



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Α.ΔΙ.Π.
ΑΡΧΗ ΔΙΑΣΦΑΛΙΣΗΣ & ΠΙΣΤΟΠΟΙΗΣΗΣ
ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΣΤΗΝ ΑΝΩΤΑΤΗ
ΕΚΠΑΙΔΕΥΣΗ

HELLENIC REPUBLIC
H.Q.A.
HELLENIC QUALITY ASSURANCE
AND ACCREDITATION AGENCY

ΤΕΧΝΟΛΟΓΙΚΟ ΕΚΠΑΙΔΕΥΤΙΚΟ ΙΔΡΥΜΑ ΑΝΑΤΟΛΙΚΗΣ ΜΑΚΕΔΟΝΙΑΣ ΚΑΙ ΘΡΑΚΗΣ
ΜΟΝΑΔΑ ΔΙΑΣΦΑΛΙΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΤΕΙ ΑΜΘ

Quality Assurance in Higher Education Course Data Collection Form

ΤΕΧΝΟΛΟΓΙΚΟ ΕΚΠΑΙΔΕΥΤΙΚΟ ΙΔΡΥΜΑ
ΑΝΑΤΟΛΙΚΗΣ ΜΑΚΕΔΟΝΙΑΣ & ΘΡΑΚΗΣ
ΑΓΙΟΣ ΛΟΥΚΑΣ,
65404 ΚΑΒΑΛΑ

EASTERN MACEDONIA AND THRACE
INSTITUTE OF TECHNOLOGY
AGIOS LOUKAS
65404 KAVALA

COURSE OUTLINE

1. GENERAL

| | | | |
|---|---|-----------------|-----------------|
| SCHOOL | School of Technological Applications | | |
| ACADEMIC UNIT | Department of Electrical Engineering | | |
| DEGREE LEVEL | Undergraduate | | |
| COURSE CODE | ΣΤΝ12 | SEMESTER | 6 st |
| COURSE TITLE | Advanced Programming Languages | | |
| 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 | |
| Lectures | 2 | 3 | |
| <i>Add rows if necessary. The organization 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> | Skills Development, | | |
| Required passed courses: | - | | |
| TEACHING AND EXAMS LANGUAGE: | Greek | | |
| THE COURSE IS OFFERED TO ERASMUS STUDENTS: | No | | |
| COURSE WEBPAGE (URL) | http://eclass.teikav.edu.gr/ | | |

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

The main objective of this course is to introduce to the students the philosophy of advanced programming as well as the understanding of the object-oriented way of thinking about modeling and problem solving.

Upon completion of this course students will be able to:

- Comprehend basic programming concepts, structures and techniques.
- Check the accuracy and appropriateness of a program.
- Comprehend the basic principles of object-oriented programming and their implementation.
- Be familiarise with the object-oriented way of analysis and design
- Create programs in the C ++ programming language by applying the principles of object-oriented programming.
- Understand easily and quickly other object-oriented programming languages such as python.
- Create programs with the python programming language.

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
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas*

*Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
.....
Others...
.....*

- Research, analysis and synthesis of data and information with the usage of the necessary technology.
- Autonomous work.
- Teamwork.
- Work in a scientific environment.
- Promote of free, creative and inductive thinking.
- Production of free, creative and inductive thinking

3. COURSE CONTENT**Section one**

- Introduction to Python
- Values, types, variables, keywords
- Expressions, operators, comments
- Control structures - Repetition
- Functions
- Strings, lists, tuples, dictionaries
- File handling
- Classes and objects

Section two

- Introduction to the object-oriented way of thinking. Basic concepts.
- Introduction to C ++ programming language: Language features, variables, data types, and representations.
- Program organization and control structures. Use of basic libraries.
- Classes and objects.
- Relationships between classes.
- Inheritance and Polymorphism.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

| | | |
|---|--|--------------------------|
| TEACHING METHOD <i>Face-to-face, Distance learning, etc.</i> | Face-to-face (Room Lecture) | |
| UTILISATIONS OF INFORMATION AND COMMUNICATION TECHNOLOGIES <i>Use of ICT in teaching, laboratory education, communication with students</i> | Use of ICT in teaching & communication with students <ul style="list-style-type: none"> ▪ Syllabus organization in PPT slides. ▪ Learning process support through e-class electronic ▪ Contact via email. | |
| <i>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.</i> <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> | Activity | Semester workload |
| | Lectures | 26 |
| | Self-contained coursework | 15 |
| | Group coursework | 23 |
| | Study and literature analysis | 26 |
| | Course Summary (30 workload per credit) | 90 |
| STUDENT ASSESSMENT <i>Description of the evaluation procedure</i> <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> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i> | Writing of a self-contained courseworks (10%). Writing of a group coursework (25%). Exams (65%) (Note usage is allowed). | |

5. RECCOMENDED READING

- Suggested bibliography:

- Programming : Principles and Practice Using C++, Bjarne Stroustrup, 2nd Edition, Papasotiriou, 2018.
- Introduction to Computation and Programming Using Python, John V. Guttag, Klidarithmos, 2015.
- Introduction to Object-Oriented Programming with Python (Electronic Book), K. Magoutis, C. Nikolaou, 2016.

- Related academic journals: