

**45 DAYS WINTER TRAINING CUM
INTERNSHIP PROGRAM IN
IOT & EMBEDDED SYSTEMS**

BROCHURE

CONNECTING THE UNCONNECTED



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www.theiotacademy.co

ABOUT US

We are a fast emerging company imparting quality and affordable programs for colleges and individuals for digital economy skills training, internship and guidance focused on helping people develop the skills they need to thrive in the rapidly growing digital economy.

'The IoT Academy' has made a niche name for itself providing online training in rigorous Internet of Things (IoT), embedded Big Data, Data analytics, Industrial systems, IoT, Industry 4.0, Artificial Intelligence, Digital marketing and Machine Python,

Learning. Based in Delhi NCR since 2017 we have helped 150+ professionals, 600+ students and 100+ faculties across the states get trained, acquire certifications, and upskill their employees.

MISSION

We aspire to provide learners an edge over the career they choose to stand out amongst today's competitive world through support in training and various academic and industrial collaborations.

VISION

At IoT Academy We believe that the future is about Unified and Converged technologies as reflected in our mission statement. Every aspect of life will eventually lead in bringing forth a unified world of immense possibilities.



Our Services

For Educational Institutes



Lab Setup

We provide hardware and support in lab setup for IoT and LPWAN.

Workshop/Seminars

We conduct workshop and seminars on emerging technologies which are given by industry experts.

Center of Excellence

Under our 'Center of Excellence' offering we provide all the services apart from encouraging R&D and entrepreneurship efforts by guiding both faculty and students.

Faculty Training

We provide training to faculties of educational institutes under our 'Faculty Development Program' so that they become aware of how new technology is used in industry and they can impart the same knowledge to their students.

Student Training

We provide training to students on various topics including the emerging technologies which are targeted towards making them more relevant and employable as per the industry.

Our Services

For Students



Internships

We provide internships to students where they are able to work in a professional environment and learn a lot.

Projects

We help students design and implement projects whether a small one or a big one on any topic within the scope of all the subjects that we provide training for.

Placements

Our complete training programs comes with 100% placement guarantee as the courses are designed specifically keeping enhancing skills for jobs in mind.

Summer/Winter Training

Short duration trainings during summer and winter breaks are designed keeping school & college students in mind. Our aim is to give in-depth knowledge to students on a particular topic of their choice within the time frame.

Training

We provide training to students on various topics including the emerging technologies which are targeted towards making them more relevant and employable as per the industry.



Educational Partners



E&ICT, IIT Kanpur



E&ICT, IIT Guwahati



E&ICT, IIT Roorkee



NIT Patna



ASTU University



J.S.S. Noida



IPEC



BVM Engineering College



BVP Pune



Jamia Hamdard



ITS Ghaziabad



VSSUT Odisha



JIIT Noida



JNTU Hyderabad



VIGNAN'S

Corporate Partners



Our Placements

Congratulations!

To our students who have worked so hard to be placed within the Top Companies.



Prakhar Maheshwari
Capgemini



Saumya Singh
Bosch



Anjuli Agarwal
TCS



Yogesh Mishra
UniConverge Technologies



Tanu Chinwan
Capgemini



Raghav Aggarwal
Aerogram



Vaishali Singh
eWandzDigital Services



Ayush
TCS

Course Curriculum

01

Introduction to IoT

2

- Introduction to IoT
- IoT and Its Application
- How M2M is different from IoT
- Components of IoT
- IoT Devices
- IoT Communication Protocols
- IoT and Its Future

0

Embedded System And IoT

3

- What Is Embedded System?
- What Is Microcontroller?
- 8/16/32 Bit Microcontrollers
- Hardware For IoT – Nodemcu, Raspberry-Pi
- Hardware & Software Protocols

0

Introduction To Online Simulator

5

- How To Build CIRcuits On Simulator
- How To Write Program On Simulator
- Basic Electronics CIRcuits

0

Introduction To Nodemcu

7

- Install Arduino Ide Software
- Programming Of Arduino
- Integration Of Nodemcu Board To Arduino Ide
- Programming Of Nodemcu

0

Introduction To Communication

8

- Serial Uart/Usart Communication
- I2c (Twi) Communication
- Spi Communication

0

Measuring Temperature

9

- Tmp36 Sensor
- Interfacing Of Tmp36 Sensor With Arduino

0

Embedded C

1

- Datatypes
- Global And Local Variable
- Keywords
- Storage Class
- Memory Map
- Volatile
- Operators
- Flow Control
- Loops
- Function
- Array
- String
- Pointer
- Structure
- Union
- Enum

0

Introduction To Arduino

4

- Getting To Know The Arduino Uno: Pins, Power, Clock
- Using The Digital Output Pins Using
- The Digital Input Pins Using The
- Analog Input Pins
- Using The Analog Output Pins(Pwm)

0

Arduino Programming

6

- An Introduction To Arduino Programming
- Understand The Basic Parts Of An Arduino Sketch
- Digital Output - How To Control An Led
- Digital Input - How To Read The State Of A Button
- Analog Input - How To Read The State Of A Potentiometer
- Analog Output - How To Create A Fading Led



10 Detecting Objects With The Infrared Sensor

- Introduction To The Passive Infra-Red (PIR) Motion Sensor
- A Simple PIR Experiment With An Led A
- Demonstration Of Using The PIR Sensor With The Arduino
- PIR Sensor Demonstration Sketch Walkthrough

