Universidad de Valladolid

Syllabus

Course	**CONSERVATION HYDROLOGY**		
Module	Elective		
Degree	Degree in Forest Engineering and Natural Environment (Grado en Ingeniería Forestal y del Medio Natural)		
Plan	449	**Code**	42210
Semester	Second semester	**Type/Category**	Elective
Level/Cycle	Bachelor's degree	**Year**	4
ECTS Credits	3		
Language	English		
Lecturers in charge	1) Juan Manuel Diez Hernández (CDOC; PhD; Forest Engineer) 2) Andrés Martínez de Azagra Paredes (CAEU; PhD Forest Engineer) 3) Francisco Javier Sanz Ronda (CDOC; PhD; Forest Engineer) 4) Ana García Vega (Forest Engineer) 5) Jorge Valbuena Castro (Forest Engineer)		
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Department	Agricultural and Forest Engineering (Hydraulics and Hydrology Area)		

GENERAL OBJECTIVES

1) To learn useful issues related to Forest Hydrology, Ecohydrology and Ecohydraulics in Mediterranean zones (in arid and semi-arid regions).
2) To learn the basic use of software tools such as: HEC-HMS (flood simulation); HEC-RAS (fluvial hydraulic simulation); ESCALAS (fishway design and modeling).

PROGRAMME TOPICS

Module 1. **Hydrological modelling of floods.** Expanding knowledge in forest hydrology with HEC-HMS: design storms and hydrographs; reservoir and channel-flow routing.

Module 2. **Hydraulic modelling of rivers.** Simulation in 2D (mesh, depth, velocity).

Module 3. **Soil conservation.** Soil erosion and soil conservation measures, badlands restoration, wind erosion, water conservation hydrology.

Module 4. **Fish migration.** Impacts of human's modifications of river hydrology on fish migration and solutions.

Module 5. **Fishway evaluation.** Evaluation of the solutions to allow free fish migration (an excursion will be probably scheduled).

GRADING CRITERION

To pass the course, the student must have a grade $\geq$ 5 points. The maximum score is 10 points. Final score = Attendance (up to 3 point) + Assignments (up to 7 points).

For those who have not achieve 5 points in the regular evaluation, they must a final exam.

ATTENDANCE POLICY

The attendance is optional. However, it will be considered in the student grade if the attendance is greater than 50%. In that case, if the student has attended to the 50% of classes, he/she will get 1 point for the final score; if the attendance is 75%, he/she will get 2 points; and if the attendance is 100%, he/she will get 3 point (that is to say, the points will be interpolated).

ASSIGNMENTS

During the course, several assignments will be requested. The assignments will be related to the course topics and they will be explained in detail at the corresponding lesson.

The assignment submission system and deadlines will be defined also during the specific modules they are related to. Course lectures cannot guarantee assessing work submitted after the specific deadlines.

EXAM INFORMATION

For those who have not achieve 5 points in the regular evaluation, they have to pass a final exam. The exam consists of a series of theoretical-practical questions about the topics mentioned above.

Regular evaluation period $\rightarrow$ Date: 05/06/2020; Time: 09:00-11:00; Classroom: 7
Second eval. period (referral exam) $\rightarrow$ Date: 25/06/2020; Time: 09:00-11:00; Classroom: 7

TEACHING RESOURCES

- Specific updated resources for each module will be available on the Moodle platform of the course.