

COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE814	SEMESTER	8
COURSE TITLE	LOADING AND HAULAGE SYSTEMS IN CONSTRUCTION WORKS AND MINES		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
COURSES		2	2,5
EXERCISES		2	2,5
TOTAL		4	5
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	SPECIAL BACKGROUND		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	https://eclass.uowm.gr/courses/MRE162/		

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
<p>The course aims to enable students to:</p> <ol style="list-style-type: none"> 1. know about systems for materials loading and transporting in mining and construction projects, 2. choose the appropriate loading and transport system based on the characteristics of the transported materials and the conditions of the mining or construction site, 3. choose the appropriate loading and transport equipment, 4. design the maintenance and replacement program of loading and transport equipment, and 5. perform operational analyses and performance predictions of loading and transport systems.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>.....</i>

1. Search, analysis and synthesis of data and information, using the necessary technologies
2. Project planning and management
3. Decision-making
4. Independent work
5. Generating new research ideas

(3) SYLLABUS

The conventional (batch) loading-transport systems: Excavators, loaders, and earthmoving trucks. Design of mines and construction sites transport routes.

The continuous systems of excavation-loading-transport: Bucket-wheel excavators, conveyor belts and spreaders-stackers. Hauling in shafts and ramps.

Mechanical, electrical, and hydraulic subsystems. Functional analysis and performance prediction.

Selection, arrangement, maintenance, and replacement of equipment. Computational exercises.

(4) TEACHING and LEARNING METHODS - EVALUATION

<p style="text-align: center;">DELIVERY <i>Face-to-face, Distance learning, etc.</i></p>	<p>Face-to-face lectures, webinars, laboratory exercises on PC using special software.</p>	
<p style="text-align: center;">USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	<p>Use of a projection system and special software installed in the PCs of a laboratory, organization and scheduling of the course and the communication with students using the asynchronous e-learning platform 'open eclass'.</p>	
<p style="text-align: center;">TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i></p>	Activity	Semester workload
	Lectures	24
	Study on lectures	40
	Exercises	24
	Writing assignments	32
	Seminars	30
Total course	150	
<p style="text-align: center;">STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Final written examination of theory (50% of the total grade of the course), weekly exercises and assignments (50%). The evaluation criteria are given on the relevant page of the course on the asynchronous e-learning platform 'open e-class' and are analyzed to the students at the beginning of the semester.</p>	

(5) SUGGESTED BIBLIOGRAPHY

<p>- Suggested bibliography:</p> <p><i>Atlas Copco, 2007, Loading and Haulage in Underground Mining, 124p.</i> <i>Darling, P. (Ed), 2011, SME Mining Engineering Handbook, Society for Mining, Metallurgy and Exploration, 1846p.</i> <i>Hartman, H.L., 1987, Introductory Mining Engineering, John Wiley & Sons, 633p.</i> <i>Hustrulid, W.A., Bullock, R.L. (Eds), 2001, Underground Mining Methods: Engineering Fundamentals and International Case Studies, Society for Mining, Metallurgy, and Exploration, 728p.</i> <i>Kennedy, B.A. (Ed), 1990, Surface Mining, 2nd Edition, Society for Mining, Metallurgy and Exploration, 1194p.</i> <i>Thompson, R.J., Peroni, R., Visser, A.T., 2020, Mining Haul Roads Theory and Practice, CRC Press, 316p.</i></p> <p>- Related academic journals:</p> <p><i>International Journal of Mining Science and Technology, Elsevier</i> <i>International Journal of Mining, Reclamation and Environment, Taylor & Francis</i> <i>Journal of Mining Science, Springer</i> <i>Mining Journal, Aspermont Media</i> <i>Mining Technology: Transactions of the Transactions of the Institutions of Mining and Metallurgy, Taylor & Francis</i></p>

