THE TECHNO-MANAGEMENT FEST

WISSENAIRE

KNOWLEDGE RUNS FREE

Embedded Systems with Robotics & Internet of Things

Certification 2-8 Weeks / 30-40 Hours

Industry ready exhaustive program

Internship & Training Program

Make Projects & Get Trained

Official Partner

EduVitae Services

JOIN! LEARN! ACHIEVE!

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MSME

सूक्ष्म, लघु एवं मध्यम उद्यम

MICRO, SMALL & MEDIUM ENTERPRISES

THE TECHNO-MANAGEMENT FEST

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About EduVitae Services

EduVitae Services, run by **IITians & industry experts**, is a renowned provider of education, training, research and development programs, with a large presence. We offer a wide range of specific industry ready courses and training opportunities in the areas of computer science and IT, animation and multimedia, as well as engineering, management and advanced technology. Our programs include workshops, training, internships, hackathons, corporate training, certificate courses, placement training, research, and development programs, all designed to meet the needs of students, professionals, academic institutions, and industry. Our reputation as one of the best technology training providers, is a testament to our commitment to helping our students and clients acquire the skills and knowledge they need to succeed in their careers and goals.

Our Clientele/Collaborations

Top private & government academic institutions, college's fests and corporates where directly/indirectly our presence have been felt:

Indian Institute of Technology, Kanpur
Indian Institute of Technology (Banaras Hindu University), Varanasi
Indian Institute of Technology (ISM), Dhanbad
Indian Institute of Technology, Jodhpur
Indian Institute of Technology, Bhubaneswar
Blithchron, Indian Institute of Technology, Gandhinagar
Indian Institute of Technology, Guwahati
Indian Institute of Technology, Patna
Indian Institute of Management (IIM), Lucknow
Indian Institute of Management (IIM), Indore
National Institute of Technology, Surat
National Institute of Technology, Bhopal
National Institute of Technology, Warangal
National Institute of Technology, Trichy
Chandigarh University
DIC, Department of Applied Arts (Visual Arts), Banaras Hindu University, Varanasi
Madan Mohan Malaviya University of Technology, MMMUT Gorakhpur
Maharaja Agrasen Institute of Technology, Delhi
Thapar Institute of Engineering & Technology, Punjab
Assam Engineering College, Assam
Jaypee University of Engineering & Technology
Shillong College, Meghalaya
SRCC, Delhi University
Kendriya Vidyalaya, India
DAV School, India
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Industry/Corporate/Startups/Government
MapsCrew
Rabbixel
CreativeHatti
Accenture
Capgemini
F1 Digitals
TIH IIT Roorkee, DST, Govt. of India
……..

and many more tech & non-tech colleges/universities/institutes/schools & organizations/startups/companies across India and globe.

Achievements & Milestones

- ✓ Our alumni / students are working in top notch company of India & MNCs **VMware, Infosys, Cognizant, CGI, Fidelity, Razorpay, EXL, CARS24, Tata Steel, NVIDIA, MyKaarma, Oyo Rooms, Samsung, Walmart Labs, L&T, JIO, Citibank, TCS, Accolite, BNY Mellon**, and many more.
- ✓ Conducted a number of workshop/training/internship programs in many colleges/universities/schools like **IITs, IIMs, NITs, IISc** & other prestigious institutions of India & with the corporates too.
- ✓ Trained many college/university/school students, some of them have created a milestone for **EduVitae Services** by meeting with **Shri Narendra Damodardas Modi** (Prime Minister of India) related to some **robotics projects**.
- ✓ Collaborating with Industries / Corporates / Startups to provide them hiring services (helping them to hire fresh trained talent with us).
- ✓ Signed MOUs / worked with top notch colleges / universities / schools / organizations like **Techkriti IIT Kanpur, Technex IIT (BHU) Varanasi, Wissenaire IIT Bhubaneswar, Techniche IIT Guwahati, Concetto IIT (ISM) Dhanbad, Pravega IISc Bangalore, IGNUS IIT Jodhpur, Ranbhoomi IIM Indore, IIM Lucknow, MMMUT GKP, NIT Surat, NIT Bhopal, NIT Warangal, NIT Trichy, Chandigarh University, Thapar University, SRCC DU, KMC DU, TIH IIT Roorkee DST Govt. of India** and many other academic institutions for professional / industry ready & learning skills training / workshop / internship programs.

Prerequisites

Participants from 1st year/ 2nd year / 3rd year / 4th year of ECE/EE/IT/CS/ME/MCA//BCA/Bsc-IT/Other branch/stream will get more benefited after joining this program and other interested students can also participate in that as per their requirement.

