Advanced Embedded System

Training Syllabus:

1) Introduction to Digital Electronics

2) Introduction of Embedded System

3) Micro-controller

4) Embedded in C Programming

5) Seven Segment Display

6) LCD & Keypad

7) Relay

8) DC Motors

9) Stepper Motor

10) Sensors

11) Wireless Interface Module

12) PCB Designing

Project Submission & Presentation

SN	Chapter & Description	Day	Duration (Hrs)
1	Introduction of Digital Electronics	1	
	• Development of transistor & IC's • Need of Processor & Controller • Origin of Embedded System		2Hr
2	Introduction of Embedded System	2	
	• Development of transistor & IC's • Need of Processor & Controller • Origin of Embedded System		2Hr
3	Introduction of 8051	3	
	• Difference of MP & MC • Architecture of MC • PIN Description of 8051 & AVR ATMega 16 • Overview of Controllers		3Hr
4	Embedded in C Programming	4	
	• Evolution of Embedded System • Basics of Embedded System • Logic Development in C Programming • Concept of Compiler & Simulator • Interfacing of I/O Devices		4Hr
	Project 1: LED Simulation & Interfacing Project 2: LED controlling using switch Project 3: Pattern Generation using LED		2Hr
5	Seven Segment Display	5	
	• Concept & Working of SSD • Types of SSD • Interfacing & Multiplexing of SSD with MC		2Hr
	Project 4: Digital Up-Counter Project 5: Digital Down-Counter Project 6: Conditional up down-counter		2Hr
6	LCD & Keypad	6	

	• Concept & Working • PIN Diagram • Interfacing with MC • LCD Commands • Modes of Operation		2Hr
	Project 7: Character display on LCD Project 8: Character display 'using string' on LCD Project 9: Keypad interfacing using MC		2Hr
7	Relay	7	
	• Concept & Working • Types & Specification • Application Area & Advantages • Controlling of relay using MC • Relay driver circuit		2Hr
	Project 10: Interfacing relay with MC Project 11: Home appliances control using relay Project 12: Automation with relay		2Hr
8	DC Motors	8	
	• Concept & working of DC Motor • Type of DC Motor • Motor Driver circuit		2Hr
	Project13: Interfacing of DC motor with MC Project14: Controlling of DC motor with MC Project15: Automatic Door opening/closing system		2Hr
9	Stepper Motor	9	
	• Concept & working of Stepper motor • Types of stepper motor • Stepper motor interfacing with MC • Stepper motor driver circuit		2Hr

	Project 16: Clockwise & anticlockwise rotation of stepper motor using MC Project 17: Stepper motor controlling using s/w		2Hr
10	Sensors	10	
	• Significance & need of sensors • Types & Working • Working & circuitry of LDR, IR, PIR & gas sensor • Digital temperature sensor		2Hr
	Project 18: Street light control Project 19: Digital thermometer Project 20: Theft detector Project 21: Secure highway crossing		2Hr
11	Wireless Interface Module	11	
	• RF interfacing • Bluetooth interfacing • GSM & GPS interfacing • Zigbee module interfacing		4Hr
	Project22: Remote based home appliance control Project23: Android based robotic vehicle		2Hr
12	PCB Designing	12	
	• Design rule concept • Layout designing with Proteus-8 • Etching, Drilling & Shouldering		2Hr
	FinalProject Submission & Presentation	13	35Hr

Certification: Eletro-Unique Creation

Study Material: Notes and other study materials

Toolkit: Shall be provided to each participant in training duration

Mini Project: 30+ Project to be covered

Major Projects: 10+ covered

Software: Separate provided to each student

Course Fees : 5,000/-