COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE823	SEMESTER	8
COURSE TITLE	COAL MINING TECHNOLOGY		

INDEPENDENT TEACHING ACTIVITIES *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*	WEEKLY TEACHING HOURS	CREDITS
COURSES	3	
EXCERCISES	2	
TOTAL	5	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	SPECIALISED GENERAL KNOWLEDGE
PREREQUISITE COURSES:	Surface mining (MRE501), Underground mining (MRE601)
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	https://eclass.uowm.gr/courses/MRE166/

(2) LEARNING OUTCOMES

Learning outcomes

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.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The course aims to enable students to:

- know how the deposits of coal are formed and where they have been detected,
- know the distribution of global and domestic coal reserves,
- know about how coal (lignite) deposits exploitation is performed in Greece,
- know about the uses of coals,
- plan surface and underground coal mines,
- deal with specific problems of coal mines exploitation, and
- know about the methods of coal beneficiation.

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?

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

1. Search, analysis and synthesis of data and information, using the necessary technologies
2. Adaptation of new situations
3. Decision-making
4. Independent work
5. Teamwork
6. Working in an international environment
7. Working in an interdisciplinary environment
8. Respect for nature

(3) SYLLABUS

Origin and formation of fossil fuels, classification of coal, global and domestic reserves and uses, the climate change and its impacts on the coal industry. Surface coal mining: methods, equipment, operation. Underground coal mining: methods, equipment, innovative techniques. Special problems of coal exploitation: methane emissions, carbon dust, spontaneous combustion, control of air quality in underground mines. Design of surface and underground coal mines. Coal beneficiation.

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face lectures, webinars, laboratory exercises in computers using special software.</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Use of a projection system and special mine planning software installed in the computers of a laboratory, organization and scheduling of the course and the communication with students using the asynchronous e-learning platform ‘open eclass’.</td></tr>
<tr><td>TEACHING METHODS
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</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>42</td></tr>
<tr><td>Laboratory exercises</td><td>28</td></tr>
<tr><td>Review and study of literature</td><td>10</td></tr>
<tr><td>Writing assignments</td><td>20</td></tr>
<tr><td>Seminars and visits</td><td>20</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total course</td><td>150</td></tr>
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</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
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.</td><td>Language of evaluation: Greek

Final written examination of theory and exercises (60% of the final grade of the course), intermediate written examination (20%), projects (20%).

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.</td></tr>
</table>

(5) SUGGESTED BIBLIOGRAPHY

- Suggested bibliography:

Atlas Copco, 2007, Mining Methods in Underground Mining, 144p.

Bise, C.J., 2003, Mining Engineering Analysis, Second Edition, Society for Mining, Metallurgy, and Exploration, 313p.

Darling, P. (Ed), 2011, SME Mining Engineering Handbook, Society for Mining, Metallurgy and Exploration, 1846p.

Hartman, H.L., 1987, Introductory Mining Engineering, John Wiley & Sons, 633p.

Hustrulid, W.A., Bullock, R.L. (Eds), 2001, Underground Mining Methods: Engineering Fundamentals and International Case Studies, Society for Mining, Metallurgy, and Exploration, 728 p.

Kennedy, B.A. (Ed), 1990, Surface Mining, 2nd Edition, Society for Mining, Metallurgy and Exploration, 1194p.

Papageorgiou, C., Roumpos, C., 2018, Basic Mining Operations in Surface mines, Public Power Corporation, General Directorate of Mines, 533 p.

Papageorgiou, C., Roumpos, C., 2018, Technology and Integrated Mechanization of Surface Mines, Public Power Corporation, General Directorate of Mines, 530 p.

Kolovos, C., 2004, Coal Exploitation Technology, ION Publications, 342 p.

- Related academic journals:

International Journal of Coal Geology, Elsevier
International Journal of Mining Science and Technology, Elsevier
International Journal of Mining, Reclamation and Environment, Taylor & Francis
Journal of Mining Science, Springer
Mining Journal, Aspermont Media
Mining Technology: Transactions of the Transactions of the Institutions of Mining and Metallurgy, Taylor & Francis