

COURSE OUTLINE

(1) GENERAL

SCHOOL	ENGINEERING		
ACADEMIC UNIT	MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE206	SEMESTER	2 nd
COURSE TITLE	SYSTEMATIC MINERALOGY		
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	2	
LABORATORY EXERCISES	2	2	
<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>	COMPULSORY -SPECIALIZED KNOWLEDGE		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS			
COURSE WEBSITE (URL)	http://eclass.uowm.gr/courses/MRE224		

(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>After the successful attendance of the course students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the concept, the characteristics, and the physical properties of minerals 2. Understand the classification of minerals into groups 3. Analyze the ways and conditions of mineralization 4. Research and compare the deposits, the economic significance in the use of each mineral into the various economic and scientific fields.

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

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Others...

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- Students learn to recognize a mineral both in nature and in laboratory.
- Students acquire the ability to study and research the minerals with the use of both the traditional methods of liquid chemistry and modern methods of the minerals (DTA-XRF, XRD etc.)
- Students familiarize themselves with the relationship between the crystalline structure of minerals and their physicochemical properties.

(3) SYLLABUS

- The course of Mineralogy is divided into General and Specialized Mineralogy. The aim of General Mineralogy is the brief and plain study of the basic principles of crystallography, which bind the relationship between the crystalline structure of minerals and their properties.
- Introduction – General concepts
- Chemical bond
- Crystallography – Crystallophysics – Crystallochemistry
- Physical properties of minerals
- Methods of mineral study (macroscopically – geochemical method – pyrochemistry – liquid chemistry – DTA – XFR, XRD – analysis method with microanalyzer – optical method)
- Mineral Diagnostics
- Classification of minerals into categories (native elements, sulfides, carbonates, halides, oxides, silicates, etc.)

(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 ICT in teaching, laboratory education, communication with students	
<p style="text-align: center;">TEACHING METHODS <i>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.</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	26
	Laboratory Practice	26
	Independent & Guided learning	45
	Educational visits	23
	Course total	120
<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>Language of assessment: Greek</p> <p>Methods of evaluation:</p> <ul style="list-style-type: none"> • Formative • Multiple choice questionnaires • Short-answer questions • Written assignment • Essay/Report • Oral examination • Practice assignment • Public Presentation 	

(5) SUGGESTED BIBLIOGRAPHY

- Προτεινόμενη Βιβλιογραφία:

- Βασικές αρχές και εφαρμογές Ορυκτολογίας, Σεραφείμ Σαββίδη, ΑΛΕΞΑΝΔΡΟΣ ΙΚΕ, 2019, 978-618-84448-5-0 .
- 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 Mineralogie, 2. Aufl., Springer, Berlin, Heidelberg, New York, 1981.
- P. RAMDOHR, H. Strunz, Klockmann's Lehrbuch der Mineralogie, 16. Aufl., Enke, Stuttgart, 1978.
- E. NICKEL, Grundwissen in Mineralogie, Teil I, II, III, Otto Thun, München, 1971.
- W. KLEBER, Einführung in die Kristallographie, 14. Aufl., VEB Verlag Technik, Berlin, 1979.

-Related academic journals:

- Mineral Wealth
- Mineralium Deposita