

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE934	SEMESTER	9
COURSE TITLE	CATASTROPHIC PHENOMENA		
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
LECTURES		2	
IN-CLASS EXERCISES		2	
TOTAL		4	4
<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>	Specialised general knowledge		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	https://eclass.uowm.gr/courses/MRE205/		

(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>Upon successful completion of the course, the student should know:</p> <ul style="list-style-type: none"> • the categories of catastrophic phenomena and their effects • how to calculate the probability of catastrophic phenomena related to mining and geotechnical projects, • how to study the risk and risk indicators • the methodology for dealing with and managing catastrophic phenomena

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

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
Project planning and management
Respect for the natural environment

(3) SYLLABUS

Calculus of random phenomena. Risk and risk of technical works. Calculation of risk and risk of technical work. Risk and cost of construction of a technical project. Risk assessment of a technical project. Parameters and characteristic functions. Distributions - Probabilities. Earthquakes, floods, Drought, Prevention, Risk indicators. Management of catastrophic phenomena. Examples of applications, adapted to mineral resource engineers.

(4) TEACHING and LEARNING METHODS - EVALUATION

<p style="text-align: center;">DELIVERY <i>Face-to-face, Distance learning, etc.</i></p>	Face-to-face	
<p style="text-align: center;">USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Use of projection system, organization and programming of the course and communication with students through the asynchronous e-learning platform open eclass.	
<p style="text-align: center;">TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>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.</i></p> <p><i>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	28
	Study of theory	24
	In-class exercises	28
	Homework	22
	Course total	100
<p style="text-align: center;">STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i></p> <p><i>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</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Mid-term written exam (40%), final written exam (60%).</p> <p>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: <i>Bhattacharyya, P., Chakrabarti, B., (Eds), 2006, Modelling Critical and Catastrophic Phenomena in Geoscience – A Statistical Approach, Lecture Notes in Physics, Springer, 527 pages</i> <i>Λέκκας, Ε.Λ., 2000, Φυσικές και Τεχνολογικές Καταστροφές, ACCESS Pre-Press, 270 pages</i></p> <p>- Related academic journals: <i>International Journal of Disaster Risk Reduction, Elsevier</i> <i>Journal of Natural Disasters</i></p>