What is required before joining this training program?

Here's the checklist

1. A laptop with Microsoft Windows (7 or later) configuration along with smartphone as per need/requirement.
2. Laptop Charger/Adapter for charging purpose.
3. USB Mouse for designing purpose (if required).
4. Internet Connectivity (Typically to be able to do video call / conferencing, if the program is in online mode)
5. Hardware components as per the requirement. (List of components are attached with the content, check below)

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6. Notepad & Pen/Pencil for important notes and most important your interest & dedication.

Training Deliverables & Takeaways

Every participant will get

- ✓ Industry Ready Curriculum
- ✓ Interactive & Doubt Session
- ✓ Certification Program
- ✓ Mini & Major Projects
- ✓ Career Guidance
- ✓ Projects/Practical Based Learning

Course & Content

All of the sessions will be theoretical & practical oriented, so it will be really great if participant(s) can look on the syllabus which we are going to cover during training days.

Embedded Systems with Robotics & IoT

Section #1

Embedded Systems

- Introduction of Embedded
- Embedded System Applications
- Microcontrollers
- Microprocessors
- Microcontroller Vs Microprocessor

Section #2

Embedded Softwares

- Introduction to Assembler/Compiler/Interpreter/Debugger/IDE
- Introduction to Programming Languages - Embedded C/ Python
- Basic Introduction of C and python
- Introduction to loops, conditional statements & functions
- Bitwise operators and logical operators
- Array and String Concepts

Section #3

Arduino

- Introduction to Arduino
- Working with Arduino

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- Architecture of Arduino
- Digital Input and Output Pins
- Interfacing Output Devices with Arduino
- Interfacing Input Devices with Arduino
- Introduction of Serial Communication
- Introduction to GUI using Python
- Controlling Devices using GUI

Section #4

Basic Electronics

- Electronics vs Electrical
- Voltage, Current, Resistance and Capacitance
- Circuit Simulator
- Digital Logic and TTL Logic
- Introduction to Multimeter
- Power Supplies (Electrical and Batteries)
- Various type of Diodes and its application
- BJT Applications
- Drivers
- Timers
- Operational Amplifiers & Logic Gates

Section #5

Circuits/Sensor Design

- Introduction to circuit Design
- Designing Single Side/Double Sided PCB
- Designing Line Following Sensor Circuit

Section #6

Interfacing Sensors and Actuators

- IR Sensor
- Temperature Sensor
- Ultrasonic Sensor
- PIR Sensor
- DHT Sensor
- LDR Sensor
- Touch Sensor
- Types of Motors
- Motor Drivers/ESC and its applications

- PWM Concepts
- DC Motors
- Stepper Motors
- Servo Motors

Section #7

Robotics Basics and Principles

- Introduction to Robotics
- Robotics Applications
- Degree of freedom
- Designing Line Following Robot Non Programmable
- Light Tracking Robot

Section #8

LCD & its interfacing

- Introduction to LCD
- Types of LCD
- Display Character and String on LCD
- Display digit on LCD
- Moving Pattern on LCD
- Creating Simple Animation on LCD
- Printing symbols on LCD
- Printing Hindi Character

Section #9

Introduction of Intercommunication Protocols

- Various Serial Communication Protocols: 1 Wire, Serial, I2C, SPI
- RS-232 Protocol
- Interfacing Display/RTC Using I2C/SPI Protocol
- Interfacing Bluetooth
- App Responsive Audio Alert System

Section #10

Relay

- Introduction to Relay and its Industrial Application
- Working of Relay
- Interfacing Relay with Arduino
- Automated Water Irrigation System

Section #11

Introduction of IoT

- Why do we need IoT?
- Role of IoT In Various Field
- Application and Future Scope of IoT
- IoT Architecture Design
- Sensor Nodes
- IoT Simulators
- Raspberry Pi Introduction
- Introduction to NodeRed

Section #12

NodeMCU

- Introduction of NodeMCU
- Architecture of NodeMCU
- MQTT Protocol
- Interfacing I/O Devices with NodeMCU
- Connecting nodemcu with wifigatway
- Server - Client Configuration

Section #13

Prototyping the Applications

- Line Follower Robot Reprogrammable
- Edge/Obstacle Avoidance System for Mopper Robot
- Voice controlled Car
- IBM Watson Enabled Sensor Node for Industrial Application
- IoT Enabled Smart Home
- Live tracking Sensor Data on Cloud Dashboard
- Design webpage for monitoring and controlling Industrial Devices