

SUBJECT TEACHING GUIDE

1133 - Mineral Processing Plants

Master's Degree in mining engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's Degree in mining engineering			Type and Year	Compulsory. Year 2
Faculty	School of Mines and Energy Engineering				
Discipline	MINING				
Course unit title and code	1133 - Mineral Processing Plants				
Number of ECTS credits allocated	3	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. TRANSPORTES Y TECNOLOGIA DE PROYECTOS Y PROCESOS				
Name of lecturer	BEATRIZ MALAGON PICON				
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Other lecturers					

3.1 LEARNING OUTCOMES

- After passing the module the student will have specific knowledge relating to the operations used in mineral processing, equipment selection, and design and control of plants and processes.

4. OBJECTIVES

Once the course is completed the student should be able to plan, design, and manage mineral processing facilities and simple waste recycling plants.

6. COURSE ORGANIZATION

CONTENTS	
1	<p>PART I: INTRODUCTION, AUXILIARY OPERATIONS</p> <p>I.1. Mineral processing, generalities.</p> <p>I.2. Expression of the results of a concentration operation.</p> <p>I.3. Metallurgical accounting.</p> <p>I.4. Comminution.</p> <p>I.5. Fragmentation circuits.</p> <p>I.6. Auxiliary operations</p>
2	<p>PART II: PREPARATION OF MINERALS</p> <p>II.1. Crushing: primary, secondary and tertiary crushers.</p> <p>II.2. Milling: Theories of fragmentation.</p> <p>II.3. Classification: Types of classification.</p> <p>II.4. Movement of solids within a fluid.</p> <p>II.5. Classification equipment.</p>
3	<p>PART III: MINERAL PROCESSING PLANTS</p> <p>III.1. Design, operation and maintenance of treatment and purification plants: industrial rocks and ornamental stones.</p> <p>III.2. Design, operation and maintenance of building materials plants.</p>
4	<p>PART IV: PLANTS FOR THE TREATMENT OF DEMOLITION WASTE</p> <p>IV.1. Design, operation and maintenance of plants for the recovery and recycling of waste from construction and demolition.</p> <p>IV.2. Products resulting from the processing of construction wastes. Applications.</p>

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Final exam	Written exam	Yes	Yes	70,00
Group work	Work	No	No	15,00
Individual work	Work	No	No	15,00
TOTAL				100,00
Observations				
Make-up exam will take place in September in the same form as the ordinary examination.				
Observations for part-time students				
Part-time students will be evaluated pursuant to the regulations of the University of Cantabria.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- Los residuos minero-metalúrgicos en el medio ambiente por Rodríguez Pacheco, Roberto Lorenzo; García Cortés, Ángel .Medio ambiente IGME, 2006
- La industria extractiva no energética y el medio ambiente en el marco del desarrollo sostenible por Barettino, D; Obis, Joaquín; Espí Rodríguez, José A.Medio ambiente IGME, 2005.
- Equipos de trituración, molienda y clasificación. Tecnología, diseño y aplicación.
Luis Fueyo, Edit. rocas y minerales año 2002
- Selección práctica y aplicaciones de los equipos de trituración.
Antonio Duran López, Luis Fueyo Casado, Edit. fueyo 2007
- Manual de demoliciones, reciclajes y manipulación de materiales. Luis Fueyo, Edit. Fueyo 2003
- Recursos minerales. Tipología, prospección, evaluación, explotación, mineralurgia e impacto ambiental.
M. Bustillo Revuelta, y Carlos López Jimeno. Edt. Arias Montado S.A. 1996