

COURSE OUTLINE

1. GENERAL

SCHOOL	APPLIED SCIENCES		
DEPARTMENT	ENVIRONMENTAL ENGINEERING		
LEVEL OF STUDY	Undergraduate		
COURSE UNIT CODE	GE5620	SEMESTER OF STUDY	6°
COURSE TITLE	INDUSTRIAL ROCKS AND MINERALS		
COURSEWORK BREAKDOWN		TEACHING WEEKLY HOURS	ECTS Credits
Lectures, Laboratory Exercises		4	5
COURSE UNIT TYPE	SC		
PREREQUISITES :	Non		
LANGUAGE OF INSTRUCTION/EXAMS:	Greek/English		
COURSE DELIVERED TO ERASMUS STUDENTS	YES		
MODULE WEB PAGE (URL)	http://geope.teikoz.gr/undergraduate/ug_studies.htm		

2. LEARNING OUTCOMES

Learning Outcomes

On successful completion of this module the learner will be able to:

- 1.To identify industrial ores and rocks
2. To understand their usage and their applications in industry
- 3.To apply quality control systems of industrial ores and rocks
- 4.To classify them according to their usage

General Skills

Upon successful completion of the programme students will:

- have the basic theoretical and practical knowledge in the fields of the subject area of Geotechnology and Environmental Engineering*
- be able to properly apply the theoretical and practical knowledge acquired during the study period*
- be able to cover a wide spectrum of scientific and technical knowledge related to mining and geotechnical projects as well as the sector of environmental reclamation*
- have gained the necessary competencies to proceed to their second cycle study.*

3. COURSE CONTENTS

Introduction in the field of industrial rock and minerals: Field characteristics – Classification – Environmental evaluation. Criteria for suitability assessment. Investigation and main use of the industrial rock and minerals, applications of specific industrial ore deposits: Smoothing – Fertilizers and other agricultural uses – Constructions – Chemical industry – Optical applications.

Environmental applications of I.R.M (asbestos, quartz, feldspars, talk, magnesite, mica, diatomite, emery, zeolite).
 Specific rock deposits: refractory materials– ceramic materials – ornamental rocks and materials – drilling materials – glass raw material. Perlite, clays, limestone, bentonite, phosphoric, zeolite.
 Environment and industrial ore and rocks.

4. TEACHING METHODS - ASSESSMENT

MODE OF DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY		
TEACHING METHODS	<i>Method description</i>	<i>Semester Workload</i>
	Theory	60
	Laboratory Exercises	40
		Total of lesson
ASSESSMENT METHODS	I. Lab and/or Project Work (40%) II. End of Semester Formal Examination (60%)	

5. RESOURCES

- *Recommended Book Resources:- Recommended Article/Paper Resources:*

- Peraki L.Th. 2007. Industrial rocks and minerals. NTUA edition. Athens.
- Kogel, J.E., Trivedi, N.C., Barker, J.M. and Krukowsk, S.T. (2006). Industrial Minerals & Rocks: Commodities, Markets, and Uses. 7th Edition, SME. Littleton Colorado, USA.
- Kuzvart, M. (1984). Industrial minerals and rocks. Elsevier.
- Carr, D. (1994). Industrial minerals and rocks.
- Manning, D. (1995). Introduction to industrial minerals. Chapman and Hall.
- Evans, A. M. (1993). Ore Geology and Industrial Minerals, An Introduction, 3rd Ed. Blackwell
- Bates, R.L. (2000). Geology of the Industrial Rocks and Minerals. Dover Books on Earth Sciences.
- Evans, A.M. (1987). An Introduction to Ore Geology, 2nd Ed. Blackwell
- Guilbert, J.M. and Park, C.F. (1986). The Geology of Ore Deposits: Freeman
- Jensen, M.L. and Bateman, A.M. (1981). Economic Mineral Deposits, 3rd Ed.: Wiley International Editions
- Edwards, R. and Atkinson, K. (1986). Ore Deposit Geology: Chapman and Hall
- Stanton, R. L. (1972). Ore Petrology: McGraw-Hill

Austin, G.S. (1982). Industrial rocks and minerals of the Southwest. A symposium on Industrial rocks and minerals of the Southwest, held May 12-15, 1981, in Albuquerque, New Mexico. New Mexico Bureau of Mines & Mineral Resources in Socorro, NM.

SC: Specialization Courses