

# Embedded Systems & Robotics (Summer Training 2012)



**i3indya Technologies**

(A unit of I THREE INFOTECH PVT LTD)

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# Embedded Systems & Robotics

## Summer Training 2012



### COURSE HIGHLIGHTS

**Course:** Embedded Systems & Robotics

**Certification:** Participation Certificate by i3indya™ Technologies

**Study Material:** Book & CD Free to each participant

**Robotics Toolkit:** Free to Each Participant

1. For Embedded Systems & Robotics **(Basic Module Only)**  
**Fees:** ₹ 6,900/- per candidate  
**Duration:** 15 Days/45 hrs
2. For Embedded Systems & Robotics **(Basic + Advance Module)**  
**Fees:** ₹ 9,900/- per candidate  
**Duration:** 30 Days/90 hrs

### **Attractive Offer**

- Complementary Training on **TOUCH 1.0** (Surface Computing) **FREE** to each participant.
- **Ethical Hacking & Cyber Security** class **FREE** to each participant.

### **Basic Module - Embedded Systems & Robotics (15 Days/45 Hrs)**

**Practical's Covered:** 23

**Projects Made:** 9

<b>BASIC MODULE - Embedded Systems &amp; Robotics</b>		
<b>DAY</b>	<b>TOPICS</b>	<b>DURATION</b>
1	Introduction to Company Introduction to Robotics Future scope of Robotics Video Session Extra Topics and General Things	3 hour
2	Introduction to Embedded System AVR Series Micro-Controllers Difference Between $\mu$ C and MU Introduction to ATMEGA 16 Micro-Controller, Development Board Drivers & Software Installation Different Compilers Information USAB ASP Programmer and Burner Software	3 hour

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3	LED Interfacing with ATMEGA 16 – Theory <b>Practical 1:</b> Glowing LEDs in a pattern of your choice Seven Segment Displays – Theory <b>Practical 2:</b> Displaying Digits on Seven Segment Displays LED Matrix – Theory <b>Practical 3:</b> Display Alphabets on LED Matrix <b>Practical 4:</b> Generating Patterns on LED Matrix	3 hour
4	LCD Interfacing with ATMEGA 16 – Theory <b>Practical 5:</b> Displaying Text on LCD <b>Practical 6:</b> Scrolling Text on LCD <b>Practical 7:</b> Creating Simple Animation on LCD	3 hour
5	Motor Interfacing with ATMEGA 16 – Theory L293D IC & Its Need - Theory <b>Practical 8:</b> Learning Interfacing of Motor using LEDs & LCD <b>Practical 9:</b> Controlling Direction of Rotation of a Motor	3 hour
6	Introduction to ADC – Theory Working of IR Sensors – Theory Digital IR Sensors - Theory <b>Practical 10:</b> Detecting White and Black surface with Digital IR Sensors. <b>Practical 11:</b> Controlling Motor with Digital IR Sensor. Analog IR Sensors - Theory <b>Practical 12:</b> Measuring Distance of object using Analog IR Sensors. <b>Practical 13:</b> Controlling Motor using Analog IR Sensor.	3 hour
7	<b>Project 1:</b> Line Follower Robot <b>Project 2:</b> Wall Follower Robot Assignment & Revision	3 hour
8	Keypad Interfacing with ATMEGA 16 – Theory <b>Practical 14:</b> ON\OFF LED\Motor using single key Linear Keypad - Theory <b>Practical 15:</b> Controlling Motor (ON\OFF, Direction of Rotation) using Linear Keypad. <b>Practical 16:</b> Writing text on LCD using Linear Keypad <b>Project 3:</b> Making SUM Calculator using Linear Keypad	3 hour
9	<b>Project 4:</b> Password Controlled Application <b>Project 5:</b> Keypad Operated Robot Assignment & Revision	3 hour
10	Interfacing of Temperature Sensor – Theory* <b>Practical 17:</b> Calibrating Sensor value with Temperature Range <b>Project 6:</b> Digital Thermometer <b>Project 7:</b> Temperature Controlled Fan	3 hour
11	Buzzer interfacing with ATMEGA 16 – Theory <b>Practical 18:</b> Generating Beep through Buzzer <b>Practical 19:</b> Generating Beep in a Pattern	3 hour

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	<b>Practical 20:</b> Integrating Buzzer with Keypad <b>Project 8:</b> High Temperature Alarm	
12	Speaker (Monotone) Interfacing & PWM – Theory <b>Practical 21:</b> Generating different frequencies from Speaker* <b>Practical 22:</b> Integrating Keypad with Speaker <b>Practical 23:</b> Integrating IR Sensor with Speaker	3 hour
13	<b>Project 9:</b> Digital PIANO	3 hour
14	Revision & Problem Solving Session	3 hour
15	<b>Exam – Theory &amp; Practical</b>	3 hour

