

SUBJECT TEACHING GUIDE

M1894 - Dynamics and Transport in Continental Waters

Master's degree in integrated management of water systems

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Master's degree in integrated management of water systems			Type and Year	Compulsory. Year 1
Faculty	School of civil Engineering				
Discipline					
Course unit title and code	M1894 - Dynamics and Transport in Continental Waters				
Number of ECTS credits allocated	4	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE				
Name of lecturer	JOSE BARQUIN ORTIZ				
E-mail	jose.barquin@unican.es				
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 0. DESPACHO DE JOSE BARQUIN ORTIZ (0022)				
Other lecturers	CESAR ALVAREZ DIAZ				

3.1 LEARNING OUTCOMES
- To learn and understand the processes that induce morphological changes in the river bed
- To learn and understand the hydrodynamical processes that take place in the river bed.
- To learn how to compute the sediment flux in a river making use of different formulations.
- To learn and apply sediment simulation models for rivers.
- Know the dispersal dynamics of organisms in rivers

4. OBJECTIVES

The student must be able to describe the biophysical mechanisms that determine the dynamics and transport of water, sediments and organisms in rivers and the key factors that determine fluvial morphology.

6. COURSE ORGANIZATION

CONTENTS	
1	General introduction to river channel transport
2	Channel flows: Water and sediment
3	Basic notions of hydraulics in river channels
4	Fluvial morphodynamics
5	Modelling hydraulics and flows
6	Wood transport and dynamics
7	Organism dynamics and dispersal
8	Final test and presentation of works

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Final exam	Written exam	Yes	Yes	50,00
Practical work 1: Hydrological and hydraulic modelling	Work	Yes	Yes	30,00
Practical work 2: Literature revision	Work	Yes	Yes	20,00
TOTAL				100,00

Observations

As accorded by the relevant committees:

+ As a general rule and unless stated otherwise anywhere in this guide, a student cannot request a reexamination if the original grade obtained in the evaluation was not a fail.

+ As a general rule and unless stated otherwise anywhere in this guide, the reexamination activity will take the same form than the original evaluation activity.

Grades are measured on a numeric scale going from 0 to 10, where values smaller than 5 are a Fail.

Observations for part-time students

Part-time students will need to agree with the responsible professor a teaching and evaluation plan to ensure an adequate transfer of knowledge as well as a fair evaluation procedure

The minimum requirement for this students will be to complete a piece of homework and to assist to the final exam of the subject.

The weights of each part will be proportional to the weight those parts presents in the general evaluation scheme of the subject.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Martín Vide, J.P. (1997). Ingeniería Fluvial. Servicio de Publicaciones UPC.

Vente Chow. (1994). Hidráulica de canales abiertos. McGraw Hill.

Garde, R.J. (2006). River Morphology. New Age International Limited Publishers.

Scumm, S.A. (2005). River variability and complexity. Cambridge.

Van Rijn, L.C.(1989). Sediment Transport by Currents and Waves. Delft Hydraulics.