



Embedded Technosolutions

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3 Times IIT Bombay Robo Competition Winner

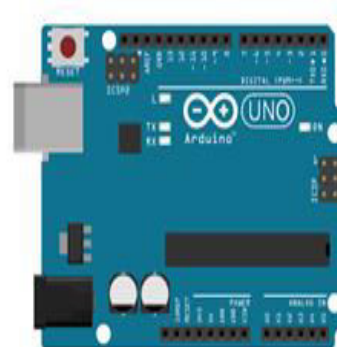
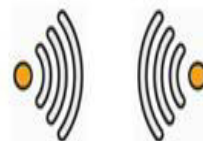
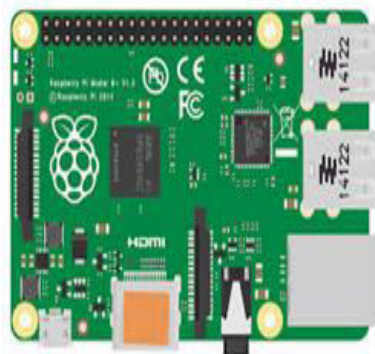
Industrial Certified

Embedded System Developer

**All India Council For Technical Skill
Development (AICTSD)**

In Association with

IITians Embedded Technosolution





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B R A N D

PROMISE

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



Embedded Raspberry Pi IOT

Module 1 : Raspberry Pi Set up & Configurations

- Program Raspberry Pi : a credit-card sized computer
- Python programming for Raspberry Pi
- Interacting and configuring the RPi OS
- ARM 11 architecture
- Porting of Linux Kernel and booting RPi

Module 2 : Linux Command for Application Execution

- Linux Programming Basics



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Module 3 : Raspberry Pi GPIOs

- Programming the GPIO and interfacing peripherals With Raspberry Pi

Module 4 : PWM Generation

- Generating PWM signals through the Pi for Various applications

Module 5 : UART Protocol & Interfacing

- Programming and work with UART protocol ,example Bluetooth

Module 6 : I2C Protocol Interfacing & Applications

- Work with I2C protocol

Module 7 : Camera Interfacing & Applications Designing

- Camera Libraries & Driver Installations
- Camera based applications designing

Module 8 : Raspberry Pi Webserver

- Remote Login methods: HyperTerminal, Ethernet
- LED Operation Using IOT
- Embedded Webserver



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Module 9 : Computer App Designing

- Developing GUI with TKinter

Embedded Arduino

Chapter 1

- Introduction to Embedded System with Arduino
- Scope of Arduino in Embedded Systems

Chapter 2

- Introduction to Arduino series
- Hardware architecture of Arduino controller Series
- Controller I/O ports
- Memories of controller
- Concept of Serial communication ,Interrupt etc.

Chapter 3

- Introduction of Embedded Arduino Software



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- Introduction of Embedded C Programming and programming concepts for Arduino
- Introduction of program flashing and error correction

Chapter 4

- I/O interfacing concept
- Led Blinking logic and delay generation routine

Chapter 5

- Character LCD 16x2 interfacing logic and concept
- Introduction of LCD command and data signals
- LCD based programming
- Practical project based on character LCD

Chapter 6

- Matrix keypad interfacing logic and concept
- Introduction of key pad interfacing using polling method
- Matrix keypad programming



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- Practical project based on matrix keypad

Chapter 7

- Introduction to serial communication
- Serial communication concept
- Introduction of serial communication firmware and registers
- Serial communication programming
- Practical application based on Serial communication

Chapter 8

- Introduction of interrupts in controller
- Interrupt logic and concept
- Interrupt routines / programming
- Key interfacing using interrupt
- Practical application based on interrupt



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Chapter 9

- Introduction of ADC
- ADC interfacing
- ADC programming

Chapter 10

- Introduction of DTMF mobile technology
- DTMF technology interfacing in real application
- DTMF programming
- Practical project design based on DTMF technology with Arduino

