SUBJECT TEACHING GUIDE

G1168 - Environmental Economics and Sustainability

Degree in Civil Engineering

Academic year 2018-2019

1. IDENTIFYING DATA					
Degree	Degree in Civil Engineering			Type and Year	Optional. Year 4
Faculty	School of civil Engineering				
Discipline	Optional Subjects: Curricular Itinerary 2				
Course unit title and code	G1168 - Environmental Economics and Sustainability				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. ADMINISTRACION DE EMPRESAS
Name of lecturer	PEDRO DIAZ SIMAL
E-mail	pedro.diaz@unican.es
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 1. DESPACHO (1037)
Other lecturers	SAUL TORRES ORTEGA

3.1 LEARNING OUTCOMES
- The student will understand the operation of the economic incentives derived from the regulations and environmental
- The student will evaluate the environmental consequences of engineering projects
- The student will evaluate the optimality of the management of natural resources

4. OBJECTIVES
Analyze the impact of environmental management mechanisms on the behavior of economic agents Evaluate the environmental consequences of engineering projects to know and apply the usual assessment instruments. Apply the dynamic techniques of economic evaluation to the different typologies of natural resources

6. COURSE ORGANIZATION

	CONTENTS
1	The marginal equilibrium model in the environmental economy. Industrial policy. The Marginal Damage curve, The marginal Cost curve of Emissions Reduction. The optimal level of contamination. Comprehensive modeling of the pollution management system. Environmental management instruments: 1. Spontaneous mechanisms, 2. Mechanisms based on Standards. 3. Mechanisms based on economic incentives. Comparative analysis of the functioning of the instruments in different contexts : Technology, sectorial characteristics, transaction costs, information.
2	Introduction to environmental cost benefit analysis: Economic evaluation of the environmental costs supported. Evaluation of perceived environmental services. Specific valuation techniques: Travel cost, Avoided damages, Production function, Contingent valuation, Selection experiments. Evaluation Techniques: Financial tools, VAN selection criteria, Pay Back TIR. Exponential discount, hyperbolic discount, multicriteria analysis.
3	Economics of renewable and exhaustible natural resources: efficiency and valuation markets. availability to pay and operation cost. Opportunity cost of resources Institutional analysis of resources Dynamic optimization models Markets and efficiency, market failures and regulation. The income of the resource. Intertemporal economic evaluation of the resource. Efficiency, intergenerational equity and Sustainability. Exhaustible resources. Recycled resources Renewable resources, Application to Mining, energy, fishery resources, forestry, soil economy, water, biodiversity, recreational spaces, wildlife. Natural resources and economic growth

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Objective test 1	Written exam	No	Yes	23,00
Objective test 2	Written exam	No	Yes	23,00
Objective test 3	Written exam	No	Yes	24,00
Exercise sheet 1	Work	No	No	10,00
Exercise Sheet 2	Work	No	No	10,00
Exercise Sheet 3	Work	No	No	10,00
TOTAL				100,00

Observations

In relation to the agreements adopted in the ordinary session of the School Board held on June 10, 2010, it is established that, with respect to evaluation activities that have the character of recoverable,

• As a general criterion and unless otherwise specified in this guide , a student can only apply for the recovery of those activities that have not passed, that is, in which he has not obtained a minimum grade of five out of ten.

• As a general criterion and unless otherwise specified in this guide , in the recovery period the procedure for evaluating an activity will be the same as that of the activity that originates it.

Note: According to the royal decree RD 1125/2003 on the European system of credits and the system of qualifications in the university qualifications of official character and valid throughout the national territory , the results obtained by the student in each of the subjects of the plan of studies will be graded according to the following numerical scale from 0 to 10, with expression of a decimal, to which may be added the corresponding qualitative qualification:

0.0-4.9: Suspense (SS) .5.0-6.9: Approved (AP). 7.0-8.9: Notable (NT). 9.0-10: Outstanding (SB).

Observations for part-time students

Part-time students may opt for attendance at the two partial exams and the final exam, with respective weights of 20%, 20% and 50% respectively, or attend only the final exam with 90% weight, but in any case, it is essential to have attended and taken advantage of the laboratory practices.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

ECONOMIA AMBIENTAL
BARRY FIELD, MCGRAW-HILL / INTERAMERICANA DE ESPAÑA, S.A., 2003
ISBN 9788448139438

Natural Resource Economics: An Introduction
Barry C. Field
Waveland Press