COURSE OUTLINE

1. GENERAL

SCHOOL	ENVIRONMENT AND AGRICULTURAL ENGINEERING		
ACADEMIC UNIT	NATURAL RESOURCES AND AGRICULTURAL ENGINEERING		
LEVEL OF STUDIES	POSTGRADUATE		
COURSE CODE	**630029**	**SEMESTER**	**2nd**
COURSE TITLE	LONG-TERM GEO(GEOLOGICAL AND ENVIRONEMTAL) CHANGES		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures	3	3
Essays		2
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).	3	5

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special Background Skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	

2. LEARNING OUTCOMES

Learning outcomes

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.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The geoenvironment is characterized by significant modifications and changes that are expressed either as abrupt/sudden catastrophic events (earthquakes, flash floods, tsunami) as well as gradual, cumulative processes such as erosion, sedimentation and desertification. The second category that focuses on the long-term processes is equally important regarding the landscape modifications and the wider impact on the geoenvironment, the natural resources and human infrastructure.

The goal of the course is to understand the long-term natural processes and mechanisms that govern the geoenvironment and proceed with environmental and natural hazard planning and prevention measures. The students will comprehend that the spatial distribution of these long-term changes are defined by geological, geodynamic processes and their interaction with human interventions and infrastructures.

Students will be introduced to innovative and modern methodologies regarding the study of these landscape modifications and desertification phenomena and they will combine them with knowledge obtained from courses of the previous semester. In particular, they will use remote sensing techniques for monitoring purposes (change detection from Satellite images, UAV Photogrammetry, t-Lidar and GNSS) as well as environmental indices. In addition, students will construct hazard maps in Geographical Information Systems in order to plan for prevention, mitigation as well as recovery

measures (in postfire settings).

eGeneral 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	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

Respect for the natural environment
Working in an interdisciplinary environment
Decision-making
Project planning and management
Search for, analysis and synthesis of data and information, with the use of the necessary technology

3. SYLLABUS

Landscape analysis, Hydrological basins and Hydrographic network, Hydrographic density and frequency, High Spatial Resolution technologies for change detection (Point clouds, Lidar, Photogrammetry, UAV), tectonic geomorphology- Erosion and sedimentation processes, River deltas and how they are modified through time, soil erosion, Soil erosion risk assessment by using the models RUSLE and PESERA, postfire erosion effects, Land desertification and evolution of the Earth, Natural and human parameters, Natural resources and Desertification, Drought, Combating measures for desertification, Infiltration and surface run off phenomena, Desertification and secondary salinization of the intensively irrigated soils.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY
Face-to-face, Distance learning, etc.

Face to Face

Usage of Lab equipment

USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students

Powerpoint presentations

Web applications

TEACHING METHODS
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

Activity	***Semester workload***
Lectures	36
Project	50
Homework	39
Course total	***125***

STUDENT PERFORMANCE EVALUATION
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

Final Project (100%) including:
- presentation
- oral examination

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.*	

5. ATTACHED BIBLIOGRAPHY

- Related academic journals:
1) Geomorhology
2) Sedimentology
3) Catena
4) Geoderma
5) Quaternary International
6) Quaternary Research
7) European Journal of Soil Science
8) Quaternary Science Reviews
9) Earth and Planetary Science Letters
10) Nature Communications, Geoscience, Scientific Reports
11) Remote Sensing