

# AVR MICROCONTROLLER



## CURRICULUM

### Embedded Systems with Microcontroller (AVR)

#### » Embedded system

- Brief idea of Embedded Systems & Industrial applications
- Application/Area wise need of Embedded
- Hardware classification for Embedded

#### » Brain of Embedded Appliances

- Brief idea of Micro-controller/processor
- Why Microcontroller?
- Architecture of Microcontroller
- System architecture – RISC, CISC, Harvard, Von-Neumann
- Architecture of Microcontroller

#### » Embedded C

- Introduction classes
  - Basic syntax & programming structure
  - Data types, variables & operator
  - if-else & switch selection statement
- Conditional statements or looping
  - While, do-while
  - For, nested-for statements
  - Infinite loops
- C – Array
  - Introduction to array
  - Initialization & defining arrays

#### » Microcontroller (A VR)

- Features of microcontroller
- Pin out of microcontroller
- GP I/O Port specification
- Description about all Ports
- Description about IDE for programming
- Proteus Simulation for microcontroller
- I/O programming using Embedded C
- Led on/off programming

- Led pattern programming
  - Data shifting from left to right & right to left
  - Curtain open/close programming
  - Even/odd bit toggling
- Sensor interfacing with microcontroller
  - LM35(Temperature Sensor)
  - RFID
  - RF Receiver/T ransmitter
  - Accelarameter
  - IR Sensor
  - Gas Sensor
  - Alchohol Sensor
  - Touch Screen
- Motor interfacing
  - Program for controlling direction of DC motor
  - Stepper motor
- 16x2 LCD Display
  - 16x2 LCD command & data register
  - Name/Data printing over LCD
  - Moving message display

## » Advanced features of Microcontroller

- TIMER
  - TIMER register explanations
  - Programming of TIMER
- ADC
  - ADC register explanations
  - Programming of ADC
  - Interfacing of temperature sensor
- Serial communication
  - Communication between microcontroller & computer system
- Advance Communication Protocol
  - SPI (Serial Peripheral interface)
  - I2C (Inter integrated circuit)
- Project as per Module

Partners :



Java



development | consultancy | training

**E-mail: [info@ducatindia.com](mailto:info@ducatindia.com)**  
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A-43 & A-52, Sector-16,  
Noida - 201301, (U.P.) INDIA  
Ph. : 0120-4646464  
Mb. : 09871055180

### GURGAON

1808/2, 2nd floor old DLF,  
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Near ITS College, Mohan Nagar,  
Ghaziabad (U.P.)  
Ph.: 0120-4835400...98-99  
Mb. : 09810831363 / 9818106660  
: 08802288258 - 59-60

### FARIDABAD

SCO-32, 1st Floor, Sec.-16,  
Faridabad (HARYANA)  
Ph. : 0129-4150605-09  
Mb. : 09811612707