

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE994	SEMESTER	9
COURSE TITLE	Instrumental Methods of Mineralogic Analysis		
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
Lab exercises		2	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:	No		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)	https://eclass.uowm.gr/courses/MRE196/		

(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>The course aims to provide the necessary knowledge for the use of modern, instrumental methods of mineralogical analysis.</p> <p>On successful completion of the course, students will be able with the:</p> <ul style="list-style-type: none"> ✓ Usage of modern analytical devices and electronic instruments. ✓ Mineral chemical analysis procedures. ✓ Identification and qualitative determination of mineral phases. ✓ Statistical processing and interpretation of the results.
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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The course aims at:

Search, analysis and synthesis of data and information

Working independently

Production of free, creative and inductive thinking

(3) SYLLABUS

The following techniques are taught:

- Processing of samples (grinding, preparation of thin and glossy sections)
- Raman spectroscopy
- Infrared spectroscopy (FTIR)
- Thermal Analysis
- Electron microscopy (SEM) and chemical analysis (EDS/WDS)
- X-ray diffraction analysis (XRD)
- Atomic Force Microscopy (AFM)
- X-ray fluorescence spectrometry (XRF).
- Statistical processing of analytical data and handling of errors.

(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 data projector, asynchronous training platform – eclass, laboratory education.	
<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	55
	Lab work	25
	Lectures study	20
	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><i>Language of Assessment: Greek</i></p> <p><i>Evaluation methods:</i></p> <p><i>Theory: 50% Final Written Examination (Short Answer Questions, Essay Development Questions).</i></p> <p><i>Laboratory: Laboratory Exercises Written Examination, Problem Solving 50%</i></p> <p>Assessment criteria are provided in the course page on the eclass platform and are available to students from the start of the semester.</p>	

(5) SUGGESTED BIBLIOGRAPHY

<p>- Suggested bibliography:</p> <p>ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΟΡΥΚΤΟΛΟΓΙΑ Κωδικός Βιβλίου στον Εύδοξο: 91711862 Συγγραφείς: Αθανάσιος Γκοντελίτσας ISBN: Τύπος: Δωρεάν Ηλεκτρονικό Βοήθημα / Σημειώσεις Διαθέτης (Εκδότης): ΑΘΑΝΑΣΙΟΣ ΓΚΟΝΤΕΛΙΤΣΑΣ</p> <p>Βασικές Αρχές και Εφαρμογές Ορυκτολογίας Κωδικός Βιβλίου στον Εύδοξο: 86198406 Έκδοση: 1η/2019 Συγγραφείς: Σεραφείμ Γ. Σαββίδης ISBN: 978-618-84448-5-0 Τύπος: Σύγγραμμα Διαθέτης (Εκδότης): ΑΛΕΞΑΝΔΡΟΣ Σ. Ι.Κ.Ε.</p> <p>Γενική Ορυκτολογία</p>

Κωδικός Βιβλίου στον Εύδοξο: 86198085

Έκδοση: 1η/2019

Συγγραφείς: Σεραφείμ Γ. Σαββίδης

ISBN: 978-618-84448-1-2

Τύπος: Σύγγραμμα

Διαθέτης (Εκδότης): ΑΛΕΞΑΝΔΡΟΣ Σ. Ι.Κ.Ε.

ΟΡΥΚΤΟΛΟΓΙΑ: ΣΥΣΤΗΜΑΤΙΚΗ ΤΑΞΙΝΟΜΗΣΗ ΤΩΝ ΟΡΥΚΤΩΝ

Κωδικός Βιβλίου στον Εύδοξο: 77112087

Έκδοση: 1/2016

Συγγραφείς: ΠΑΠΟΥΛΗΣ ΔΗΜΗΤΡΙΟΣ, ΛΑΜΠΡΟΠΟΥΛΟΥ ΠΑΡΑΣΚΕΥΗ

ISBN: 978-960-9495-88-2

Τύπος: Σύγγραμμα

Διαθέτης (Εκδότης): ΕΚΔΟΣΕΙΣ ΔΙΣΙΓΜΑ ΙΚΕ

Βασικές Αρχές και Εφαρμογές Ορυκτολογίας

Κωδικός Βιβλίου στον Εύδοξο: 59394712

Έκδοση: 1/2014

Συγγραφείς: Σεραφείμ Γ. Σαββίδης

ISBN: 978-869-80374-3-4

Τύπος: Σύγγραμμα

Διαθέτης (Εκδότης): ΑΛΕΞΑΝΔΡΟΣ Σ. Ι.Κ.Ε.

ΟΡΥΚΤΟΛΟΓΙΑ-ΠΕΤΡΟΛΟΓΙΑ

Κωδικός Βιβλίου στον Εύδοξο: 38144135

Έκδοση: 4η/2013

Συγγραφείς: Στέργιου Θεοδωρίκα

ISBN: 978-960-89904-6-3

Τύπος: Σύγγραμμα

Διαθέτης (Εκδότης): ΓΡΑΦΙΚΕΣ ΤΕΧΝΕΣ «ΜΕΛΙΣΣΑ» Α.Ε.

ΟΠΤΙΚΗ ΟΡΥΚΤΟΛΟΓΙΑ

Κωδικός Βιβλίου στον Εύδοξο: 22768264

Έκδοση: 1/2012

Συγγραφείς: ΧΡΙΣΤΟΦΙΔΗΣ Γ. - ΣΟΛΔΑΤΟΣ Τ.

ISBN: 978-960-6700-80-4

Τύπος: Σύγγραμμα

Διαθέτης (Εκδότης): ΕΚΔΟΣΕΙΣ ΓΙΑΧΟΥΔΗ Ι.Κ.Ε.

- Related academic journals:

- *Reviews in Mineralogy and Geochemistry*
- *Contributions to Mineralogy and Petrology*
- *European Journal of Mineralogy*
- *European Mineralogical Union Notes in Mineralogy*
- *Mineralogy and Petrology*
- *Bulletin of Mineralogy Petrology and Geochemistry*
- *Reviews in Mineralogy*