**SYLLABUS “COMPUTER PROGRAMMING II”**

1. **General**

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| **College** | College of Applied Economic and Social Sciences | | | | |
| **Department** | Regional and Economic Development | | | | |
| **Level of Studies** | Undergraduate | | | | |
| **Couse Code** | **6318** | **Semester** | | 3rd | |
| **Course Title** | Computer Programming II | | | | |
| **Faculty Name** |  | | | | |
| **Office Hours** |  | | | | |
| **email** |  | | | | |
| **INDEPENDENT TEACHING ACTIVITIES**  **where credit is awarded for discrete parts of the course e.g. lectures, laboratory exercises, etc. If credit is awarded for the whole course, indicate the weekly teaching hours and the total number of credits** | | | **WEEKLY CONTACT HOURS** | | **ECTS** |
| Lectures | | | 3 | | 3 |
| Laboratory exercises | | | 2 | | 3 |
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| **COURSE TYPE**  **Background, General Knowledge, Scientific Area, Skills Development** | Skills Development | | | | |
| **Prerequisites** | - | | | | |
| **Language of instruction and examinations** | Greek | | | | |
| **Course Offered to Erasmus Students** | No | | | | |
| **Course Webpage** | https://oeclass.aua.gr/eclass/ | | | | |

1. **COURSE LEARNING OUTCOMES**

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| **Learning Outcomes** | |
| * *The learning outcomes of the course describe the specific knowledge, skills and competences of an appropriate level that students will acquire after successful completion of the course.* | |
| *Knowledge*  *- Define classes, methods, techniques*  *- Define functions*  *- Describe algorithmically the steps of implementing a program*  *Skills:*  *- Implement programs in Python, organizing the code in different files*  *- To become familiar with top-down design*  *- Become familiar with the concepts of abstraction, inheritance, encapsulation, polymorphism and composition*  *Competences:*  *- Solve, through algorithmic thinking, computational problems*  *- Implement complex applications using the Python language*  *- To check the logical and syntactical correctness of a program* | |
| ***General skills*** | |
| *Taking into account the general competences that the graduate should have acquired (as listed in the Diploma Supplement and listed below), which one(s) does the course aim at?* | |
| *Search, analysis and synthesis of data and information, including the use of the necessary technologies*  *Adaptation to new situations*  *Decision-making*  *Autonomous work*  *Group work*  *Working in an international environment*  *Working in an interdisciplinary environment*  *Generating new research ideas* | *Project planning and management*  *Respect for diversity and multiculturalism*  *Respect for the natural environment*  *Demonstrating social, professional and ethical responsibility and gender sensitivity*  *Exercise of criticism and self-criticism*  *Promotion of free, creative and deductive thinking* |
| *Search, analysis and synthesis of data and information, including the use of the necessary technologies*  *Adaptation to new situations*  *Group work*  *Decision-making*  *Exercise of criticism and self-criticism*  *Promotion of free, creative and deductive thinking*  *Generating new research ideas* | |
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1. **COURSE CONTENT**

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| * Advanced topics with Python: object-oriented programming concepts, Objects, Creating and Initializing Objects, Classes, Methods, Attributes, Variables and Objects, * Advanced topics with Python: Inheritance, Encapsulation, Polymorphism, Composition, Modules and Packages. * Programming with Python: Applications in Economics and Machine Learning Applications. |

1. **TEACHING AND LEARNING METHODS - ASSESSMENT**

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| **METHOD OF DELIVERY**  **Face-to-face, Distance learning, etc.** | Lectures and meetings with students |
| **USE OF TECHNOLOGY, INFORMATION AND COMMUNICATION** *Use of ICT in teaching, laboratory training, communication with students* | Computer and interactive whiteboard will be used in the teaching. Communication with students will be on a personal level, also using e-mail and direct telecommunication (e.g. skype) |
| **ORGANISATION OF TEACHING**  *The way and methods of teaching are described in detail.*  *Lectures, Seminars, Laboratory Exercise, Field Exercise, Study & Analysis of Literature, Tutorials, Practical (Placement), Clinical Exercise, Artistic Workshop, Interactive teaching, Educational visits, Study visits, Project work, Writing of work / assignments, Artistic creation, etc.*  *The student's study hours for each learning activity as well as the hours of unguided study are indicated so that the total workload at semester level corresponds to the ECTS standards.* | |  |  | | --- | --- | | ***Activity*** | ***Workload*** | | Lectures | 65 hours | | Study of course material (material taught) | 33 hours | | Exercises and practice of in economic applications | 27 hours | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | | Course Total | 125 hours | |
| **STUDENT ASSESSMENT**  *Description of the evaluation process*  *Language of Assessment, Assessment Methods, Formative or Inferential, Multiple Choice Test, Short Answer Questions, Test Development Questions, Problem Solving, Written Work, Report, Oral Examination, Oral Examination, Public Presentation, Laboratory Work, Clinical Examination of a Patient, Artistic Interpretation, Other*  *Explicitly identified assessment criteria are stated and if and where they are accessible to students.* | Written Final Exams and tentative midterm examinations during the course |

1. **BIBLIOGRAPHY**

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| **Main Textbooks (all in Greek):**   * Σαμαράς, Ν., Τσιπλίδης, Κ. (2019). *Το βιβλίο της Python – Γράφοντας κώδικα*. Εκδόσεις Κριτική, ISBN: 978-960-586-312-8 [Κωδικός: * Abiteboul, S., Dowek, G. (2022). *Η εποχή των αλγορίθμων*. Πανεπιστημιακές Εκδόσεις Κρήτης {κωδικός: 112692378] * Deitel, H., Deitel, P. (2020). *Python για Προγραμματιστές.* Εκδόσεις Χ. Γκιούρδα, ISBN: 978-960-512-718-3. [Κωδικός: 94645373] * Downey, A. (2020). *Σκέψου σε Python*. Εκδόσεις Κλειδάριθμος, ISBN: 978-960-645-090-7 [Κωδικός: 94644736] * Eric, M. (2020). *Η γλώσσα προγραμματισμού Python*. Εκδόσεις ΔΙΣΙΓΜΑ [Κωδικός: 94690292] * Guttag, J. (2022). *Εισαγωγή στον Υπολογισμό και τον Προγραμματισμό με την Python.* 3η Έκδοση. Εκδόσεις ΠΑΠΑΣΩΤΗΡΙΟΥ [Κωδικός: 112696091] * Δουληγέρης, Χ., Μαυροπόδη, Ρ., Κοπανάκη, Ε., Καραλής, Α. *Τεχνολογίες και Προγραμματισμός στον Παγκόσμιο Ιστό*. 2η Έκδοση. Εκδόσεις ΝΕΩΝ ΤΕΧΝΟΛΟΓΙΩΝ ΙΚΕ [Κωδικός: 102125023] * Καραμπατζάκης, Φ., Καραμπατζάκης, Δ. (2022). *Δομημένος προγραμματισμός με εφαρμογές σε Python.* Εκδόσεις ΔΙΣΙΓΜΑ [Κωδικός: 112693086] * Οικονόμου, Π., Παπαδόπουλος, Π. (2022). *Εισαγωγή στον Προγραμματισμό*. Εκδόσεις ΕΑΗΣΒ. [Κωδικός: 114025193] |