Chapter 11

- Introduction to RF & RFID communication
- RFID technology interfacing in real application
- RFID module programming
- Practical project design based on RFID technology with Arduino



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Chapter 12

- Introduction of I2C Protocol
- I2C protocol interfacing in real application
- I2C module programming
- Practical project design based on I2C protocol with Arduino

Chapter 13

- Introduction of Bluetooth Communication
- Bluetooth technology interfacing in real application
- Bluetooth module programming
- Practical project design based on Bluetooth technology

Chapter 14

Practical designing of a project based on above technology with Arduino



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Python Programming

Chapter 1: Introduction

- Introduction to Python Language
- Industrial Importance of Python Language
- Features of Python Language

Chapter 2 : Environment Setup

- *Getting Started with Python*
- *Installing Python*
- Unix and Linux Installation in Python
- Windows Installation
- *Setting up PATH*
- *Setting path at Unix / Linux*
- *Setting path at Windows*

Chapter 3 : Starting With Python Programs

- *Script Programming*
- *Python Identifiers*



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- Python Keywords
- Python Lines and Indentation
- *Python Multi-Line Statements*
- Quotation in Python
- Comments in Python
- Using Blank Lines
- Multiple Statements on a Single Line
- Variables and Data Types in Python
- Multiple Assignment in Python Programming
- Standard Data Types in Python
- Data Type Conversion in Python
- Python Input and Output

Chapter 4 : Python - Operators

- Types of Different Operators in Python
- Changing the Order of Evaluation

Chapter 5 : Conditional statements in Python Programming

- if statements
- if...else statements



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- The elif Statement
- Nested if statements

Chapter 6: LOOPS in Python Programming

- While loop
- The Infinite Loop
- Using else Statement with Loops
- For loop
- Nested loops
- Loop Control Statements

Chapter 7: Strings in Python Programming

- Accessing Values in Strings
- Updating Strings
- Escape Characters
- String Special Operators
- String Formatting Operator
- Triple Quotes

Chapter 8: Lists in Python Programming

- Python Lists



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- *Accessing Values in Lists*
- *Updating Lists*
- *Delete List Elements*
- *Basic List Operations*
- *Indexing, Slicing, and Matrixes*
- *Built-in List Functions & Methods*

Chapter 9 : Tuples in Python Programming

- Python Tuples
- *Accessing Values in Tuples*
- *Updating Tuples*
- *Delete Tuple Elements*
- *Basic Tuples Operations*
- *Indexing, Slicing, and Matrixes*
- *No Enclosing Delimiters*
- *Built-in Tuple Functions*

Chapter 10 : Dictionary in Python Programming

- Python Dictionary
- Accessing Values in Dictionary



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- Updating Dictionary
- Delete Dictionary Elements
- Properties of Dictionary Keys
- Built-in Dictionary Functions & Methods

Chapter 11 : Functions in Python Programming

- Calling a Function
- Pass by reference Vs. value
- Function Arguments
- Required arguments
- Keyword arguments
- Default arguments
- Variable-length arguments
- The Anonymous Functions
- The return Statement
- Scope of Variables
- Global vs. Local variables
- The global statement



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Chapter 12: Modules in Python Programming

- The import Statement
- The from...import Statement
- The from...import * Statement
- Locating Modules
- The PYTHON PATH Variable
- The time Module
- Getting current time
- Getting formatted time & The calendar Module



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Live Projects :

Raspberry Pi IOT Based

1	Traffic Light System
2	Environmental Parameters Measurement
3	Voice Control Home Automation
4	BlueSys using Bluetooth
5	Wireless Mobile Smart System
6	PWM Based Variable System
7	Camera based Surveillance System
8	GUI Based Home Automation using TKinter



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Live Projects :

Embedded Arduino Based

1	Traffic Light System
2	RFID Security System Based Door Authentication
3	DTMF Technology Based Universal Home Automation
4	Wireless Appliance Controlling System using Android App
5	Notice Board
6	Room Temperature Controlling System with PC Interface
7	Password Protected Locker System