11 Keypad(4*4)

- Hardware Overview – Membrane Keypad
- Pinout Of 4x4 Membrane Keypad
- How Keypad Works & How To Scan Them? WIRing 4x4 Membrane Keypad With
- Arduino
- Installing Keypad Library
- Arduino Code
-

12 Servo Motor

- What Is Servo?
- How Servo Motors Work?
- Servo Motor Pinout
- WIRing Servo Motor To Arduino Uno
- Arduino Code

13 IoT Communication

- Machine To Machine Communication (M2m) Advantages & Disadvantages
- Types
 - Bluetooth
 - Wi-Fi
 - Radio Frequency (Rf Channel)
 - Zigbee
 - Lora Wan
 - Nfc (Near Field Radio Frequency)

14 Measuring Distance

15

- Introduction To Ultrasonic Distance Sensor
- Writing And Understanding Trigger And Echo
- How To Calculate Distance

16 The Liquid Crystal Display

17

- Introduction To The Lcd
- Lcd WIRing In 4-Bit Parallel Mode
- Lcd Demonstration Sketch
- Display Sensor Data In The Lcd

18 Gas Sensor

19

- What Is Mq2 Gas Sensor?
- Internal Structure Of Mq2 Gas Sensor
- How Does A Gas Sensor Work?
- Hardware Overview – Mq2 Gas Sensor Module
- Calibrate Mq2 Gas Sensor Module Mq2
- Gas Sensor Module Pinout
- WIRing – Connecting Mq2 Gas Sensor Module To Arduino Uno
- Code

20 IR Remote And IR Sensor(Tsop)

21

- What Is Infrared?
- How IR Remotes And Receivers Work
- IR Signal Modulation
- IR Transmission Protocols
- IR Codes
- How To Connect An IR Receiver To The Arduino
- Programming The IR Receiver
-

22 Thingspeak IoT Cloud Platform

23

- Introduction About Thingspeak
- Cloud Setup
- Send Data On Thingspeak
- Thingspeak Dashboard



1
9

IoT-Security

- **Authentication**
 - Overview Of Authentication
 - Why It Is Needed
 - Different Ways Of Authentication
 - Testing Them With Bruteforce Tools
 - Examples
 - Implementation On IoT Devices
- **Remote Debug**
 - Remote Connectivity Of IoT Device
 - Retrieving Debug Logs For Error Codes
 - Include In Remote Code In IoT Devices
- **Encryption**
 - Types Of Encryption
 - Simple And Best Usage
 - Examples
- **Privacy**
 - Overview Of Privacy
 - How It Is Being Implemented
 - Publishing Data Over Cloud
 - Examples
- **Authorization**
 - Overview
 - How Is It Is Implemented In IoT And Cloud
 - Implementations Examples

2
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IoT Protocols

- **Https/Rest – Ipv4 Ipv6**
 - Advanced Networking
 - Webserver
 - Rest Client
- **Amqp – Azure IoT Sdk**
 - Usage Of Amqp For Microsoft Azure Cloud
 - Advantages And Disadvantages
 - Best Practices And Usages Of Amqp
- **Mqtt – Mosquito Mqtt**
 - Usage Of Mqtt For Transporting Data To Cloud
 - Advantages And Disadvantages
 - Best Practices And Usages Of Mqtt
- **Coap**
 - Usage Of Coap Protocol
 - Advantages & Disadvantages
 - Best Practices And Usage

2
1

Introduction To Node-Red

- What Is Node-Red?
- History Of Node-Red
- Why We Need Node-Red?
- Installation Of Node-Red

2
2

How To Use Node-Red?

- Basic Nodes
- Input-Output Nodes
- Inject Node
- Debug Node
- Function Node
- Dashboard Setup



2

Mosquitto Local Broker (Hands-On)

3

- Mosquitto Local Broker Installation
- Mqtt Nodes In Node-Red
- Connection Between Local Broker And Node-Red

2

IBM Bluemix IoT Platform

5

- Introduction To IBM Bluemix
- How Does Bluemix Work?
- IBM Cloud Setup
- Installation Of Pub-Sub Client Library
- Installation Of Arduinojson Library
- Dashboard Setup
- Live Data Visualisation On Dashboard

2

Program With Python3

7

- Variable
- Function
- Condition
- Loops
- List

2

Projects

9

- Home Automation With Password System
- Gas Detecting Alarm System Social Distancing Indicator And Alarming System
- Temperature Based Fan Speed Controller
- Case Study On Smart Environments Monitoring Using Thingspeak IoT Platform
- IoT Based Raspberry Pi Home Security System With Email Alert

2

Broker On The Cloud (Hands-On)

4

- Dashboard Introduction
- Connection With Broker

2

Raspberry-Pi Interfacing & Python Programming

6

- Flash The Raspberry Pi Os The Micro-Sd Card
- Setup Wi-Fi And Ssh Dlirectly On The Micro-Sd Card
- Boot Your Raspberry Pi For The FIRst Time
- And Find Its Ip Address Connect To Your Pi Using Ssh Update - Before You Watch The Next Lesson On Vnc
- Setup Vnc To Get A Remote Access To Your Raspberry Pi Os Desktop
- Finish The Start-Up Configuration
-

2

Interfacing

8

- Gpios
- Input
- Actuators
- Switchs



Flexible Batch Timings

Online Training

Duration
45 DAYS

Weekday batch
MON - FRI

Weekend Batch
SAT & SUN

Classroom Training

Duration
45 DAYS

Weekday batch
MON - FRI

Weekend Batch
SAT & SUN

Interested?

Get a Free Demo Session

[Book Now](#)



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