

Embedded System with IoT

Day 1: Modules of Embedded C

- Why C in Embedded
- Introduction to Embedded System
- Architecture of Embedded System
- ANSI Standard
- Fundamentals of C
- Basic commands

Day 2: Bit Operations

- Data types and variables
- Escape characters
- Functions
- Operators & Expressions

Day 3: Advanced C Programming

- Loops: While, if, for
- Switch cases
- Array
- Pointers
- AND (&), OR (|), XOR (^)

Day 4: Operators

- Arithmetic Operators
- Compliment (~)
- Left-Shift (<<), Right Shift (>>)
- Masking, Setting, Clearing and Testing of Bit / Bits





Day 5: External Interfaces

- LEDS
- Switches (Momentary type, Toggle type)
- Seven Segment Display: (Normal mode, BCD mode,
- LCD
- Sensors
- Keypad Matrix

Day 6: Applications/Projects

- Keyboard number and Characters on LCD 16 X 2.
- Counter Digits on Seven segment Display
- Digital Clock
- Visitor Counter

Day 7: Applications/Projects

- Motion Detection Using PIR Sensor
- Human Presence Detection
- Automatic Door bell System
- LCD and PIR Sensor based Combined System

Day 8: Internet of Things

- Concept of IOT
- Applications and recent inventions in IOT
- Interfacing of Wifi Module with Microcontroller
- AT commands of Wifi module
- Serial communication of wifi and Arduino



Day 9: Internet of Things

- LED toggle application through PC/Laptop
- Home automation project using IOT concept
- Sensor data uploading on cloud server
- Sensor Monitoring from cloud website
- Home appliance control

Kit content:

- Arduino UNO ATmega328
- Programmer cable for Arduino
- ESP 8266 Wifi module
- Breakout board for ESP module
- LDR
- LEDs
- Switches
- LCD 16X2
- Keypad matrix
- PIR Motion Sensor
- Jumper wires
- Battery Connector
- 9V Battery

