SUBJECT TEACHING GUIDE

567 - Risk Management in the pollution of inland and coastal waters

Master's degree in integrated management of water systems

Academic year 2023-2024

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	567 - Risk Management in the pollution of inland and coastal 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	ANDRES GARCIA GOMEZ
E-mail	andres.garcia@unican.es
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 0. DESPACHO DE ANDRES GARCIA GOMEZ (0023)
Other lecturers	MARIA SONIA CASTANEDO BARCENA ANA CRISTINA RUEDA ZAMORA

3.1 LEARNING OUTCOMES
- The student will know the different types of natural and anthropic hazards to which aquatic systems are exposed.
- The student will know the main hazards related to surface waters pollution and the existing tools to assess the associated risk
- The student will be able to synthesize, discuss and defend ideas and / or results on topics proposed by the teacher in relation to risk management.

4. OBJECTIVES

The general objective of the subject is to know the different types of risk of contamination of surface waters , both of natural origin and those derived from human activities, as well as the methodologies for risk assessment.

To be able to identify and analyze threats

To be able to assess vulnerability, exposure, and risk

To be able to analyze the outputs of hazard modeling , vulnerability assessment and risk estimation, in order to be able to design risk reduction measures.

To be able to interpret the results of threat modeling , vulnerability assessment and risk estimation, in order to design measures for the management and planning of the risk of contamination of aquatic systems.

6. COURSE ORGANIZATION

CONTENTS	
1	RISK ASSESSMENT.
2	AQUATIC SYSTEMS CONTAMINATION RISK MANAGEMENT.
3	METHODOLOGIES AND TOOLS FOR HAZARD AND VULNERABILITY ANALYSIS
4	CASE STUDY 1. RISK OF POLLUTION OF COASTAL WATERS.
5	CASE STUDY 2: RISK OF POLLUTION OF CONTINENTAL WATERS.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Presentation of case study 1- part I	Work	No	Yes	30,00
Presentation of case study 1 - part II	Work	No	Yes	35,00
Presentation of case study 2	Work	No	Yes	35,00
TOTAL				100,00

Observations

Only for duly justified causes (eg health restrictions) the evaluation may be organized remotely, with prior authorization from the Direction of the School.

In relation to the agreements adopted at the ordinary session of the School Board held on June 10, 2010, it is established that, with respect to evaluation activities that are recoverable,
- As a general criterion and unless a different thing is specified in this guide , a student may only recover those activities that he/she has not passed, that is, in which he/she has not obtained a minimum grade of 5/10.
- As a general criterion and unless a different thing is specified in this guide , in the recovery period the evaluation procedure of an activity will be the same as that of the activity that originates it.

Note: according to R.D 1125/2003 on the European credit system and the grading system for official university degrees and valid throughout the national territory, the results obtained by the student in each of the subjects of the Studies Plan will be graded according to the following numerical scale from 0 to 10, with the expression of a decimal, to which their corresponding qualitative qualification may be added:
0,0 - 4.9: Suspenso (SS). 5,0-6,9: Aprobado (AP). 7,0-8,9; Notable (NT). 9,0-10: Sobresaliente (SB)

Observations for part-time students

Part-time students will apply the same assessment criteria as full-time students. The temporary distribution of activities will be adapted to the particular conditions of each student when deemed necessary.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Schneiderbauer, S. and Ehrlich, D. (2004). Risk, hazard and people's vulnerability to natural hazards. A review of definitions, concepts and data. European Commission. Joint Research Centre. Luxemburgo. ISBN 92-894-8732-1.

Castanedo, S., Juanes J.A., Medina R., Puente, A., Fernández F., Olabarrieta, M., Pombo, C. (2009). Oil spill vulnerability assessment integrating physical, biological and socio-economical aspects: application to the Cantabrian coast (Bay of Biscay, Spain). Journal of Environmental Management, Vol 91, pp. 149-159.

Abascal, A.J., Castanedo,S., Medina, R. y Liste, M. (2010). Analysis of the reliability of a statistical oil spill response model. Marine Pollution Bulletin, 60, pp. 2099□2110.

Handbook of Environmental Risk Assessment and Management. Peter P. Calow (Editor) ISBN: 978-0-86542-732-7. 600 pages. November 1997, Wiley-Blackwell

Chapra, S.C.(1997). Surface water quality modelling. McGraw-Hill.

Thomann, R.V. and Mueller, J.A. (1987). Principles of surface water quality modeling and control. Harper Collins Publishers.