

# CETPA INFOTECH PVT. LTD.

## CURRICULUM STM8 MICROCONTROLLER

Duration: 6 WEEKS

### **INTRODUCTION TO EMBEDDED SYSTEM**

- History & need of Embedded System
- Basic components of Embedded System
- Hardware Classification of Embedded System
- Programming Language Classification of Embedded System
- Advantage & Disadvantage of Low level & High level programming language of Embedded System

### **CLASSIFICATION OF MICROPROCESSOR & MICROCONTROLLER**

- Difference between Microprocessor & Microcontroller
- Classification based on architecture
- Classification based on Instruction Set
- Type of Microcontroller Memory Classification

### **BRIEF INTRODUCTION TO COMPUTER ARCHITECTURE**

- Classification of Von-Neumann and Hardware Architecture
- Difference between RISC and CISC

### **INTRODUCTION OF EMBEDDED C**

- C programming basics
- Difference between C and Embedded C
- Compiler handling Creating and modifying projects in Compiler Conventional programs
- Basic Embedded programs structure

### **INTRODUCTION TO STM8 MICROCONTROLLERS**

- STM8 Family
- Difference between STM8S, STM8A and STM8L
- Detailed Feature of STM8S105C6T6
- Introduction STM8S Development Board

## **SOFTWARE SETUP FOR STM8**

- Introduction and installation of STVD IDE
- Introduction and installation of COSMIC Compiler
- Getting Free License for Cosmic Compiler
- Creating a New Project

## **GENERAL PURPOSE INPUT OUTPUT**

- Registers Description
- Writing First Program
- LED Patterns
- Button Programming
- Seven Segment
- LCD 8 bit Mode
- LCD 4bit Mode
- Interfacing IR Sensor
- Interfacing Motors

## **CLOCK CONTROL**

- Basics of Clock
- How to Control Clock
- Registers Description
- Programming

## **STANDARD PERIPHERAL LIBRARY**

- Introduction to SPL
- SPL V/S Registers
- How to Create Project Using SPL

## **TIMERS**

- Theory on Timers
- Basic Timer
- General Purpose Timer
- Advance Timers

## **INTERRUPT**

- Polling Method
- Theory on Interrupts
- Polling V/S Interrupt
- Interrupt Controller
- Software Interrupt

- External Interrupt

### **ANALOG TO DIGITAL CONVERTER**

- Theory of ADC
- Inbuilt ADC
- Resolution and Conversion Time
- Applications
- Programming
- Interfacing External Devices

### **SERIAL COMMUNICATION**

- Basic of Communication
- Parallel V/S Serial
- Asynchronous V/S Synchronous Serial Communication

### **USART**

- Basics of USAT
- USART Frame
- Baud Rate V/s Bit Rate
- How to Program
- Interfacing Computer with STM8
- Interfacing Mobile Phone with STM8

### **SERIAL PERIPHERAL INTERFACE**

- \_\_SPI Protocol
- \_\_Applications
- \_\_USART V/S SPI
- \_\_Pin Description
- \_\_How to Program
- \_\_Interfacing Two MCUs

### **I2C PROTOCOL**

- \_\_SPI Protocol
- \_\_Applications
- \_\_USART V/S SPI V/S I2C
- \_\_Pin Description
- \_\_How to Program
- \_\_Interfacing Two MCUs

### **PULSE WIDTH MODULATION**

- Introduction PWM
- Applications
- Types
- Programming