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Venture of IIT Bombay & VJTI Alumni

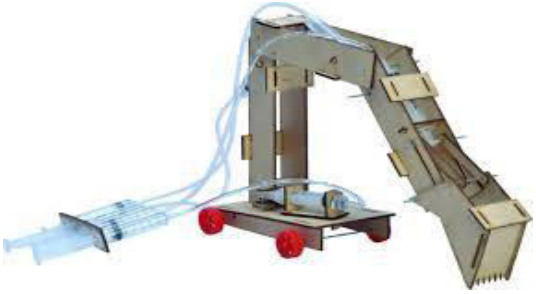
3 Times IIT Bombay Robo Competition Winner

Industrial Certified SRA - Level 3

All India Council For Technical Skill Development (AICTSD)

In Association with

IITians Embedded Technosolution



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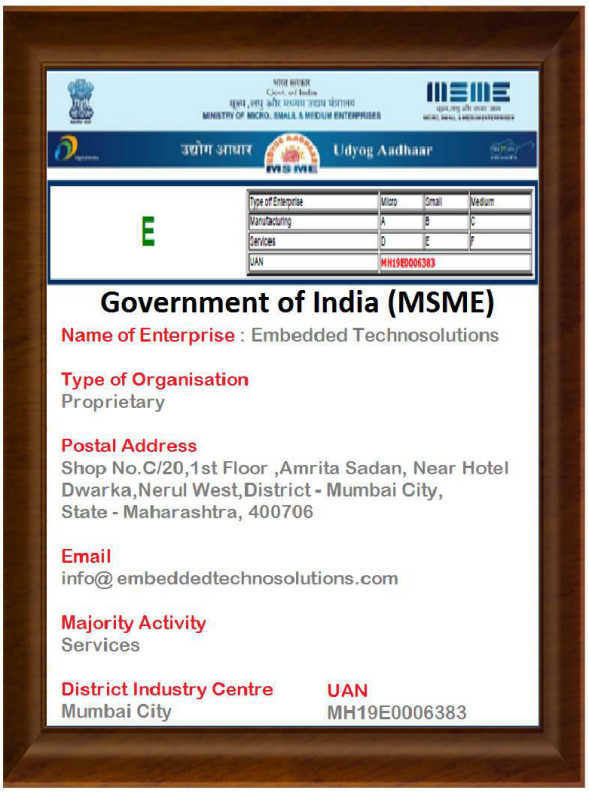

Government of India (MSME) & ISO 9001-2015 Approved Organisation

Running by IIT Bombay & VJTI Alumni

Embedded Technosolutions is a Professional & Corporate Training Institute & a Company which Working for Indian MNCs & Medium/Small Scale Industries in Product R&D, Development, Manufacturing & Customization.

Our training sessions are purely practical based on industrial standards

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Till Now We Worked for the following Industries

- Crompton Greaves Ltd, Mumbai
- Laboratory Corporation of America, LabCorp, Burlington, NC USA
- Netfinity, India
- Continental Grain Corporation
- Brook Furniture Rental, Chicago, IL
- ITA,Banglore
- RAK Ceramics,Mumbai
- Nvidia,Pune
- ARORA,Mumbai
- RED Cell, Mumbai
- Secutech ,Mumbai

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BRAND

PROMISE

We Guarantee You that, You Can Develop Your Projects by Your Own After This Training Program

COURSE SYLLABUS

School Robotics & Automation

Level -3

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Part 1

Robotics Coding & Algorithm Concepts

Module 1 - Introduction

- Python | The New Generation Language
- Variables | Expressions | Functions
- Global and Local Variables

Module 2 - Operators

- Division Operator
- Any and All Operator
- Increment and Decrement Operators
- Operator Functions
- Ternary Operator
- Quiz on Operators

Module 3 - Data Types

- Introduction
- Strings :
  - Strings | Set 1
  - Strings | Set 2
  - String Methods | Set 1
  - String Methods | Set 2
- List :
  - Comprehension and Slicing
  - List Methods | Set 1
  - List Methods | Set 2
- Tuples
- Arrays | Set 1
- Arrays | Set 2
- Quiz on Data Types

Module 4 - Dictionary

- Introduction
- Dictionary Methods

Module 5 - Flow Control

- Loops and Control Statements
- Counters

Module 6 - Functions

- Mathematical Functions | Set 1
- Mathematical Functions | Set 2
- Calender Functions
- enum

Module 7 - OOPs (Object Oriented Programming)

