

COURSE OUTLINE

1. GENERAL

SCHOOL	APPLIED SCIENCES		
DEPARTMENT	ENVIRONMENTAL ENGINEERING		
LEVEL OF STUDY	Undergraduate		
COURSE UNIT CODE	GE5240	SEMESTER OF STUDY	2°
COURSE TITLE	MINERALOGY		
COURSEWORK BREAKDOWN		TEACHING WEEKLY HOURS	ECTS Credits
Lectures, Laboratory Exercises		6	6.0
COURSE UNIT TYPE	SBC		
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

The course of mineralogy is separated into general and special mineralogy. Aim of general mineralogy is the synoptic and simple study of the basic principles of crystallography that concerns the relationship between the crystal structure of minerals and their qualities. Special mineralogy's aim is the classification of minerals into groups based on their physical and chemical qualities, into the analysis of the ways and conditions of their creation, the research for mineral resources, the economic evaluation of minerals and their usage into various economic and scientific aspects.

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

1. understand and represent clearly the basics and fundamentals of the mineralogical science, in order to use and apply them in the range of geotechnical, technical and environmental sciences.
2. Recognize Macroscopic the most important minerals (natives, sulfides, sulphates, Oxides, Carbonates, Silicates ect) .
3. Recognize microscopic the most important types of rocks.
4. Recognize the different crystallographic structures.

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-general principles,
- chemical bonds,
- crystallography-crystal physics-crystal chemistry,
- physical properties of minerals,
- extension of mineral study (macroscopic-geochemical method-pyro chemistry-liquid chemistry-DTA-XRF-XRD- scanning electron microprobe (SEM) – optical method),
- Identification and classification of minerals,
- special-systematic mineralogy (native elements, sulphid, oxide, hydroxide, carbonate, sulfates, silicates)

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	70
	Laboratory Exercises	90
	Field trips	10
	Personal Learning	10
	Total of lesson	180
ASSESSMENT METHODS	<ol style="list-style-type: none"> 1. Final Examination 50% 2. Laboratory Examination 50% 	

5. RESOURCES

- Recommended Book Resources:

- Recommended Article/Paper Resources:

- Σεραφείμ Σαββίδης, 2008. ΟΡΥΚΤΟΛΟΓΙΑ. S.G.S. ΚΟΖΑΝΗ
- Η. Σ. ΣΑΠΟΥΝΤΖΗΣ, Στοιχεία Ορυκτολογίας, University Studio Press, Θεσσαλονίκη, 1985.
- Π. ΚΟΚΚΟΡΟΣ, Γενική Ορυκτολογία, Έκδοση Η, Εκδόσεις Δ.Ν. Παπαδήμα, Αθήνα, 1982.
- Ch. HURLBUT, Dana's manual of mineralogy, 17. Aufl., John Wiley, New York, 1959.
- Ch. HURLBUT, Jr. Klein, Manual of mineralogy, 19. Aufl., John Wiley, New York, 1977.

- CW. CORRENS, Einführung in die Mineralogy, 2. Aufl., Springer, Berlin, Heidelberg, New York, 1981.
- P. RAMDOHR, H. Strunz, Klockmanns Lehrbuch der Mineralogy, 16. Aufl., Enke, Stuttgart, 1978.
- E. NICKEL, Grundwissen in Mineralogie, Teil I, II, III, Otto Thun, Munchen, 1971.
- W. KLEBER, Einführung in die Kristallographie, 14. Aufl., VEB Verlag Technik, Berlin, 1979. C.W. MONTGOMERY, Fundamentals of Geology, WCP Publishers, 1997.
- R. THORPE, G. BRAUN, The field description of igneous rocks, John Wiley & Sons, Chichester, 1995.
- N. FRY, The field description of metamorphic rocks, John Wiley & Sons, Chichester, 1997.
- M.E. TUCKER, Sedimentary rocks in the field, John Wiley & Sons, Chichester, 1993.

Journals

Mineral Health

Mineralium deposita

SBC: Specific Background Courses