

COURSES DESCRIPTION

1. GENERAL

SCHOOL	School of Environment, Geography and Applied Economics		
DEPARTMENT	Geography		
LEVEL OF STUDY	Undergraduate		
COURSE CODE		SEMESTER	5th (E)
COURSE TITLE	Geospatial Databases		
INDEPENDENT TEACHING ACTIVITIES If credits are awarded for separate components of the course (e.g., lectures, laboratory exercises, etc.), indicate the weekly teaching hours and the corresponding credits. If the credits are awarded for the course as a whole, indicate the weekly teaching hours and the total number of ECTS credits.		WEEKLY TEACHING HOURS	ECTS CREDITS
Lectures		3	5
The organization of teaching and the teaching methods used are described in detail in Section 4.			
COURSE TYPE Background, General Knowledge, Scientific Area, Skills Development	Scientific Area and Skills Development		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION AND EXAMINATIONS:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes (English upon request)		
COURSE WEBPAGE (URL)	https://eclass.hua.gr/		

2. EXPECTED LEARNING OUTCOMES

Learning Outcomes

Upon successful completion of the course, students will be able to:

- understand the fundamental concepts of Informatics and modern computing systems;
- identify and describe the basic components of computer hardware and software;
- understand the role and basic functions of operating systems;
- use basic digital tools and cloud computing services for the creation, management, and collaborative editing of digital content;
- understand the fundamental principles of algorithmic thinking and programming;
- use the Python programming language to develop simple programs;
- use variables, data types, operators, selection and iteration structures, and functions;
- understand basic concepts of object-oriented programming, such as classes, objects, and inheritance;
- apply fundamental programming principles to solve simple computational problems.

General Competences

- Searching, retrieving, synthesizing, and storing data and information.
- Use of information and communication technologies.
- Development of algorithmic and computational thinking.
- Problem solving.
- Independent work and learning.
- Teamwork.
- Adaptation to new technological developments.

3. COURSE CONTENTS

The course usually includes the following sequence of lectures:

- Introduction to Informatics and computing systems.
- Computer hardware.
- Software and basic software categories.
- Operating systems.
- Digital tools and cloud computing services.
- Google Workspace and collaborative work tools.
- Introduction to programming and algorithmic thinking.
- Python: variables, data types, and operators.
- Selection and iteration structures.
- Functions and program organization.
- Classes and objects.
- Basic principles of object-oriented programming and inheritance.

In addition, four (4) laboratory sessions are conducted, during which students apply in practice the concepts presented in the lectures, with emphasis on the use of digital tools and the development of simple programs in Python.

4. TEACHING AND ASSESSMENT METHODS

MODE OF DELIVERY Face-to-face, distance learning, etc.	● 8 theoretical lectures in the classroom. ● Four (4) laboratory sessions involving practical exercises
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) Use of Information and Communication Technologies (ICT) in teaching, laboratory education, and communication with students.	● Use of electronic presentations and educational material during lectures. ● Use of the e-Class platform for the distribution of educational material, exercises, assignments, and announcements. ● Use of digital tools and Google Workspace services for the preparation and collaborative editing of assignments. ● Laboratory training using a development and execution environment for Python 3 programs. ● Use of appropriate digital tools for the development, testing, and execution of programs.

TEACHING ORGANIZATION The teaching methods and organization are described in detail below. Lectures, seminars, laboratory practice, fieldwork, literature review and analysis, tutorials, internship (work placement), clinical practice, artistic workshops, interactive teaching, educational visits, project work, assignment writing, artistic creation, etc. The student's workload for each learning activity, including the hours of guided and independent study, is specified so that the total semester workload complies with the ECTS standards.	Activity Semester Workload (Hours) Lectures 24 Laboratory sessions 12 Lecture preparation 20 Assignment / Project 40 Independent study 36 Total Course Workload 132
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STUDENT PERFORMANCE EVALUATION Description of the assessment procedure Language of assessment, assessment methods, formative or summative assessment, multiple-choice tests, short-answer questions, essay-type questions, problem-solving, written assignments, reports, oral examinations, public presentations, laboratory work, clinical examination, artistic performance, or other forms of assessment. The assessment criteria are clearly specified and communicated to students at the beginning of the semester, together with information on where they can be accessed.	Language of Assessment: Greek (English upon request). Assessment Methods 1. Semester Project: 50% 2. Written Final Examination: 50% The written final examination includes theoretical questions and problem-solving exercises, with emphasis on the understanding and application of the fundamental concepts of Informatics, algorithmic thinking, and programming. The assessment of the semester project is based on the correctness and completeness of the implementation, the application of the programming concepts taught in the course, and the quality of the final solution. The assessment criteria are announced at the beginning of the semester.
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	To successfully complete the course, the student must obtain a passing grade in both the Written Final Examination and the Semester Project.
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5. RECOMMENDED BIBLIOGRAPHY

- [153587918] Γεω-υπολογισμοί με Γλώσσα Python, Dorman Michael, Graser Anita, Lovelace Robin, Nowosad Jakub, Κρασανάκης, ΕΚΔΟΣΕΙΣ ΝΕΩΝ ΤΕΧΝΟΛΟΓΙΩΝ ΙΔΙΩΤΙΚΗ ΚΕΦΑΛΑΙΟΥΧΙΚΗ ΕΤΑΙΡΕΙ
- [94644736] Σκέψου σε Python, Allen B. Downey, ΕΚΔΟΣΕΙΣ ΚΛΕΙΔΑΡΙΘΜΟΣ
- [153588503] ΡΥΤΗΘΝ ΓΙΑ ΤΗΝ ΕΠΙΣΤΗΜΗ ΔΕΔΟΜΕΝΩΝ, Εκδόσεις Τσότρας Αθανάσιος Ε.Ε