Course unit title:	Computer Interfacing		
Course unit code:	ACOE243		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	2		
Semester when the unit is delivered:	4 (Spring)		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr. Costas Kyriacou		
Learning outcomes of the course unit:	1. Describe the operation of transistors circuits that implant the function of the basic logic gates, and distinguish between the types of outputs in logic gates (open collector, totem pole, and three-state).		
	2. Outline the characteristics of the standard ports and slots of a personal computer such as the COM, LPT, USB and PCI and select the most suitable port for a given application.		
	3. Design hardware to be interfaced on the standard ports and slots of a personal computer such as COM, LPT, USB and PCI.		
	4. Describe the basic characteristics of common Input/Output devices, and how these devices can be interfaced with a computer.		
	5. Develop programs to control the operation of I/O devices such as displays, motors and analogue data converters.		
	6. Built and test the operation of typical circuits interfaced on the standard ports of a computer.		
Mode of delivery:	Face-to-face		
Prerequisites:		Co-requisites:	None
Recommended optional program components:	None		
Course contents:	• **Computer Interfacing:** Switching electronics and common TTL devices. Microprocessor bus interfacing, interfacing standards (ISA, PCI) as well as interfacing through the parallel port (LPT) and serial ports (COM, USB and SPI). Digital-to-analog and analog-to-digital converters. Programmed controlled, interrupt, and DMA modes of data transfer.		
	• **Laboratory Work:** Individual or small group experiments performed with the use of special hardware attached on the computer's ports. Experiments include serial and parallel data transfer, interfacing with 2-state devices, interfacing with analog-to-digital and digital-to-analog converters.		
	• **Project Work:** Students are expected to built and test a board to be interfaced on a computer through a standard port such as the LPT or the USB port, and develop the necessary software that will enable the use of a computer as the control unit of a process. Typical applications to be developed include home and industrial automation systems.		
Recommended and/or required reading:			
Textbooks:	ACOE243 Laboratory Notes		
References:	B. Brey, The Intel Microprocessors: *8086,80186,80286,80386, 80486,*		

	Pentium and Pentium Pro Processors, Pentium II, Pentium III and Pentium 4: Architecture, Programming and Interfacing , Prentice Hall, 2007
Planned learning activities and teaching methods:	The underlining theory of the course is delivered to the students during lecture sessions, through electronic presentations. After acquiring the theoretical background, students carry out laboratory work that includes the implementation of a predefined procedure and the completion of a design task. Typically, a 2-hour lecture session proceeds a 2-laboratory session. To further develop their practical/professional skills, students undertake a group project. This project includes the assembly and testing of an electronic board, which can be interfaced on a standard port of a computer, as well as the development of software that implements a real life application. Project work includes also a project report and a presentation.
Assessment methods and criteria:	• Tests: 30% • Laboratory Work: 50% • Project 20%
Language of instruction:	English
Work placement(s):	No