CERTIFICATION IN IOT AND INDUSTRY4.0

IOT

Appleton Innovations

Placement Assistance Program

Program Highlights

3 Months

Mentor Support

25+ Projects

Placement Assistance

Certification

Internship

Who is this program for?

- Recent Engineering or Science Graduates
- Technology Professionals
- IoT-based startup entrepreneurs

What can this program help you achieve?

Learn cutting edge technologies from Industry Experts and Academicians

Certification in Internet of Things (IoT) and Industry4.0

Master the most advanced electronic, automation and IoT cloud technology and build projects using IoT Development Kit. Learn **ESP8266, ESP32, Raspberry Pi, Arduino, Python, Thingspeak, Blynk, IBM Watson IoT, Microsoft Azure IoT and AWS IoT** Cloud Platforms. Using IoT Development kit, you will develop more than 20 Industrial Projects.

Syllabus

Module-1: Introduction to Internet of Things

- Introducing to IOT
- IOT Applications
- IOT Network Architecture
- IOT Device Architecture
- IOT Communication Protocols
- IOT Product Development Overview

Module-2: Getting Started with Arduino

- A tour of Arduino Board and Hardware: Power Supply, Power Pins,
- Analog and Digital Pins
- Types of Arduino Boards
- Introduction to Arduino programming
- Variables
- IF-Else conditional statements
- Loops: For, While
- Functions
- Digital Inputs and Digital Outputs
- The serial monitor
- Arrays and strings
- Using Libraries in Arduino
- Arduino Commands

Module-3: Sensors, Actuators & Electronics

- Introduction to sensors and types
- Analog Sensors: Temperature, Light Sensor, Potentiometer,
- Digital Sensors: Soil Moisture sensor, Motion Sensor, DHT11 sensor, Button
- Digital Signals
- Basic electronics: resistors, capacitors, diodes, transistors and etc.,
- Introduction to Actuators
- Interfacing Piezo Buzzer
- Interfacing LED's
- Interfacing RGB LED's
- Interfacing Relay
- Device Communication: I2C, SPI, UART, USB, SD, Flash Memory, EEPROM

Module-4: IoT Protocols

- Introduction to wireless technologies: WiFi, Bluetooth, Ethernet, LoRaWAN, WiMAX and ZigBee
- Interfacing ESP8266 WiFi Shield
- Interfacing Bluetooth Module
- TCP/IP, HTTP, MQTT, SMTP and CoAP,

Module-5 : Basic Networking with ESP

1. Networking
2. IEEE 802.11 b/g WiFi technology
3. WiFi Modes
4. Scanning and Connecting to WiFi Network
5. WiFi Access Point

Module-6 : Smart Applets suing IFTTT
- Introduction
- Automate day to day activities through IFTTT
- Posting updates on Facebook
- Automation with IFTTT
- Sending text message notifications
- Google Voice to control Home Appliances

Module-7: Cloud Data Monitoring using Arduino
- Concept & Architecture of Cloud
- Role of Cloud Computing in IoT
- Tools, API and Platform for integration of IoT devices with Cloud
- Internet of Things platforms for Arduino
- Posting the sensor data online
- Retrieving your online data
- Monitoring sensor data from a cloud dashboard
- IoT cloud platform and integration with Gateway
- Working with Thingspeak platform
- Blynk IoT Cloud for remote control and monitoring

Module-8: IoT using IBM Cloud
- Getting Started with IBM Watson IOT Platform
- Send Sensor data to Watson IOT Platform using MQTT
- Visualizing real-time data by using boards and cards
- Getting started with Watson IoT Platform using Node-RED
- Watson IOT Node & IBM IOT App Node
- Create Node-RED application to receive events from the device

Module-9: IoT using AWS Cloud
- Introduction to AWS IoT
- IoT Core Services
- Creating Devices in AWS IoT
- Using the AWS APIs and SDKs with IoT
- MQTT/HTTP/Websockets
- Credentials and composing an IoT policy from AWS IoT Core
- Using the MQTT.fx tool to test our connection and send data to AWS IoT Core
- Arduino Sketch to connect your ESP8266/ESP32 directly to AWS IoT Core
- ESP8266/ESP32 Arduino Sketch to send data to AWS IoT Core
- Real Time Control and Monitoring using AWS IoT

Module-10 : IoT using Raspberry Pi and Python
- Getting Started with Raspberry Pi
- Interfacing Hardware with the Raspberry Pi
- Introduction to Python Programming
- Node-Red: M2M and Gateway
- MQTT Broker and client application

Module-11: IoT with Microsoft Azure
- Getting started with Microsoft Azure IoT
- Setting up your Raspberry Pi
- Python Script to connect Raspberry Pi to Azure IoT
- Visualizing sensor data
- Sending user notifications

Module-12: IoT Analytics
- Introduction to IoT Analytics
- HTTP, MQTT and CoAP
- Python for Data Analysis and Machine Learning
- Accessing IoT Data
- Processing IoT data
- Analyzing IoT data
- Predictive Analytics using ML

Module-13: IoT Apps
- Node-Red
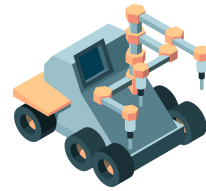- Node-Red Dash board
- Web apps using Node JS , html and css
- Mongodb

Module-14: Industry4.0
- Working with Industrial sensors
- Industrial Automation and IoT
- Design principles of Industry 4.0
- Process Data monitoring and Visualization

Course Projects, Industry Projects

Smart Home

Smart Industry

Smart City

Smart Agriculture
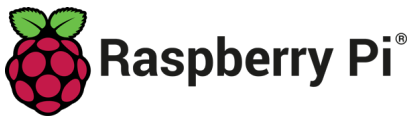
IoT based Notifications

Smart Applets

Smart Health

Notification cube

Tools

ARDUINO

ESP8266

python

Raspberry Pi®

MQTT

IFTTT

IBM Watson

ThingSpeak

B Blynk

Azure

aws

pandas

Admission Process

01 Fill Application

02 Get Shortlisted

03 Pay Registration

04 Attend Classes

Training Duration:

200+ hours
Three months (Training) + Three Months (Internship)

Training Fee:

INR 35,000/ + GST

For more details:

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