

COURSE OUTLINE

1. GENERAL

SCHOOL	Agricultural and Forestry Sciences		
DEPARTMENT	FORESTRY AND MANAGEMENT OF ENVIRONMENT AND NATURAL RESOURCES		
LEVEL OF STUDIES	7		
COURSE CODE	ΔΣΠΜΣΠΣΠΕΒΕ2	SEMESTER	B
COURSE TITLE	GEOGRAPHIC INFORMATION SYSTEMS IN NATURAL RESOURCES MANAGEMENT		
TEACHING ACTIVITIES <i>If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.</i>		TEACHING HOURS PER WEEK	ECTS CREDITS
		3	7,5
<i>Please, add lines if necessary. Teaching methods and organization of the course are described in section 4.</i>			
COURSE TYPE <i>Background, General Knowledge, Scientific Area, Skill Development</i>			
PREREQUISITES:	NO		
TEACHING & EXAMINATION LANGUAGE:	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS:	NO		
COURSE URL:	https://eclass.duth.gr/courses/1425303/		

2. LEARNING OUTCOMES

Learning Outcomes

Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.

The purpose of the course is to introduce students to geographic information science and set the foundations for the understanding of basic concepts of Geographic Information Systems (GIS), the processing and analysis of geospatial data, and the use of tools and methods in applications related to exploitation and management of natural resources. The intended learning outcomes for the students upon completion of the individual modules are summarized as follows:

- Understanding basic concepts and principles of GIS.
- Ability to process and analyze different data structures and models.
- Ability to organize, import and manage geospatial data within a GIS environment.
- Acquaintance with specialized GIS software after hands-on training.
- Ability to perform spatial analysis in simple or complex natural resource management related problems.
- Ability to compose thematic forest information maps.

General Skills

Name the desirable general skills upon successful completion of the module

*Search, analysis and synthesis of data and information,
ICT Use*

Adaptation to new situations

Decision making

Autonomous work

Teamwork

Working in an international environment

Project design and management

Equity and Inclusion

Respect for the natural environment

Sustainability

Demonstration of social, professional and moral responsibility and sensitivity to gender issues

Critical thinking

*Working in an interdisciplinary environment
Production of new research ideas*

Promoting free, creative and inductive reasoning

Search, analysis and synthesis of data and information
ICT Use
Autonomous work
Apply knowledge in practice
Decision making
Respect for the natural environment

3. COURSE CONTENT

1. Introduction to GIS — basic principles and concepts
2. Sources and types of spatial data
3. Input of spatial data in GIS environment
4. Geodetic reference systems and cartographic projections
5. Geographical Databases
6. Spatial analysis of vector data
7. Spatial Analysis with raster data
8. Spatial data modeling - Spatial interpolation
9. Basic principles of map composition and cartography
10. GIS applications in forestry and natural resource management
11. Current trends in the field of GIS
12. Case studies and exercise assignments
13. Presentation of exercises

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD <i>Face to face, Distance learning, etc.</i>	Face to face, Distance learning	
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) <i>Use of ICT in Teaching, in Laboratory Education, in Communication with students</i>	Use of ICT in Course Teaching Use of ICT in Communication with Students Use of ICT in Student Assessment	
TEACHING ORGANIZATION <i>The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research & analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. The supervised and unsupervised workload per activity is indicated here, so that total workload per semester complies to ECTS standards.</i>	Activity	Workload/semester
	Lectures	55
	Bibliographic research & analysis	30
	Practical training	40
	Written assignment	62.5
	Total	187.5
STUDENT EVALUATION <i>Description of the evaluation process Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others</i>	Written Assignments (60%) Presentation in audience (20%) Laboratory exercise (20%)	

Please indicate all relevant information about the course assessment and how students are informed

5. SUGGESTED BIBLIOGRAPHY

- Κουτσόπουλος Κωστής Χ., 2002, Γεωγραφικά Συστήματα Πληροφοριών και Ανάλυση Χώρου, Εκδόσεις Παπασωτηρίου, ISBN:960-7530-20-9
- Χαλκιάς, Χ., & Γκούσια, Μ. (2015). Γεωγραφική ανάλυση με την αξιοποίηση της γεωπληροφορικής. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις. <http://hdl.handle.net/11419/4546>
- Robinson, J. Morrison, Ph.Muehrcke, A. Kimerling, S. Gutpill, Στοιχεία Χαρτογραφίας, Πανεπιστημιακές Εκδόσεις ΕΜΠ, 2002.
- Paul A. Longley, Michael F. Goodchild, David J. Maguire, David W. Rhind, 2015. Geographic Information Systems and Science, 4th ed.

ANNEX OF THE COURSE OUTLINE

Alternative ways of examining a course in emergency situations

Teacher (full name):	Thomas Katagis
Contact details:	Email: tkatagis@fmenr.duth.gr Communication via Microsoft Teams
Supervisors: (1)	YES
Evaluation methods: (2)	Oral examination with distance learning methods or/and written assignment
Implementation Instructions: (3)	<p>I. The oral examination will take place in groups of 5 people, in alphabetical order, on the day of the course exams according to the official schedule.</p> <p>The examination will be conducted via Microsoft Teams. The corresponding link will be sent to the institutional accounts of the students via the e-class platform. Prior to this, the student shall have registered for the course and be informed of the distance education terms.</p> <p>Students must log into the exam room only through their institutional account. For the examination a camera will be required to be open during the whole time period of examination. Before the start of the exam, students will show their ID to the camera so that they can be identified.</p> <p>The written assignment shall be submitted during the week designated as the examination period of the semester. In any case, the exact grading method will be communicated timely and in detail by the teacher.</p>

(1) Please write YES or NO

(2) Note down the evaluation methods used by the teacher, e.g.

➤ *written assignment or/and exercises*

➤ written or oral examination with distance learning methods, provided that the integrity and reliability of the examination are ensured.

(3) In the **Implementation Instructions** section, the teacher notes down clear instructions to the students:

a) in case of **written assignment and / or exercises**: the deadline (e.g. the last week of the semester), the means of submission, the grading system, the grade percentage of the assignment in the final grade and **any other necessary information**.

b) in case of **oral examination with distance learning methods**: the instructions for conducting the examination (e.g. in groups of X people), the way of administration of the questions to be answered, the distance learning platforms to be used, the technical means for the implementation of the examination (microphone, camera, word processor, internet connection, communication platform), the hyperlinks for the examination, the duration of the exam, the grading system, the percentage of the oral exam in the final grade, the ways in which the inviolability and reliability of the exam are ensured and any other necessary information.

c) in case of **written examination with distance learning methods**: the way of administration of the questions to be answered, the way of submitting the answers, the duration of the exam, the grading system, the percentage of the written exam of the exam in the final grade, the ways in which the integrity and reliability of the exam are ensured and any other necessary information.

There should be an attached list with the Student Registration Numbers only of students eligible to participate in the examination.