

## COURSE OUTLINE

### 1. GENERAL

<b>SCHOOL</b>	ENVIRONMENT AND AGRICULTURAL ENGINEERING		
<b>ACADEMIC UNIT</b>	NATURAL RESOURCES AND AGRICULTURAL ENGINEERING		
<b>LEVEL OF STUDIES</b>	POSTGRADUATE		
<b>COURSE CODE</b>	<b>630031</b>	<b>SEMESTER</b>	<b>2<sup>nd</sup></b>
<b>COURSE TITLE</b>	GEOARCHAEOLOGY		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <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>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
Lectures		3	3
Essays			2
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>		3	5
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Special Background Skills development		
<b>PREREQUISITE COURSES:</b>			
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes		
<b>COURSE WEBSITE (URL)</b>			

### 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 Geoarchaeology combines elements from both the Archaeology and Geology in order to trace and detect the natural and anthropogenic factors that influence the archaeological sites and sediments therein, either focusing on a specific settlement or on the entire landscape. Students will develop the ability to identify and critically assess the natural and anthropogenic processes that have formed and altered the image of our planet and become familiar with the Historical Landscape.

Students will comprehend how the geoenvironment and the natural resources define the localities of the archaeological sites. The course focuses on how the geological and geodynamic processes influence the landscape modifications and their impact on the natural resources, land use and human infrastructure.

Students will be capable to apply the appropriate sampling techniques or field data collection methods, recognize the scientific question and select the appropriate methodology, combining knowledge from the whole spectrum of the Geosciences, in order to address specific interdisciplinary questions.

Students will be introduced to innovative technologies regarding the study of these geoarchaeological sites based on remote sensing (satellite images, UAV Photogrammetry, Terrestrial Lidar) and geophysical studies (Georadar). Students will be able to process, evaluate and synthesize geoenvironmental data, by assessing and combining their results, in order to answer

gearchaeological questions (e.g. how ancient societies interacted with the geoenvironment and how the impacts of catastrophic events are recorded in the geomorphological and geological record).

### 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?*

<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>
	.....

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

Introduction to humans and the geoenvironment, basic principles of Archaeology. Climatic cycles in the Quaternary and impacts on humans, paleoanthropology. Dating methods in environments of archaeological interest: Geochronology, archaeological time, absolute chronologies and dating models. Contribution of the study of fossils (microfossils, osteological material, plant remains, pollen, palynomorphs) in archaeological research and the interpretation of the palaeoenvironment. Reconstructing coastal/terrestrial paleoenvironments, shallow marine environments, Case-studies from Greece. Historic landscape, interaction between humans and the environment, effects of climatic variations on human societies, land use strategies, site selection of early human settlements. Archaeoseismology, Lidar, UAV photogrammetry and GPR techniques in ge archaeology, Active Faults and ancient temples, landscape modifications from historic catastrophic events, tsunami sediments and case-studies in the Greek territory. Practical: processing of palaeobiological data through appropriate methodologies in order to address ge archaeological questions

### 4. TEACHING and LEARNING METHODS - EVALUATION

<p><b>DELIVERY</b>  <i>Face-to-face, Distance learning, etc.</i></p>	<p>Face to Face</p> <p>Usage of Lab equipment</p> <p>practice with the use of microscopes, Pc's and specialized software</p>																			
<p><b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>  <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	<p>Powerpoint presentations</p> <p>Web applications</p>																			
<p><b>TEACHING METHODS</b>  <i>The manner and methods of teaching are described in detail.</i>  <i>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>	<table border="1"> <thead> <tr> <th><i>Activity</i></th> <th><i>Semester workload</i></th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td>30</td> </tr> <tr> <td>Project</td> <td>50</td> </tr> <tr> <td>Homework</td> <td>35</td> </tr> <tr> <td>practicals</td> <td>10</td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	<i>Activity</i>	<i>Semester workload</i>	Lectures	30	Project	50	Homework	35	practicals	10									
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	Course total	125
<p align="center"><b>STUDENT PERFORMANCE EVALUATION</b></p> <p><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 evaluation: Greek (English for Erasmus students)</p> <p>Written essay on subject chosen from list of topics/oral examination of subject (65%),</p> <p>Short individual practice exercises that include the application of methodologies for the solution of relevant problems (35%)</p>	

## 5. ATTACHED BIBLIOGRAPHY

### *Recommended Bibliography :*

- Karkanas P., 2010. Introduction to Geoarchaeology. Nefeli Publ. (in greek)*
- Karkanas P., Goldberg P., 2018. Reconstructing Archaeological Sites: Understanding the Geoarchaeological Matrix, Wiley-Blackwell*
- Renfrew C. & Bahn P., 1996. Archaeology: Theories, methodology and Practice. 2<sup>nd</sup> edition Publisher: Thames and Hudson, London.*
- Shennan, I., Long, A. J., Horton, B. P. (Eds.), 2015. Handbook of sea-level research, John Wiley & Sons*
- Related academic journals:*
- 1) Geoarchaeology*
  - 2) Sedimentology*
  - 3) Catena*
  - 4) Geomorphology*
  - 5) Quaternary International*
  - 6) Quaternary Research*
  - 8) Quaternary Science Reviews*
  - 9) Geobios*
  - 10) Nature Communications, Geoscience, Scientific Reports*
  - 11) Anthropocene*
  - 12) Palaeogeography, Palaeoclimatology, Palaeoecology*
  - 13) Journal of Archaeological Science*