COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Financial and Management Engineering		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΓΕ107	SEMESTER	3
COURSE TITLE	Programming in C		

INDEPENDENT TEACHING ACTIVITIES *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*	WEEKLY TEACHING HOURS	CREDITS
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).	3	6

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	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 http://www.fme.aegean.gr/en/c/computer-programming-lab

(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*

At the end of the course, students are able to

- Understand the basic programming concepts.
- Understand the use of arrays to store lists and tables of values.
- Use pointers and Strings.
- Understand the close relationships among pointers, arrays and strings.
- Understand the notion of data abstraction and ADTs
- Divide a problem into its logical set of components.
- Understand how a good program design can reduce coding and debugging
- time.
- Design and code most mid-level problems from the start.

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

Respect for difference and multiculturalism

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

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…
…….

- 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

- Introduction. Writing, compiling, and debugging C programs. Hello world.
- Variables and datatypes, operators.
- Control flow. Functions and modular programming. Variable scope. Static and global variables.
- More control flow. Input and output.
- Arrays and Strings
- Pointers and memory addressing
- Memory allocation, Multidimensional Arrays
- Functions
- Exchanging Function Input/Output Arguments
- C standard library utilities: ctype.h, stdlib.h, assert.h, stdarg.h, time.h
- An Introduction to user-defined datatypes
- Searching and sorting algorithms
- A complete real world programming example
- Review

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
<i>Face-to-face, Distance learning, etc.</i></td><td>In class teaching, laboratory assignments</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
<i>Use of ICT in teaching, laboratory education, communication with students</i></td><td>Use of ICT in communication with students</td></tr>
<tr><td>TEACHING METHODS
<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.

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></td><td><table>
<tr><th><i>Activity</i></th><th><i>Semester workload</i></th></tr>
<tr><td>Lectures</td><td>39 hours (1.56 ECTS)</td></tr>
<tr><td>Personal study</td><td>108 hours (4.32 ECTS)</td></tr>
<tr><td>End of semester exam</td><td>3 hours (0.12 ECTS)</td></tr>
<tr><td>Course total</td><td>150 hours (6 ECTS)</td></tr>
</table></td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
<i>Description of the evaluation procedure

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

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></td><td>Language of evaluation:
Greek.

Method of evaluation:
Laboratory Assignments 30% (Bonus) – 0%
Final Exams 70% - 100%</td></tr>
</table>

(5) ATTACHED BIBLIOGRAPHY

1) Principal Reference:

Tan H., and H.,D' Orazio , C for Engineers, (in Greek)

2) Additional References:

BRIAN W. KERNIGHAN, DENNIS M. RITCHIE, The C Programming Language, (in Greek)