

The page features a decorative graphic on the right side consisting of three blue circles of varying sizes, each with a gradient from light to dark blue. Two thin blue lines intersect at the top left, forming a large 'V' shape that frames the circles. The circles are positioned at the top right, middle right, and bottom right of the page.

**ENGINEERSPORT.COM**

## **Syllabus**

**Training on**

**Advance Embedded System & Robotics  
(Details , Topics and Projects List during training )**

## Description of Training & Training Modules:

### About Training:

is a time to up skill yourself in the areas of **Embedded Systems, Robotics and MATLAB**. It's an announcement about Embedded Hut Training/Internship Program with Project running in May, June and July. Beneficial for students interested to understand the Robo-World, want to make Autonomous, Micro mouse, Vision, Swarm Robots & Microcontroller based projects. This training covers most of the aspects of engineering in Robotics.



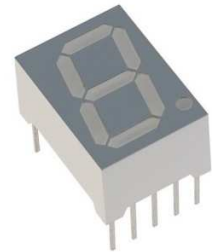
### Topics to be covered:

1. Introduction of Embedded System and Robotics
2. Introduction to Microcontrollers and cross compiler
3. Introduction to **AVR Microcontrollers**
4. Introduction to Embedded C and its Programming
5. Interface of **LEDs, Motors, buzzers, LCDs, IR Sensors.**
6. Interface of **Relay, Keypad, Speakers, Temperature Sensors.**
7. Interface of **RF module (Wireless), AC appliances (Bulb ,fans).**
8. Interface to **ADCs , PWM , interrupts, USART(Communication)**
9. Autonomous system ,Robotics, and Wireless Robotics
10. Introduction to **MAT LAB**
11. Introduction to **Arduino**
12. Introduction to **GPS & GSM (AT Command & Serial Communication )**

## Projects to be Covered (Total 35 Projects: 15 Major Projects/20 Minor Projects ):

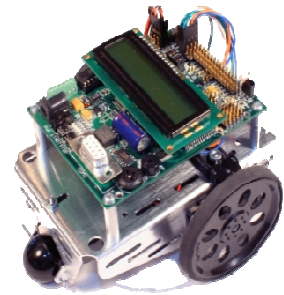
### 1) LED based Projects

- a) Blinking and Patterns of LED,
- b) LED chaser
- c) LED Cubes
- d) RGB LED
- e) Seven segment
- f) LED matrix
- g) Traffic light system
- h) LED brightness and colour control (PWM)



### 2) Motor based Projects

- a) Motor control with microcontroller
- b) Motor Direction Control
- c) Introduction to Motor Driver IC.
- d) Motor Speed Control (PWM)



### 3) LCD based Projects

- a) Name display
- b) Scrolling on LCD
- c) Variable display
- d) Small animation on LCD
- e) Clock on LCD
- f) Introduction to Graphical LCD
- g) Sensor Reading display
- h) Hindi/other language on LCD

### 4) Sensor based Projects

- a) IR Sensor Interface and Calibration with microcontroller
- b) Sensor Interface with LED/LCD/Motors
- c) Temperature Sensor and Digital Thermometer
- d) Temperature Control Fan /Fan Speed
- e) Temperature / Gas / Rain / Weather Monitoring System
- f) Sensor based intelligent applications and systems like intelligent Doors

### 5) Robotics based Projects

- a) Line follower Robot
- b) Obstacle avoider/ object follower Robot
- c) Never Falling Robot /Edge Avoider Robot
- d) Wireless Robot / PC Control Robot
- e) MAT LAB Control Robot
- f) GUI Control Robot

### 6) Application based Projects

- a) AC appliances interface/control with microcontroller
- b) Calculator (Keypad plus LCD)
- c) Tone Generation via Speaker(Sa Re Ga Ma OR Happy Birthday )
- d) Introduction to Open Source Hardwar and Software
- e) Introduction to **Arduino**

### 7) GPS & GSM Based Projects

- a) Sending/Reading SMS using MAT-LAB
- b) GPS Latitude / Longitude on MAT-LAB
- c) Serial Communication for GSM , GPS & AT Commands



### Kit to be provided:

Each Participant will be provided a kit which will contain:

1. AVR (Atmega 8) Plug & Play Kit (Development Board)
  - On Board 8 LED bach
  - On Board 3 channel With LED
  - On Board Motor Driver (With LED Indication)
  - On Board Motor Speed Control (PWM) Unit
  - On Board Speaker to generate Tone & Frequency
  - On Board LCD Connections
  - On Board USART Communication PORT (Rx Tx GND Vcc)
  - On Board 4 ADC Channel for Sensor / Analog Data
  - On Board ISP Communication / Programming Port
  - USB/External Powered (No External Power Source is needed is case of USB .)
  - On Board Interrupt & Reset Switch.
  - 4 I/O General Pins with Vcc & GND
2. AVR programmer (USBASP)
3. Char 16X2 LCD Display
4. MAX 232 interface
5. USB to Serial Converter

6. USB Cable
7. Seven Segment Display
8. Motors and assembly
9. IR sensors
10. Speaker
11. Robotics Assembly (chassis)
12. Caster Wheel
13. Wheel
14. Screw Pack,
15. Screw Driver
16. Study Material (CD)
17. Software Kit
18. Certificate of participation (All Participants)

### Training details:

India's Best Development Kit & Course Contents.

Batch Will Start on 1st Feb 2014

Duration: 1 Month Timings 2 Hrs. 7 Days in a Week

Fees: INR 3000/- per Candidate (Kit will be provided during training hours. )

INR 5500/-per Candidate with Kit

Venue: Numeric Info Systems H.C. : 13, Gulabchand Ki Bagichi, Behind Jhawar Estate, Thatipur, Gwalior- 474011 (M.P.)

**Numeric Info Systems Pvt. Ltd.**

