COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Sciences		
ACADEMIC UNIT	Department of Informatics		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	814ΕΔΥΕ	**SEMESTER**	8
COURSE TITLE	GEOINFORMATICS		

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	2	5
Tutorial Exercises	1	
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialized general knowledge
PREREQUISITE COURSES:	Computer Graphics
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
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*

Upon completion of the course's lectures, students will be able to:

1. They understand the basic principles of remote sensing, including its applications and benefits.
2. It recognizes and leverages geographic data from different sources, understanding the value of external geographic data.
3. It understands the theory of geoinformatics and spatial analysis, examining spatial data models, data quality, and reliability.
4. Implement data visualizations and transformations, as well as work with reporting systems.
5. He acquires basic knowledge of photogrammetry, understanding its importance in cartography and data analysis.
6. It collects, analyzes and visualizes geographic data, utilizing modern techniques and software.
7. It designs geographic databases for the organization and management of spatial information.
8. It uses Geographic Information Systems (GIS) to process spatial data, analyze regions, and make decisions.
9. It performs spatial analyses, such as superposition, proximity and spatial interpolation.
10. It understands geovisualization in two and three dimensions, presenting geographic data in a dynamic way.
11. It applies geographic information interoperability techniques in areas such as natural resource management and the rural environment.

Overall, the course equips students with theoretical knowledge and practical skills so that they can leverage geoinformatics data in various fields of science and technology.

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?

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…*
	…….

- Putting knowledge into practice
- Search, analyze and synthesize data and information, using the necessary technologies
- Decision-making
- Autonomous work
- Working in a multidisciplinary environment
- Project planning and management

(3) SYLLABUS

1. Introduction to Remote Sensing: Definition, Applications, Advantages.
2. Geoinformatics Data: Geographic Data Sources, External Geographic Data Sources.
3. Theoretical background in geoinformatics and spatial analysis: spatial data models, data quality, data reliability check.
4. Reporting systems, data visualizations and transformations.
5. Photogrammetry.
6. Collection, analysis and visualization of geographic data.
7. Design of geographic databases.
8. Use of geographic information systems: Spatial data management, spatial analysis (superposition, proximity), creation and analysis of continuous surface with spatial interpolation methods, decision support, thematic cartography elements and cartographic rendering.
9. Geovisualization of two and three dimensions.
10. Interoperability of geographic information: Geoinformatics applications in the modeling and management of soil, water resources and the rural environment.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Website of the course with supporting and auxiliary material. Communication software with students through the e-class electronic platform to share course announcements, notes and exercises.
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	26x2=52
Tutorial Exercises: Selected, representative exercises are solved concerning different modules of the course.	13x2=26
Written Exams	13x1=13
Individual Study	170 x 0,2 = 34
Course total	125 h (5 ECTS)

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 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.*	• Written final exam (70%) • Report (15%) • Public Presentation (15%)

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Ν. Συλλαίος, Ι. Γήτας και Γ. Συλλαίος (2007). Εισαγωγή στα Γεωγραφικά Συστήματα Πληροφοριών και στην Τηλεπισκόπηση. Εκδόσεις Γιαχούδη, Θεσσαλονίκη, 544 σελ. (Κωδ. Εύδοξος: 7965)

Μαρίνος Κάβουρας, Αθανασία Δάρρα, Σοφία Κονταξάκη, Ελένη Τομαή (2015). ΕΠΙΣΤΗΜΗ ΓΕΩΓΡΑΦΙΚΗΣ ΠΛΗΡΟΦΟΡΙΑΣ, Αρχές και Τεχνολογίες. Διαθέσιμο στο: https://repository.kallipos.gr/handle/11419/6392

Κ. Κουτσόπουλος (2005). Γεωγραφικά Συστήματα Πληροφοριών και ανάλυση χώρου, 2η έκδοση. Εκδόσεις Παπασωτηρίου, 401 σελ.

Χαλκιάς, Χ., Γκούσια, Μ., 2015. Γεωγραφική ανάλυση με την αξιοποίηση της γεωπληροφορικής. [ηλεκτρ. βιβλ.] Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών. Διαθέσιμο στο: http://hdl.handle.net/11419/4546

Ευελπίδου, Ν., Αντωνίου, Β., 2015. Γεωγραφικά συστήματα πληροφοριών. [ηλεκτρ. βιβλ.] Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών. Διαθέσιμο στο: http://hdl.handle.net/11419/1044

Νάκος, Β., 2015 Αναλυτική χαρτογραφία. [ηλεκτρ. βιβλ.] Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών. Διαθέσιμο στο: https://repository.kallipos.gr/handle/11419/2233