

COURSE OUTLINE

(1) GENERAL

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| SCHOOL | SCHOOL OF ENGINEERING | | |
| ACADEMIC UNIT | DEPARTMENT OF MINERAL RESOURCES ENGINEERING | | |
| LEVEL OF STUDIES | UNDERGRADUATE | | |
| COURSE CODE | MRE403 | SEMESTER | 4 |
| COURSE TITLE | INTERPRETATION AND ANALYSIS OF GEOLOGICAL MAPS | | |
| 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 | | 3 | 3 |
| Lab exercises | | 2 | 2 |
| Total | | 5 | 5 |
| <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> | General background | | |
| PREREQUISITE COURSES: | | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS: | Greek | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | Yes | | |
| COURSE WEBSITE (URL) | https://eclass.uowm.gr/courses/MRE135/ | | |

(2) LEARNING OUTCOMES

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| <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>On successful completion of the course, students will be able to:</p> <ul style="list-style-type: none"> ✓ Describe and identify geological structures. ✓ Know and understand the use of the geological compass in combination with topographical-geological maps. ✓ Interpret and analyze the geological map by constructing simple structural maps. ✓ Construct simple geological sections using structure contours or measurements of geological surfaces or drilling data. ✓ Perform simple geometric calculations on geological maps and sections. ✓ Compose the geological history of a mapped area. |

✓ **Do geometric mapping.**

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| General Competences | |
| <i>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?</i> | |
| <i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> | <i>Project planning and management</i> |
| <i>Adapting to new situations</i> | <i>Respect for difference and multiculturalism</i> |
| <i>Decision-making</i> | <i>Respect for the natural environment</i> |
| <i>Working independently</i> | <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> |
| <i>Team work</i> | <i>Criticism and self-criticism</i> |
| <i>Working in an international environment</i> | <i>Production of free, creative and inductive thinking</i> |
| <i>Working in an interdisciplinary environment</i> | |
| <i>Production of new research ideas</i> | <i>Others...</i> |
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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 modules in this course cover:
- Types of thematic geological maps. Topographic map data. Elements of geological map. Geological compass and orientation of surface and linear elements. Structure contours – structural maps. Problem of the 'three points'. Interpretation and analysis of geological maps in areas of inclined layers, unconformities, faults, folds. Methods of constructing simple geological sections with various techniques. Geometric calculations on geological maps and sections. Geological mapping by geometric method. Relative dating – geological history of the map area.
 - Laboratory exercises: Interpretation and analysis of geological maps and construction of geological sections (inclined layers, unconformities, faults, folds). Problem of the 'three points'. Geological mapping by geometric method. Measurements with geological compass.

(4) TEACHING and LEARNING METHODS - EVALUATION

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| DELIVERY <i>Face-to-face, Distance learning, etc.</i> | Face to face | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i> | Use of data projector, asynchronous training platform – eclass, laboratory education. | |
| 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. 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> | Activity | Semester workload |
| | Lectures | 55 |
| | Lab work | 30 |
| | Field work | 10 |
| | Lectures study | 30 |
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| | Course total | 125 |
| STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure 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 Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i> | <p><i>Language of Assessment: Greek</i></p> <p><i>Evaluation methods:</i></p> <p><i>Theory: 60% Final Written Examination (Short Answer Questions, Essay Development Questions).</i></p> <p><i>Laboratory: Laboratory Exercises Written Examination, Problem Solving 40%</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

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| <p>- Suggested bibliography:</p> <ul style="list-style-type: none"> • Barnes J. (1995). "Basic Geological Mapping". England, 133pp. • Bennison G.M., Moseley K.A. (1997). "GEOLOGICAL STRUCTURES AND MAPS". 6th ed. The Bath Press, UK, 129pp. • Bolton T. (1989). "Geological Maps. Their Solution and Interpretation". Cambridge University Press, 144pp. • Boulter C.A. (1989). "Four Dimensional Analysis of Geological Maps. Techniques of Interpretation". John Wiley & Sons, Chichester, New York, Brisbane, Toronto, Singapore, 296pp. • Butler B.C.M., Bell J.D. (1990). "Interpretation of Geological Maps". (Longman earth science series), Longman Singapore Publishers Pte Ltd, 236pp. • Davis G.H., Reynolds S.J. (1996). "Structural Geology of rocks and regions". 2nd ed., John Wiley & sons, Inc, 776pp. • Lisle R. (1988). "Geological Structures and Maps". Elsevier, 106pp. • Powell D. (1994). "Interpretation of Geological Structures through Maps". Longman Singapore Publishers Pte Ltd, 176pp. • Maltman A. (1990). "Geological maps. An introduction". Open University Press, 184pp. • Rowland S.M., Duebendorfer E.M., Schiefelbein I.M. (2007). "Structural Analysis and Synthesis. A Laboratory Course in Structural Geology". 3rd ed., Maldon, Oxford, Carlton: Blackwell publishing, 300pp. • Simpson B. (1968). "GEOLOGICAL MAPS". PERGAMON PRESS, 98pp. |
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- *Spencer E.W. (1993). "GEOLOGIC MAPS. A practical guide to the interpretation and preparation of geologic maps". Washington and Lee University. Macmillan Publishing Company, New York, 150pp.*
- *Weijermars R. (1997). "Structural Geology and Map Interpretation". Amsterdam: Alboran Science Publishing. 297pp.*
- *Μουντράκης Μ. Α. (2020). «Γεωλογία και γεωτεκτονική εξέλιξη της Ελλάδας». 2η έκδοση, UNIVERSITY STUDIO PRESS, 324 σελ.*

- *Related academic journals:*

- *Geology*
- *Geological Journal*
- *Geological magazine*
- *Geomorphology*
- *Geosciences*
- *Journal of Geosciences*
- *Journal of Structural Geology*
- *The Journal of Geology*