

Open Course Title: Embedded systems applications using 8051 & Arduino

Target Students from Branches: ECE/TCE/EEE/CSE/Mech/MCA

The total duration of the course: 25 Hours.

No. of Lecture hours:

No. of hands-on / Practical:

Abstract

This course deals with microcontroller architectures, along with the implementation of embedded system applications and their advantages. A microcontroller can be considered as a self-contained system with a processor, memory, and peripherals and can be used as an embedded system. Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board and is an open-source electronics platform based on easy-to-use hardware and software.

This course also covers hands-on sessions to implement many embedded system applications using 8051 microcontrollers and Arduino boards.

Open Course Details

Students are able to

CO1: Understand the basics Arduino and 8051 architectures, instruction set and addressing mode

CO2: Apply the knowledge of microcontroller to implement various applications using Keil tool

CO3: Analyse different applications of Microcontroller using Arduino

CO4: Design an embedded system application and present the same using posters

Note: The coordinators shall provide at least three course outcomes for the open course.

Schedule

Day 1:12/02/2019			
Time	Topics	Resource Person Details	CO-PO Mapping
9.00 am to 10.30 am	Introduction to 8051, Architecture,	Prof. Sowmyashree M S, Assistance Prof. , Dept. of TCE, BMSIT&M	CO1
11.00 am to 1.00 pm	Instruction set of 8051		
2.00 pm to	Introduction to Keil tool	Prof. Saritha I G Assistance	CO2

4.00pm		Prof., Dept. of TCE, BMSIT&M	PO5,PO9,PO12
Day 2:13/02/2019			
Time	Topics	Resource Person Details	CO-PO Mapping
9.00 am to 10.30 am	Addressing modes and hands-on session on applications of MC using KEIL	Prof. Saritha I G Assistance Prof., Dept. of TCE, BMSIT&M	CO3 PO1,PO5,PO9,P12
11.00 am to 1.00 pm			
2.00 pm to 4.00pm			
Day 3:14/02/2019			
Time	Topics	Resource Person Details	CO-PO Mapping
9.00 am to 10.30 am	Introduction to Arduino , Interfacing Arduino to PIO	Dr. C S Mala, Professor , Dept. of TCE, BMSIT&M	CO3 PO1, PO5,PO9,PO12
11.00 am to 1.00 pm			
2.00 pm to 4.00pm			
Day 4:15/02/2019			
Time	Topics	Resource Person Details	CO-PO Mapping
9.00 am to 10.30 am	Interfacing Analog sensors, LED, Temperature sensors, Humidity sensors. Some applications implementation using Arduino	Dr. C S Mala, Professor , Dept. of TCE, BMSIT&M	CO4 PO1, PO5,PO9,PO12
11.00 am to 1.00 pm			
2.00 pm to 4.00pm			
Day 5:16/02/2019			
Time	Topics	Resource Person Details	CO-PO Mapping
9.30am to 11.30 am	Poster presentation on designing embedded system applications	Dr. C S Mala, Professor, BMSIT&M and Prof. Saritha I G Assistance Prof. Dept. of TCE, BMSIT&M	PO2, PO3, PO6,PO7, PO9,P10,P12
11.30 am to 12.00 noon	Valedictory		