

COURSE TITLE: Microprocessors and Microcontrollers

Institute/Division: Faculty of Electrical and Computer Engineering /Department of Theoretical Electrical Engineering and Computing Science

Number of contact hours: 45

Course duration: 1 semester

ECTS credits: 6

Course description:

The course comprises lectures, laboratory exercises and individual project. The aim of the course is to present the microprocessors and microcontrollers using family STM32 and how to program those components to accomplish fairly simple tasks. Theoretical introduction covers the basics of programming and electronics.

1. Microcomputer vs Microcontroller
2. Introduction to ARM Based Processors
3. The Nucleo Development Board
4. GPIO Management
5. Interrupts Management
6. Universal Asynchronous Serial Communications
7. DMA Management
8. ClockTree
9. Timers
10. Analog-To-Digital Conversion

During the laboratory lessons, the students use STM32 boards for programming and the necessary peripheral electronic components. The individual project will include preparation of an individual control system for the selected peripheral element.

Literature: D. Norris, Programming with STM32 Getting Started with the Nucleo Board nad C/C++; C. Noviello, Mastering STM32, STM32.eu

Course type: Lectures (20h),laboratory (20h)and project (5h)



Assessment method: Project, laboratory exercises and written exam.

Target group: Students in Computer Science, Control and Electrical Eng.

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