

COURSE OUTLINE

1. GENERAL

SCHOOL	ENGINEERING		
DEPARTMENT	ENVIRONMENTAL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	B7ΥΠ	SEMESTER	2
COURSE TITLE	ENVIRONMENTAL GEOLOGY		
TEACHING ACTIVITIES <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.</i>	TEACHING HOURS PER WEEK	ECTS CREDITS	
	4	5	
<i>Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
COURSE TYPE <i>Background, General Knowledge, Scientific Area, Skill Development</i>	BACKGROUND		
PREREQUISITES:	NO		
TEACHING & EXAMINATION LANGUAGE:	GREEK AND ENGLISH FOR ERASMUS STUDENTS		
COURSE OFFERED TO ERASMUS STUDENTS:	YES		
COURSE URL:			

2. LEARNING OUTCOMES

<p>Learning Outcomes <i>Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.</i></p> <p>A) Knowledge-based</p> <ul style="list-style-type: none"> • Environmental geology as a science • The concept of sustainability and important factors related to the environmental crisis • Knowing the interactions of water in soil processes. • Knowing the more important engineering properties of soil. • Understand relationships between land use and soils. • Knowing the stages of recovery following natural disasters and catastrophes • Understanding the nature and extent of the flood hazard • Knowing the major adjustments to flooding and which are environmentally preferable • Knowing the potential adverse environmental effects of channelization and the benefits of channel restoration • Understanding basic slope processes and the causes of slope failure • Knowing methods of identification, prevention, warning, and correction of landslides • Understanding processes related to land subsidence • Understanding the relationship of earthquakes to faulting • Understanding the methods that could potentially predict earthquakes
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- Knowing the major types of volcanoes, the rocks they produce, and their plate tectonic setting
- Knowing the major processes related to coastal erosion
- Understanding the various engineering approaches to shoreline protection
- Understanding the water cycle and basic surface water and groundwater processes
- Understanding environmental impact analysis

A) Skills/Competences acquired

- Introduce you to our natural environment and the human interactions and everyday problems with our environment and global community from a geological perspective.
- Develop greater self-awareness of your personal role regarding environmental issues.
- Increase awareness of environmental issues and how they affect society.
- Develop skills and insight into critical thinking and situational awareness of your surrounding environment.
- Gain an understanding of the physical processes that operate in and on earth.
- Understand the interactions between humans and these geological processes.
- Understand past, present, and future environmental issues and how they affect the earth and our society.

General Skills

Name the desirable general skills upon successful completion of the module

Search, analysis and synthesis of data and information,

ICT Use

Adaptation to new situations

Decision making

Autonomous work

Teamwork

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project design and management

Equity and Inclusion

Respect for the natural environment

Sustainability

Demonstration of social, professional and moral responsibility and sensitivity to gender issues

Critical thinking

Promoting free, creative and inductive reasoning

ICT use; Decision-making; Project design and management; critical thinking; autonomous work

3. COURSE CONTENT

Foundations of Environmental Geology: Philosophy and Fundamental Concepts, Population Growth, Sustainability, Systems, Limitation of Resources, Uniformitarianism, Hazardous Earth Process, and Geology as a Basic Environmental Science, Earth Materials and Process, Soils and Environment, Geology and Ecosystems. Hazardous Earth Processes: Introduction to Natural Hazards, Rivers and Flooding, Landslides and Related Phenomena, Earthquakes and Related Phenomena, Volcanic Activity, Coastal Hazards: Coastal Erosion. Resources and Pollution: Water Resources, Water Pollution, Mineral Resources and Environment, Energy and Environment. Global Perspective and Society: Global Climate Change, Geology and Society.

4. LEARNING & TEACHING METHODS - EVALUATION

<p>TEACHING METHOD <i>Face to face, Distance learning, etc.</i></p>	<p>Classroom lectures in using power-point overheads (uploaded in e-class) and blackboard-solved exercises. Personal course notes and weekly assignments are regularly updated on the e-class platform.</p>
<p>USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT)</p>	<p>Teaching algorithms and exercises for solving problems using Excel.</p>

<i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i>																	
<p>TEACHING ORGANIZATION</p> <p><i>The ways and methods of teaching are described in detail.</i></p> <p><i>Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc.</i></p> <p><i>The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i></p>	<table border="1"> <thead> <tr> <th style="text-align: center;"><i>Activity</i></th> <th style="text-align: center;"><i>Workload/semester</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: center;">39</td> </tr> <tr> <td>Exercises</td> <td style="text-align: center;">13</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	<i>Activity</i>	<i>Workload/semester</i>	Lectures	39	Exercises	13										
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<p>STUDENT EVALUATION</p> <p><i>Description of the evaluation process</i></p> <p><i>Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others</i></p> <p><i>Please indicate all relevant information about the course assessment and how students are informed</i></p>	<p>Course evaluation is based on the final written exam. The assessment Language is Greek/English (for Erasmus students).</p>																

5. SUGGESTED BIBLIOGRAPHY

1. Environmental Geology: An Earth System Science Approach, 2014, by D. Merritts, A. De Wet and K. Menking, W.H. Freeman, Second Edition, ISBN-13: 13: 978-1429237437
2. Environmental Geology, 2013, by C. Montgomery, McGraw-Hill, 10th edition, ISBN-13: 978-0073524115
3. Environmental Geology, 2010, by E.A. Keller, Prentice Hall, 9th Edition, ISBN-13: 978-0321643759.
4. Environmental Geology - Study Guide, 1995, by B.W. Murck, John Wiley & Sons, Inc., 96 edition, ISBN-13: 978-0471310334

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	
Contact details:	
Supervisors: (1)	
Evaluation methods: (2)	
Implementation Instructions: (3)	

- (1) Please write YES or NO
- (2) Note down the evaluation methods used by the teacher, e.g.
- *written assignment or/and exercises*
 - *written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.*
- (3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:
- a) in case of **written assignment and / or exercises**: the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and **any other necessary information**.
- b) in case of **oral examination with distance learning methods**: the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.
- c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.
- There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.