

SUBJECT TEACHING GUIDE

M2057 - Risk Management in the pollution of inland and coastal waters

Master's degree in integrated management of water systems

Academic year 2019-2020

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	M2057 - 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	MARIA SONIA CASTANEDO BARCENA				
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Other lecturers	ANDRES GARCIA GOMEZ ANA JULIA ABASCAL SANTILLANA JAVIER GARCIA ALBA				

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, present in public, 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	INTRODUCTION
2	AQUATIC SYSTEMS CONTAMINATION RISK MANAGEMENT
3	METHODOLOGIES AND TOOLS FOR THREAT ANALYSIS. CASE STUDY I.
4	METHODOLOGIES AND TOOLS FOR VULNERABILITY AND RISK ASSESSMENT
5	CASE STUDY II: RISK OF POLLUTION OF CONTINENTAL WATERS
6	CASE STUDY III: RISK OF POLLUTION OF LITTORAL WATERS

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Oral presentation of case study #1	Work	No	Yes	30,00
Oral presentation of case study #2	Work	No	Yes	35,00
Oral presentation of case study #1	Work	No	Yes	35,00
TOTAL				100,00
Observations				
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 must present the works proposed in class to pass the subject.				

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.