# SUBJECT TEACHING GUIDE

## M1894 - Dynamics and Transport in Continental Waters

## Master's degree in integrated management of water systems

Academic year 2017-2018

| 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 | |
| Web | | | | | |
| Language of instruction | Spanish | English Friendly | No | Mode of delivery | Face-to-face |

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|---|---|
| Department | DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE |
| Name of lecturer | MANUEL DEL JESUS PEÑIL |
| E-mail | manuel.deljesus@unican.es |
| Office | E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 3. LOCAL 11 - Hidráulica (3009) |
| Other lecturers | |

| 3.1 LEARNING OUTCOMES |
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| - 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. |

| 4. OBJECTIVES |
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| The student will be able to describe the physical mechanisms that determine river morphology and that govern river dynamics. |

## 6. COURSE ORGANIZATION

| | CONTENTS |
|---|---|
| 1 | Flow in rivers |
| 2 | Fluvial morphology |
| 3 | Sediment transport in river beds |
| 4 | Fluvial hydraulics models |
| 5 | Individual work presentation |

## 7. ASSESSMENT METHODS AND CRITERIA

| Description | Type | Final Eval. | Reassessn | % |
|---|---|---|---|---|
| Individual work presentation | Work | No | Yes | 50,00 |
| Final exam | Written exam | Yes | Yes | 50,00 |
| 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.
Ven te 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.