

ETY204 - Computers II

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	ETY204	SEMESTER	2
COURSE TITLE	Computers II		
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 / Labs	4	4	
<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, specialized general knowledge, skills development</i>	General background		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)	http://cmsl.materials.uoi.gr/lidorikis/courses.html		

(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 the student

Knowledge: Understands the C ++ computer programming language, object-oriented programming, and basic data processing algorithms.

Skills: Combines C ++ language commands for developing programs in a Linux environment through laboratory exercises, recognizes and corrects syntactic and logical code errors, performs exercises, and records responses in an online environment.

Ability: Recognizes key mathematical elements of a problem, designs detailed algorithms, freely develops C ++ language applications for mathematical problems and more, using object-oriented programming.

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...

- Search, analyze and synthesize data and information, using the necessary technologies
- Design, develop and manage programs and software
- Autonomous work
- Teamwork

(3) SYLLABUS

Introduction: The History of C ++, What is Object Oriented Programming.

An overview of C ++: C ++ syntax, syntax error handling, main function, general form of C ++ functions, elementary input/output system, code sections, command termination and command position, C ++ reserved words, the established C ++ library.

Basic data types: Statement of variables, initial values in variables, operators, performances.

Program control commands: The “if” statement, the loop “for”, the “switch” command, the loop “while”, the “do-while” loop, the use of the “continue”, nested loops, the use of the “goto” command, the assembly of all the tracks.

Arrays and alphanumerics: One-dimensional arrays, alphanumeric, two-dimensional arrays, rendering of initial values in a table.

Pointers: What are pointers, pointer operators, pointer expressions, pointers and tables, examples and problems with pointers.

Functions: Basic concepts, range of function rules, assignment of pointers and arrays, return statement, types of functions, function prototypes, overview.

Structures: Definition of structures, access to structure members, structure arrays, structure input in functions, structure assignment, structure pointers and arrow operator, arrays and structures in structures.

Introduction to classes: Basic concepts of class, access to class members, constructor and destructor functions, relationship between classes and structures, inline functions, object arrays, pointers to objects, overloading of operators using member functions.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	In class lectures and laboratory exercises	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	By nature of the course, PCs are used in laboratories. In addition, specialized software is used to conduct and evaluate laboratory exercises. Communication with the students also through the course website	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice,</i>	Activity	Semester workload
	Lectures	52

<i>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>	Laboratory	16
	Self-study for preparing for next lab exercise	8
	Self-study for preparing for final examination	24
	Course total	100
STUDENT PERFORMANCE EVALUATION <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>	LANGUAGE OF EVALUATION: Greek METHOD OF EVALUATION: Laboratory exercises: (i) Online examination at the end of each laboratory: Developing a problem-solving code, totaling 40% of the final grade (ii) Online final exam: Developing code for problem solving, totaling 60% of the final grade	

(5) ATTACHED BIBLIOGRAPHY

<p><i>- Suggested bibliography:</i></p> <ul style="list-style-type: none"> - N.M. Hatzigiannaki, "The Language of C ++ in Depth", Kleidarithmos, Athens 2008, ISBN 978-960-461-143-0 - W. SAVITCH, "COMPLETE C ++", Tziola Publishing, Thessaloniki 2006, 978-960-418-358-6 - Teachers' notes on laboratory exercises are also distributed.
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