

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Financial and Management Engineering		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	FE0107	SEMESTER	3rd
COURSE TITLE	Computer Programming		
INDEPENDENT TEACHING ACTIVITIES <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>	WEEKLY TEACHING HOURS	CREDITS	
	6	6	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Prescribed Core Module		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	http://www.fme.aegean.gr/en/c/computer-programming		

(2) LEARNING OUTCOMES

<p>Learning outcomes <i>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.</i></p> <p>Consult Appendix A</p> <ul style="list-style-type: none"> • 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
<p>At the end of the course, students are able to:</p> <ul style="list-style-type: none"> • Understand the basic concepts of programming. • Organize a problem into a logical grouping of its constituent parts. • Choose the appropriate data structures for every problem. • Understand the principles and reasoning of Object-Oriented Programming. • Write Python programs to solve specific problems. • Use Python libraries and manage the corresponding documentation
<p>General Competences <i>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></p>

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <i>Working independently</i> <i>Team work</i> <i>Working in an international environment</i> <i>Working in an interdisciplinary environment</i> <i>Production of new research ideas</i>	<i>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> <i>Criticism and self-criticism</i> <i>Production of free, creative and inductive thinking</i> <i>Others...</i>
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Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Working in an interdisciplinary environment
Production of new research ideas

(3) SYLLABUS

- Python distributions and interpreters. Jupyter Notebooks.
- Variables, data types and operators.
- Conditional statements. Boolean algebra.
- Loops.
- Python built-in object types:
 - Lists.
 - Dictionaries.
 - Tuples.
 - Sets.
 - Strings.
- Functions, variable scope.
- Object-oriented programming. Classes and inheritance.
- Environments and libraries. Installing, importing, using and creating libraries.
- File management.
- Data analysis with Numpy and SciPy.
- Data visualization with Matplotlib and Seaborn.

(4) TEACHING and LEARNING METHODS - EVALUATION

<p style="text-align: center;">DELIVERY</p> <p style="text-align: center;"><i>Face-to-face, Distance learning, etc.</i></p>	Face-to-face lectures and lab exercises	
<p style="text-align: center;">USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</p> <p style="text-align: center;"><i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Use of ICT for communication with the students	
<p style="text-align: center;">TEACHING METHODS</p> <p><i>The manner and methods of teaching are described in detail.</i></p> <p><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>	Activity	Semester workload
	Lectures	39 ώρες (1.56 ECTS)
	Lab exercises	39 ώρες (1.56 ECTS)
	Self-study	69 ώρες (2.76 ECTS)
	Final exam	3 ώρες (0.12 ECTS)
Course total	150 (6 ECTS)	
<p style="text-align: center;">STUDENT PERFORMANCE EVALUATION</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>	Final exam	

(5) ATTACHED BIBLIOGRAPHY

<ul style="list-style-type: none"> • Σαμαράς Ν. & Τσιπλίδης Κ. Το Βιβλίο της Python. Γράφοντας Κώδικα. Εκδόσεις Κριτική (2019) • Στράτος Καλαφατούδης, Γεώργιος Σταμούλης. Προγραμματισμός με την Python. Εκδόσεις Νέων Τεχνολογιών (2018) • Νικόλαος Αβούρης, Μιχαήλ Κουκιάς, Βασίλειος Παλιουράς, Κυριάκος Σγάρμπας. Python - Εισαγωγή στους υπολογιστές. ΙΤΕ-Πανεπιστημιακές Εκδόσεις Κρήτης (2018)
