Name of the course	Code	Term	T+P	Credit	ECTS
Embedded Systems			3+0	3	4

Prerequisites and co-requisities	Microprocessors

Language of the course	Turkish
Type of the course	Technical Elective
Course Coordinator	
Name of Lecturers	
Assistants	
Aim and goals of the course	Introduction and classification of Embedded Systems. Using hardware to build single purpose processors, software to program general purpose processors and application specific processors, i.e. microcontrollers. To teach widely used peripherals A/D conversion, Pulse Width Modulation, LCD usage, communication protocols like I2C, SPI and UART.
Course Learning Outcomes	**Upon successful completion of the course, the students will be able to :** 1. Observe an embedded system and realizes how it is designed and for what purpose. 2. Design single purpose processors in hardware using finite state machines. 3. Design embedded systems by utilizing micro-controllers for purposes like A/D conversion, timing, pulse width modulation and by communicating with other peripherals using communication protocols like I2C, SPI, SCI.
Contents of the course	Introduction to Microprocessors and Microcomputers: CPU, RAM, ROM, Busses, Input/Output Devices, Applications. 8051 Instruction Set: Addressing Modes, Instruction Types. Timer Operation. Serial Port and Parallel Port Interfacing. Interrupts. Assembly Language Programming with 8051. System Design with Microcontrollers. Multiprocessors.

Weeks	Subjects
1	Introduction to Embedded Systems
2	Single-Purpose Processors: Hardware
3	Finishing automats: Moore and Mealy FSM
4	General Purpose Processors: Software
5	Application Specific Processors: Miko Controllers
6	Cutting Use
7	Introduction to Peripherals
8	MIDTERM
9	LCD Display Interface
10	Timers, Counters, Timing Interrupts
11	Pulse Width Modulation
12	Analog / Digital Conversers
13	Communication Protocols: UART
14	I2C, SPI
15	FINAL EXAM

General Qualifications

References
1. Frank Vahid, Tony Givargis, "A Unified Hardware/Software Introduction", Wiley, 2002   2. Han-Way Huang, "An Introduction to Software and Hardware Interfacing", Delmar Cengage Learning, 2010

Evaluation
Midterm Exam: % 40, Final Exam: % 60. Project or homework evaluations can be made at the beginning of the

semester.