

## SUBJECT TEACHING GUIDE

M1647 - Mining Machinery and Services

Master's Degree in mining engineering

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Master's Degree in mining engineering			Type and Year	Optional. Year 2
Faculty	School of Mines and Energy Engineering				
Discipline	BLOCK I, SPECIALTY EXPLOITATION OF MINES Optional Module				
Course unit title and code	M1647 - Mining Machinery and Services				
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	RUBEN PEREZ ALVAREZ				
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Other lecturers					

### 3.1 LEARNING OUTCOMES

- After passing the course, the student will know in detail the mining machinery and the service protocols of the mine.

### 4. OBJECTIVES

To know in detail the mining machinery and mine service protocols.

## 6. COURSE ORGANIZATION

### CONTENTS

1	<p><b>PART 1: UNDERGROUND MINING EQUIPMENT</b></p> <ul style="list-style-type: none"> <li>I.1. Scoop loader.</li> <li>I.2. Underground trucks.</li> <li>I.3. Electric and pneumatic drills.</li> <li>I.4. Ironware for self-advancing longwall.</li> <li>I.5. Shotcrete equipment.</li> <li>I.6. Belt conveyors.</li> <li>I.7. Shearers.</li> <li>I.8. Haulers.</li> <li>I.9. Drilling guidance system.</li> <li>I.10. Raise borers.</li> <li>I.11. Jumbos.</li> <li>I.12. Transportation vehicles / load of explosives.</li> <li>I.13. Purging machines.</li> <li>I.14. Loaders for underground mining.</li> <li>I.15. Air compressors.</li> <li>I.16. Roof bolters.</li> <li>I.17. Armored chain conveyors.</li> <li>I.18. LHDs.</li> </ul>
2	<p><b>PART II: SURFACE MINING EQUIPMENT</b></p> <ul style="list-style-type: none"> <li>II.1. Cable Excavators.</li> <li>II.2. Hydraulic excavators.</li> <li>II.3. Draglines.</li> <li>II.4. Loaders.</li> <li>II.5. Bucket wheel excavators.</li> <li>II.6. Continuous miners.</li> <li>II.7. Auger miners.</li> <li>II.8. Dredgers.</li> <li>II.9. Hydraulic monitors.</li> <li>II.10. Tippers.</li> <li>II.11. Conveyor belts.</li> <li>II.12. Mobile conveyors.</li> <li>II.13. Stackers and related equipment.</li> <li>II.14. Slurry pipelines.</li> <li>II.15. Tractors.</li> <li>II.16. Scrapers.</li> <li>II.17. Mobile crushing plants.</li> </ul>
3	<p><b>PART III: CALCULATIONS</b></p> <ul style="list-style-type: none"> <li>III.1. Equipment performances.</li> <li>III.2. Equipment sizing.</li> </ul>

## 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Individual work	Work	No	Yes	20,00
Group work	Work	No	Yes	10,00
Final exam	Written exam	Yes	Yes	60,00
Individual resolution of practical exercises	Others	No	Yes	10,00
<b>TOTAL</b>				<b>100,00</b>
<b>Observations</b>				
<p>The minimum scores to pass the subject will be 4,5 for the final exam, and 5 for the global score (taking into account the activities of continuous evaluation). If these requirements are not satisfied, the final score will be obtained as the weighted average of the different items of evaluation, until a maximum of 4.9. Any passed item would be kept for the extraordinary evaluation.</p> <p>The final exam will be held on-site. However, if Health and Educational Authorities suspended in-class activities, it would be developed with Moodle, and monitored through Teams.</p>				
<b>Observations for part-time students</b>				
<p>Part-time students will be evaluated according to the Regulations of the University of Cantabria. In addition to the final exam, part-time students will have to pass the exercises, individual and group works.</p>				

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

Gómez de las Heras, J. et al. Manual de arranque, carga y transporte en minería a cielo abierto. Madrid : Instituto Tecnológico Geominero de España, 1995.

Díaz Aguado, M.B. Carga, transporte y extracción en minería subterránea. Oviedo: Septem Universitas. 2006.

Fernando Plá Ortiz de Urbina [et al.].Curso de laboreo / Madrid : Universidad Politécnica de Madrid, Escuela Técnica Superior de Ingenieros de Minas, 2001-2003.