COURSE OUTLINE

1. GENERAL

SCHOOL	APPLIED SCIENCES		
DEPARTMENT	ENVIRONMENTAL ENGINEERING		
LEVEL OF STUDY	UNDERGRADUATE		
COURSE UNIT CODE	GE5340	**SEMESTER OF STUDY**	3^{o}
COURSE TITLE	GEOLOGICAL MAPPING		

COURSEWORK BREAKDOWN	**TEACHING WEEKLY HOURS**	**ECTS Credits**
THEORY, PRACTICAL EXERCISES, LABORATORY EXERCISES	5	6

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

This module aims to give the students the knowledge about the geometry and nomenclature of geological structures and the understanding that the 3D geometry can be interpreted from map data.

Using synthetic and real geological maps the student will be introduced to the basic understanding of geological maps as representations of the 3D interaction of geological surfaces with topography.

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

- describe and identify the geological structures
- analyze and interpret the two-dimensional representations of three-dimensional structures in geological maps
- use the compass-clinometer
- construct geological cross-sections
- synthesize the geological history of a mapped area

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.

- Search, analysis and synthesis of data and information

- Autonomous working
- Team work

3. COURSE CONTENTS

- Topographic map – topographic profile
- Information on geological maps
- Analysis of planar surfaces and linear structures
- Geometry of sedimentary rocks
- Homoclinal beds (horizontal and dipping strata)
- "Three-point" problem
- Unconformities
- Folds
- Faults
- Igneous and volcanic rocks
- Geological history of map

4. TEACHING METHODS - ASSESSMENT

MODE OF DELIVERY	Face to face
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	Power point presentations and self-assessment test in the Blackboard. Student contact electronically.
TEACHING METHODS	

Method description	***Semester Workload***
lectures	35
Practical exercises	35
laboratory work	35
field work	10
autonomous study	35
Total	***150***

ASSESSMENT METHODS	Final Written Examination (60%) Laboratory Exercises Written Examination (40%)

5. RESOURCES

- Recommended Book Resources:

- KILIAS, A. (1985). *Introduction to tectonics geology.* Aristotle University of Thessaloniki, Thessaloniki, 312 p. {ΚΙΛΙΑΣ, Α. (1985). *Εισαγωγή στην τεκτονική γεωλογία.* Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης, Θεσσαλονίκη, 312σ.}

- ΚΟΥΚΟΥΒΕLAS, I. (1998). *Tectonics geology.* Department of geology, University of Patras, 303 p. {ΚΟΥΚΟΥΒΕΛΑΣ, Ι. (1998). *Τεκτονική γεωλογία.* Τμήμα Γεωλογίας πανεπιστημίου Πατρών, 303σ.}

- CHATZIDIMITRIADIS, E. (1991). *Geological mapping.* Aristotle University of Thessaloniki, Thessaloniki, 169 p. {ΧΑΤΖΗΔΗΜΗΤΡΙΑΔΗΣ, Ε. (1991). *Γεωλογικές χαρτογραφήσεις.* Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης, Θεσσαλονίκη, 169σ.}

- BARNES, J. (1995). *Basic Geological Mapping.* England, 133p.
- BENNISON, G.M. & MOSELEY, K.A. (1997). An Introduction to Geological Structures and Maps. Oxford University Press Inc., New York, 129 pp. [ISBN: 0340692405].
- BOLTON, T. (1989). *Geological Maps. Their solution and Interpretation.* Cambridge University press, pp.144. [ISBN: 0521361583].
- BUTLER, B. C. M. & BELL, J. D. (1990). *Interpretation of Geological Maps.* (Longman earth science series), Longman Singapore Publishers Pte Ltd, 236p.
- DAVIS, G. H. & REYNOLDS, S. J. (1996). *Structural Geology of rocks and regions.* John Wiley & sons, Inc, 776p.
- POWELL, D. (1994). *Interpretation of Geological Structures through Maps.* Longman Singapore Publishers Pte Ltd, 176p. [ISBN: 0470-21822-3].
- SPENCER, EDGAR, W. (1993). *GEOLOGIC MAPS. A practical guide to the interpretation and preparation of geologic maps.* Washington and Lee University. Macmillan Publishing Company, New York, 150p. [ISBN: 0-02-414740-0].
- WEIJERMARS, R. (1997). Structural Geology and Map Interpretation. Alboran Science Publ., 378 pp.WEIJERMARS, R. (1997). Structural Geology and Map Interpretation. Alboran Science Publ., 378 pp.

- Recommended Article/Paper Resources:

SBC: Specific Background Courses