

## SUBJECT TEACHING GUIDE

G598 - Environmental Impact on Energy Production

Degree in Energy Resources Engineering

Academic year 2019-2020

| 1. IDENTIFYING DATA              |  |                  |                    |                  |                    |
|----------------------------------|--|------------------|--------------------|------------------|--------------------|
| Degree                           | Degree in Energy Resources Engineering   |                  |                    | Type and Year    | Compulsory. Year 4 |
| Faculty                          |  |                  |                    |                  |                    |
| Discipline                       | Subject Area: Mining Pre-Technology<br>Module: Training in Common with the Mining Branch |                  |                    |                  |                    |
| Course unit title and code       | G598 - Environmental Impact on Energy Production   |                  |                    |                  |                    |
| Number of ECTS credits allocated | 6  | Term             | Semester based (1) |                  |                    |
| Web                              |  |                  |                    |                  |                    |
| Language of instruction          | Spanish  | English Friendly | No                 | Mode of delivery | Face-to-face       |

|                  |  |  |  |  |  |
|------------------|--|--|--|--|--|
| Department       | DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE                                      |  |  |  |  |
| Name of lecturer | JUAN CARLOS CANTERAS JORDANA   |  |  |  |  |
| E-mail           | juan.canteras@unican.es  |  |  |  |  |
| Office           | E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 2. DOCTORANDOS ECOLOGIA (2016) |  |  |  |  |
| Other lecturers  | XABIER EDUARDO MORENO-VENTAS BRAVO   |  |  |  |  |

| 3.1 LEARNING OUTCOMES   |
|---|
| - Know and use appropriate terminology to discipline  |
| - Understand and manage specific legislation environmental assessment and sectoral  |
| - Formulate, propose and organize the Environmental Sustainability of plans and programs  |
| - Formulate, propose and organize the Environmental Impact Study Project  |
| - Learn the methodology to identify and assess the environmental impacts  |
| - Propose, formulate, preventive, corrective and compensatory alternative measures to minimize the effects of environmental impacts |
| - Know and practice methods for selecting alternatives  |

#### 4. OBJECTIVES

Understand the concepts and working methods that constitute the body of doctrine of Environmental Assessment

#### 6. COURSE ORGANIZATION

##### CONTENTS

|   |   |
|---|---|
| 1 | Environmental impact of energy. Nature and attributes of the environmental impact. The environmental evaluation of plans, programs and projects. Environmental legislative. The Environmental Impact Studies.   |
| 2 | The impact on the natural environment: Impacts on the atmospheric environment. Impacts on the ground. Impacts on the waters. Impacts on the biotic environment. Impacts on the landscape.<br>The impact on the human environment. Impacts on the social environment. Impacts on the economic environment. Impacts on cultural heritage. |
| 3 | The impact on the human environment: Impacts on the social environment. Impacts on the economic environment. Impacts on cultural heritage.  |
| 4 | Mining and environment. Legislation. Types of mining operations. Rubble heap and waste dams.  |
| 5 | Identification and assessment of alterations. Techniques for identification of impacts. Techniques for assessing impacts. Sorting techniques and selection of alternatives.   |
| 6 | Measures of environmental improvement. Atmospheric pollution. Water contamination. Radioactive pollution. Control of abandoned work. Control of erosion and sedimentation. Environmental monitoring Objectives of environmental monitoring. Environmental monitoring plan.  |
| 7 | Environmental restoration and landscape integration. Uses of the lands affected by mining activities. Topographic and edaphological restoration. Restoration of vegetation. Selection of species and methods of implementation. Economic evaluation of restoration projects.  |

#### 7. ASSESSMENT METHODS AND CRITERIA

| Description   | Type         | Final Eval. | Reassessn | %             |
|---|--------------|-------------|-----------|---------------|
| Evaluation of the contents 1, 2, 3 and 4  | Written exam | Yes         | Yes       | 30,00         |
| Evaluation of the contents 5, 6,7.  | Written exam | Yes         | Yes       | 30,00         |
| Developing a case study of environmental impact assessment and environmental legislation  | Work         | No          | Yes       | 40,00         |
| <b>TOTAL</b>  |              |             |           | <b>100,00</b> |
| <b>Observations</b>   |              |             |           |               |
| If the minimum grade is not exceeded in any of the parts, the final grade will be the minimum of 4.9 and the average obtained by weighing all the evaluation activities. The notes of the approved parts will be kept until the extraordinary call. |              |             |           |               |
| <b>Observations for part-time students</b>  |              |             |           |               |
| Part-time students will undergo an evaluation process consisting of a written examination of the subject (60% of the final grade) plus the completion and delivery of an environmental assessment work (40 % Of final grade).                       |              |             |           |               |

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

Gómez Orea. 1999. Evaluación de Impacto Ambiental. Mundi-Prensa. Madrid.

Gómez Orea. 2007. Evaluación Ambiental Estratégica. Mundi-Prensa. Madrid.

Garmendia, A. Slavador, A.; Crespo, C.; Garmendia, L. 2005. Evaluación de Impacto Ambiental. Pearson/Prentice Hall. Madrid.

Ballester, F. y A. Valcarce. 1997. Los sistemas de gestión medioambiental y su aplicación a la construcción. Ed. Agrupación Nacional de Constructores de Obras. Madrid.