, complementary to the theoretical concepts studied.

● **Project Development Support Classes** : This work is tutored by a teacher, in groups of no more than 20 students.

— **Generic non-class activities** :

● Study and understanding of the theory taught in the lectures.

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● Understanding and assimilation of the problems and practical cases solved in the practical classes.

● Preparation of seminars, solutions to proposed problems, etc.

● Preparation of real-world projects.

● Preparation of the written tests for continuous assessment and final exams.

The subject has 6 ECTS credits, which represents 150 hours of student work in the subject during the trimester, in other words, 10 hours per week for 15 weeks of class.

A summary of a weekly timetable guide can be seen in the following table. These figures are obtained from the subject file in the Accreditation Report of the degree, taking into account the level of experimentation considered for the said subject is moderate.

Activity	Weekly school hours
Lectures	3
supervised practice sessions	1
Other Activities	6

Nevertheless the previous table can be shown into greater detail, taking into account the following overall distribution:

— 40 hours of lectures, with 50% theoretical demonstration and 50% solving type problems.

— 10 hours of Project Development Support Classes (supervised practice sessions), in 1 or 2 hour sessions.

— 6 hours of written assessment tests, one hour per test.

— 4 hours of PPT presentations.

— 90 hours of personal study, divided up over the 15 weeks of the 2 nd semester.

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There is a tutorial calendar timetable set by the teacher that can be requested by the students who want a tutorial.

5.3.Program

Lesson 1. Introduction and general concepts

Lesson 2. River Hydraulics

Lesson 3. River Morphology

Lesson 4. Introduction to River Works

Lesson 5. Hydraulic modelling in rivers

5.4.Planning and scheduling

The list below shows the contents of each week. They are consistent with the lessons of the subject (The order could be modified in case of changes in the university calendar)

Week 1: Lesson 1. Introduction and general concepts

Week 2: Lesson 1. Introduction and general concepts

Week 3: Lesson 2. River Hydraulics

Week 4: Lesson 2. River Hydraulics

Week 5: Lesson 3. River Morphology

Week 6: Lesson 3. River Morphology

Week 7: Lesson 3. River Morphology

Week 8: Lesson 4. Introduction to River Works

Week 9: Lesson 4. Introduction to River Works

Week 10: Lesson 4. Introduction to River Works

Week 11: Lesson 4. Introduction to River Works

Week 12: Lesson 5. Hydraulic modelling in rivers

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Week 13: Lesson 5. Hydraulic modelling in rivers

Week 14: Lesson 5. Hydraulic modelling in rivers

Week 15: Lesson 5. Hydraulic modelling in rivers

The dates of the final exams will be those that are officially published at http://www.eupla.es/secretaria/academica/examenes.html.

5.5.Bibliography and recomended resources

- Martín Vide, Juan P.. Ingeniería de ríos / Juan P. Martín Vide . - 1ªed. Barcelona : Edicions UPC, 2002
- Magdaleno Mas, Fernando. Manual técnico de cálculo de caudales ambientales / Fernando Magdaleno Mas. - 1ª edición Madrid, : Colegio de Ingenieros de Caminos Canales y Puertos,2009
- Cudworth, Arthur G., Jr. Flood hydrology manual / by Arthur G. Cudworth, Jr. - 1st edition Denver (Colorado) : United States Department of the Interior, Bureau of Reclamation, 1989
- Ferrer, Javier. Recomendaciones para el cálculo hidrometeorológico de avenidas /Francisco Javier Ferrer Polo. - 2 ed Madrid : Centro de Estudios y Experimentación de Obras Públicas, 2000
- Estados Unidos. Department of the Interior. Bureau of Reclamation. Desing of small dams / United States Department of the Interior, Bureau of Reclamation. - 3 ed Washington : United States Government Printing Office, 1987
- Magdaleno Mas, Fernando. Manual de técnicas de restauración fluvial / Fernando Magdaleno Mas ; Centro de Estudios de Técnicas Aplicadas Madrid : Ministerio de Fomento, Centro de Publicaciones, 2008