

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF ELECTRONICS ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	2602004	SEMESTER	2
COURSE TITLE	Object-oriented 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 (ECTS)	
Lectures	2	4	
Laboratory	2		
<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>	General Background Course		
PREREQUISITE COURSES:	None		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES (in English)		
COURSE WEBSITE (URL)	http://eclass.gunet.gr/courses/NETGU297/		

(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 course of Object-oriented programming aims to give students the necessary knowledge on the programming of computer and Internet systems using object oriented programming language. The course aims to cover theoretical and practical issues related to the techniques of Object Oriented, Event Driven and Visual Programming Planning and uses as a programming language the Java language.

Upon successful completion of this course module students possess advanced knowledge, skills and competences in the subject Object-oriented Programming that enable them to:

- Understand and describe the notions of Object-oriented and Event-oriented programming,
- Know and use visual programming tools and writes original code in an object-oriented programming environment,
- Use Java programming language at a basic level and construct software applications through

<p>Java coding,</p> <ul style="list-style-type: none"> Analyse and understand the functionality of program code written in an object-oriented language such as Java or C++, Work independently or collaborate within a team to develop software applications and services using Java code. 																		
<p>General Competences</p> <p><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> <table border="0"> <tr> <td><i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i></td> <td><i>Project planning and management</i></td> </tr> <tr> <td><i>Adapting to new situations</i></td> <td><i>Respect for difference and multiculturalism</i></td> </tr> <tr> <td><i>Decision-making</i></td> <td><i>Respect for the natural environment</i></td> </tr> <tr> <td><i>Working independently</i></td> <td><i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i></td> </tr> <tr> <td><i>Team work</i></td> <td><i>Criticism and self-criticism</i></td> </tr> <tr> <td><i>Working in an international environment</i></td> <td><i>Production of free, creative and inductive thinking</i></td> </tr> <tr> <td><i>Working in an interdisciplinary environment</i></td> <td><i>.....</i></td> </tr> <tr> <td><i>Production of new research ideas</i></td> <td><i>Others...</i></td> </tr> <tr> <td></td> <td><i>.....</i></td> </tr> </table>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>	<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>	<i>Decision-making</i>	<i>Respect for the natural environment</i>	<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>	<i>Team work</i>	<i>Criticism and self-criticism</i>	<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>	<i>Working in an interdisciplinary environment</i>	<i>.....</i>	<i>Production of new research ideas</i>	<i>Others...</i>		<i>.....</i>
<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>																	
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>																	
<i>Decision-making</i>	<i>Respect for the natural environment</i>																	
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>																	
<i>Team work</i>	<i>Criticism and self-criticism</i>																	
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>																	
<i>Working in an interdisciplinary environment</i>	<i>.....</i>																	
<i>Production of new research ideas</i>	<i>Others...</i>																	
	<i>.....</i>																	
<ul style="list-style-type: none"> Search for, analysis and synthesis of data and information, with the use of the necessary technology Working independently Team work 																		

(3) COURSE CONTENT

<p><u>Lectures</u></p> <ol style="list-style-type: none"> Session 1: Introduction to OOP and Java programming language Session 2: Our first program Session 3: Java Commands Session 4: Classes and objects in Java Session 5: Data structures in Java Session 6: Graphical interfaces and user interfaces Session 7: Creating applets in IDE environments IDE <p><u>Laboratory Experiments:</u></p> <ol style="list-style-type: none"> Lab Session 1: Introduction to OOP through Alice platform Lab Session 2: Introduction to Java through Greenfoot platform Lab Session 3: Programming in Java with DrJava

(4) TEACHING and LEARNING METHODS - EVALUATION

<p>DELIVERY <i>Face-to-face, Distance learning, etc.</i></p>	<p>Face to face lectures</p>
<p>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	<ul style="list-style-type: none"> Use of electronic presentation with multimedia content in class, Student support through the course webpage and the departmental e-learning platform, Electronic communication of instructors and students, through the course webpage and by e-mail, Use of special software development environment for

	Java.														
<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>	<p>Lectures, Laboratory experiments, study.</p> <table border="1" data-bbox="683 342 1345 674"> <thead> <tr> <th style="text-align: center;">Activity</th> <th style="text-align: center;">Semester workload (hours)</th> </tr> </thead> <tbody> <tr> <td>Lectures</td> <td style="text-align: center;">26</td> </tr> <tr> <td>Study for lectures</td> <td style="text-align: center;">26</td> </tr> <tr> <td>Laboratory experiments</td> <td style="text-align: center;">26</td> </tr> <tr> <td>Report on lab experiments</td> <td style="text-align: center;">26</td> </tr> <tr> <td>Study and preparation for exams</td> <td style="text-align: center;">16</td> </tr> <tr> <td>Course Total</td> <td style="text-align: center;">120</td> </tr> </tbody> </table>	Activity	Semester workload (hours)	Lectures	26	Study for lectures	26	Laboratory experiments	26	Report on lab experiments	26	Study and preparation for exams	16	Course Total	120
Activity	Semester workload (hours)														
Lectures	26														
Study for lectures	26														
Laboratory experiments	26														
Report on lab experiments	26														
Study and preparation for exams	16														
Course Total	120														
<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>	<p>Final grade = Theory part grade x 60% + Lab part grade x 40%</p> <p><i>For the theory part of the course:</i></p> <p>Assessment is based on written tests taken at the end of the lectures, over the total of knowledge presented. Tests are in Greek, exams are given allowing access to notes and literature during the tests, and they include:</p> <ul style="list-style-type: none"> -Multiple choice questions. -Code programming. -Code checking and debugging -Comparative study of elements and information presented in the context of theoretical knowledge provided. <p><i>For the lab part of the course:</i></p> <p>Assessment takes place both during and at the end of the laboratory exercises. Assessment is in Greek, allowing access to notes and literature during the tests and includes:</p> <p>I. Intermediate assessment (50%) through two tests (in lab and using computers) during the semester, in units that cover: Greenfoot, DrJava</p> <p>II. Overall assessment (50%) through one of the following alternatives:</p> <ol style="list-style-type: none"> 1. Final test (in lab and using computers) on the total of topics covered by the three above units 2. Implementation and presentation of an individual or group project with scaling difficulty. 														

(5) ATTACHED BIBLIOGRAPHY

Recommended Books

Harvey Deitel, Paul Deitel, «Java Programming», 8th Edition, Giourdas Publications, 2010 (in greek).

Wanda Dann, Stephen Cooper, and Randy Pausch, "Learning to program with Alice" 3rd edition, Pearson Education, 2012.

Michael Kölling, "Introduction to Programming with Greenfoot.

Object-Oriented Programming in Java with Games and Simulations", Pearson Education, August 2009.