

COURSE OUTLINE

(1) GENERAL INFORMATION

SCHOOL	FACULTY OF ENGINEERING		
DEPARTMENT	ELECTRICAL AND COMPUTER ENGINEERING		
LEVEL OF STUDIES	POSTGRADUATE		
COURSE CODE	A3	SEMESTER	1st
COURSE TITLE	Microprocessors and embedded systems		
COURSEWORK BREAKDOWN		TEACHING WEEKLY HOURS	ECTS CREDITS
Lectures and tutorials		3	6
<i>Add extra space if necessary</i>			
COURSE TYPE Scientific field <i>special knowledge</i> Development of special skills	Compulsory		
PREREQUISITES:			
LANGUAGE OF INSTRUCTION and EXAMS:	Greek		
COURSE AVAILABLE TO ERASMUS STUDENTS:	yes		
COURSE WEB PAGE (URL)	https://eclass.uowm.gr/courses/MPE106/		

(2) LEARNING OUTCOMES

Learning Outcomes
<p>Upon successful completion of the course, students will acquire knowledge of and understanding of the following topics:</p> <ul style="list-style-type: none"> - Understanding the architecture of microelectronics and microprocessors - Understanding the architecture and architecture of microcontrollers and microprocessors - Understanding the programming of microcontrollers and microprocessors in machine language, - the connection of peripherals and sensors to the mainframe processing unit, - programming in assembly language - Programming of microcontrollers and peripherals - the embedded systems and their specificities, - the use of the most important peripherals, - input/output techniques,

General Skills
Searching, analysing and synthesising data and information, using the necessary technologies. Decision-making. Autonomous work. Generating new research ideas Exercising critical and self-critical thinking

(3) COURSE CONTENT

Microcomputers

- Microcomputer and Microcontroller Architecture
- Programming in assembly language and C language
- Digital and analogue peripherals.
- Communication and connection of microcontrollers with peripherals devices.
- Design of control systems using microcomputers

Digital circuits.

- Combinational Circuits, Sequential Circuits.
- Programmable Logic Gate Arrays
- Design of digital circuits with VHDL

Embedded Systems

- Design, development and programming of digital systems embedded in devices.
- Implementation levels (vlsi, fpga, asic, asip).

(4) TEACHING and LEARNING METHODS - ASSESSMENT

COURSE DELIVERY MODE <i>lectures, face-to-face, distance learning etc.</i>	Distance learning	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY <i>e.g. use of audiovisual media and computers etc.</i>	<ul style="list-style-type: none"> Learning process support through the e-class electronic platform. 	
TEACHING METHODS <i>Derailed description of the teaching methods used:</i> <i>Lectures, Seminars, Laboratory exercises, Study & bibliography analysis, Tutoring, Internship/Practicum, Art Workshop, Interactive Teaching, Projects, Written Assignments, Artistic creation etc.</i> <i>Study hours for each learning activity are included along with the non-guided study hours according to the ECTS principles</i>	Method Description	Semester workload
	Lectures	70
	Lab	80
	Total	150
ASSESSMENT METHODS AND CRITERIA <i>Description of the assessment methods and criteria:</i> <i>Language of Assessment, Assessment Methods, Formative or Concluding Assessment, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Reports, Oral Exam, Essay, Oral Presentation, Clinical Examination of patient, Artistic Performance, Others</i> <i>Assessment criteria are explicitly defined and stated.</i>	Works 50 % Final Oral Examination 50%	

(5) RECOMMENDED BIBLIOGRAPHY

- Recommended Bibliography: Ασημόπουλος Ν., Μπουλταδάκης Σ. , Πατουλίδης Γ. , «Εισαγωγή στον προγραμματισμό μικροελεγκτών, FPGA και CPLD», Εκδόσεις: Τζιόλας Πογαρίδης Δ., Σχεδίαση Συστημάτων Μικρουπολογιστών, ΜΑΡΙΑ ΠΑΡΙΚΟΥ, Έκδοση: 1η/2013. Embedded Systems Hardware for Software Engineers, Lipiansky