- Class | Objects
- Data Hiding and Object Printing
- Inheritance

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Part 2

Robotics Embedded Systems

Module 1 - Introduction

1. Introduction to Embedded Systems
2. Scope in Embedded Systems

Module 2 - Robot Development Platform

3. Introduction to Open Source Platform Arduino
4. Introduction to Arduino IDE

Module 3 - Robot Core Programming

5. Embedded C Programming for Arduino
6. Arduino Libraries & Basic Module Interfacing
7. Logic Families
8. Introduction of Embedded Software
9. Introduction of Embedded C Programming and programming concepts
10. Introduction of program burning / flashing software

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Module 4 - Input / Output Device Interfacing

11. I/O interfacing concept
12. Led Blinking logic and delay generation routine
13. Design of Traffic Light Controller System

Module 5 - LCD Interfacing

14. Character LCD 16x2 interfacing logic and concept
15. Introduction of LCD command and data signals
16. LCD based programming
17. Practical project based on character LCD

Module 6 - Matrix Keypad Interfacing

18. Matrix keypad interfacing logic and concept
19. Introduction of key pad interfacing using polling method
20. Matrix keypad programming
21. Practical project based on matrix keypad

Module 7 - Serial Communication

22. Introduction to serial communication

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23. Serial communication concept
24. Introduction of serial communication firmware and registers
25. Serial communication programming
26. Practical application based on Serial communication

Module 8 - Interrupt in Process

27. Introduction of interrupts in controller
28. Interrupt logic and concept
29. Interrupt routines / programming
30. Key interfacing using interrupt
31. Practical application based on interrupt

Module 9 - Relay Interfacing

32. Introduction of Relay
33. Relay interfacing and comparison of relay with other switching devices
34. Relay programming
35. Practical application based on relay

Module 10 - Analog to Digital Converter - ADC

36. Introduction of ADC
37. ADC interfacing
38. ADC programming

Part 3

Robotics Designing Concepts

Module 1 - Introduction of Robotics & Designing

39. Introduction of Automation & Technology
40. Introduction of Artificial Intelligence(AI) & Its Use in Technology
41. Artificial Intelligence Mechanism & Computations
42. Science & Mathematical Principles used in Automation & Artificial Block Building
43. Electrical & Mechanical Concepts Involved in Robot Building Concepts
44. Introduction to Various Major Components used in Robot Building
45. Schematic & Interconnections of Various Modules
46. Introduction to Power Supply Unit Used in Automation
47. Physics Concepts of Power Supply

48. Power Supply Designing Concepts
49. Integration of Various Mechanical & Electrical Components to form Basic Robot Unit
50. Introduction to Electronics Passive & Active Components
51. Electronic Circuit Testing & Fault Finding
52. LED Blinking Concepts

Module 4 - Wireless Communication Technology

53. Introduction to Wireless Technology
54. Introduction to Wireless domain Advantages & Applications

Module 5 - Bluetooth Technology

55. Introduction to Bluetooth Communication
56. Bluetooth technology interfacing in real application
57. Bluetooth module programming

Module 6 - Radio Frequency Identification (RFID) Technology

58. Introduction of RF Communication
59. RF technology interfacing in real application
60. RF module programming

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	Live Projects : Part 1 **Based on School Robotics & Automation Level - 3**
1	Design a Calculator
2	Program to swap two numbers
3	Program to check if given year is leap year or not
4	Program to print Floyd's triangle
5	Program to find Area of Circle
6	Program to find Area of a Triangle
7	Program to find factorial of a number
8	Program to find GCD / HCF of two number
9	Program to find LCM of two number
10	Program to find all angles of a triangle
11	Solving f(n)= (1) + (2*3) + (4*5*6) … n using Recursion
12	Program to print first n Fibonacci numbers
13	Multiply the given number by 2 such that it is divisible by 10

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14	Program to find greater value between a^n and b^n
15	Maximum number of pieces in N cuts

	Live Projects : Part 2 Based on School Robotics & Automation Level - 3
1	Notice Board Design
2	Key Interfacing
3	Data exchange System
4	Disco Light Controlling
5	Traffic Light Designing
6	Variable Signal Reading
7	Auto Process Interruption
8	Alarm System
9	Voting Machine

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	Live Projects : Part 3 **Based on School Robotics & Automation Level - 3**
1	Basic Artificial & Automation Mechanism Module Designing
2	RFID Controlled Based Remote Car
3	Bluetooth & Android Based Robot Designing
4	Wireless Home Automation
5	Traffic Light Designing
6	Electronics Solar Energy Tracker
7	Password Controlled Door Lock System
8	Voice Controlled Robot (Alexa)
9	Designing of Door Bell System
10	Motor Controlling System

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