### Basic + Advance Module - Embedded Systems & Robotics (30 Days)

**Practical's Covered:** 27

**Projects Made:** 14

**Major Projects:** 3

ADVANCE MODULE - Embedded Systems & Robotics		
DAY	TOPICS	DURATION
16	Matrix Keypad Interfacing (Normal\Interrupt driven) – Theory <b>Project 10:</b> Calculator	3 hour
17	Working of Relays – Theory Interfacing Relays with ATMEGA 16 – Theory <b>Practical 24:</b> ON\OFF Bulb or Fan (100 W) from Microcontroller <b>Project 11:</b> Controlling AC Appliances using Keypad	3 hour
18	Touch Screen Interfacing with ATMEGA 16 – Theory <b>Practical 25:</b> Displaying values of Touch Screen points on LCD <b>Practical 26:</b> Controlling Motors\LEDs using Touch Screen <b>Project 12:</b> Touch Screen Controlled Robot	3 hour
19	Working of DTMF – Theory Mobile Controlled Applications – Theory <b>Project 13:</b> Mobile Controlled Robot	3 hour
20	<b>Major Project 1:</b> Mobile Controlled AC Devices	3 hour
21	RF Module (Wireless Technology) Interfacing <b>Practical 27:</b> Testing RF Module using LEDs*	3 hour
22	<b>Major Project 2:</b> Keypad Controlled Wireless Robot	3 hour

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23	USART Protocol – Theory <b>Project 14: PC Controlled Robot</b>	3 hour
24	<b>Major Project 3: PC Controlled Classroom via RF Module</b>	3 hour
25	Revision & Problem Solving Session	3 hour
26	<b>EXAM – Theory &amp; Practical</b>	3 hour
27	Project Work by Students	3 hour
28	Project Work by Students	3 hour
29	Project Work by Students	3 hour
30	<b>REPORT SUBMISSION</b>	
31	<b>CERTIFICATE DISTRIBUTION</b>	

### **Robotics Kit Content**

- Development Board for ATmega 16 (1)
- USB Programmer Board (1)
- DTMF board for GSM Controlled Robot (1)
- Dual IR Sensor Boards (2)
- LCD Display (1)
- Seven Segment Display (1)
- Chassis (1)
- DC Geared Motors (2)
- Connecting Cables
- Screws
- Screw Driver (1)
- ATmega 16 Micro-Controller (1)
- Onboard IC L293D (1)
- Onboard IC MAX 232 (1)
- Onboard IC LM 358 (2)
- Onboard IC ATmega 8L (1)
- Onboard IC MT 8870 (1)
- Wheels (2)
- Caster Wheel (1)
- Mono Tone Speaker (1)
- LED Matrix (1)
- USB TO SERIAL CONVERTER (1)

### **Why Embedded Systems & Robotics Training from i3indya Technologies?**

1. **27 Practicals, 14 Minor Projects & 3 Major Projects** will be covered within 30 days of training.
2. Our syllabus is professionally designed to cover **Basic** as well as **Advance** aspects of Embedded Systems & Robotics
3. Each day of our training is well planned to provide you with **Theoretical** as well as **Practical** knowledge of the module.
4. Each day will come up with **New Practicals & Projects** which makes the training interesting and exciting.
5. Time to time **Practical Assignments** will be provided to the students, which will help them in doing practice at home.
6. **Revision Time & Query Sessions** are provided to the students which help them in clearing previous doubts.
7. **Exam** will be conducted at the end of **basic** as well as **Advance** module to test the knowledge level of the students.

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8. Time for **Project Work** will be provided to the students, in which students will develop a project of their own choice. This will encourage **Innovative Ideas** among students.

### **Pre-Requisite**

1. Basic knowledge of C\C++ Programming.
2. Basics of Electronics.

### **Who Could Attend this Training?**

- Students from B.Tech (ECE\CSE\IT) can join this training.

### **Batches:**

- May 2012
- June 2012
- July 2012

**Covered more than 300+ colleges**

**Trained more than 40,000+ students**

**Training Partner of IIT's, NIT's and Deemed Universities**

### **Training Centers:**

- Delhi
- Chandigarh
- Jaipur
- Hyderabad
- Chennai

### **Discounts:**

- For a group of 5 students: 5%
- For a group of 7 students: 7%
- For a group of 10 students: 10%

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### **Registration:**

- Download the [Training Registration Form here](#)
- To confirm your seat send Training Registration Form along with one ID proof, Photocopy of D.D. & Course fee (₹ 6,900/- for BASIC Module ; ₹ 9,900/- for BASIC + ADVANCE Module) via D.D. in favor of "I THREE INFOTECH PVT LTD" payable at New Delhi

### **Contact Us:**

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