TECHNO COURSES.COM
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INTERNET OF THINGS (IOT)

I O T

It's a global network infrastructure, linking physical and virtual objects using cloud computing, data capture, and network communications. It allows devices to communicate with each other, access information on the Internet, store and retrieve data, and interact with users, creating smart, pervasive and always-connected environments.

The Internet of Things (IoT), sometimes referred to as the Internet of Objects, will change everything—including ourselves. This may seem like a bold statement, but consider the impact the Internet already has had on education, communication, business, science, government, and humanity. Clearly, the Internet is one of the most important and powerful creations in all of human history. Now consider that Internet of Things represents the next evolution of the Internet, taking a huge leap in its ability to gather, analyse, and distribute data that we can turn into information, knowledge, and, ultimately, wisdom. In this context, Internet of Things becomes immensely important.

WHY TECHNOCOURSES.COM?

- **Systematic Learning**: Become expert in IOT the right way quickly, instead of stumbling around online for days unnecessarily. Use that time by working on even more projects to add to your portfolio.
- **Projects**: Finish over 2 plus projects on RaspberryPi or Aurdino.
- **Stay Connected**: With Google Classrooms and WhatsApp groups, stay in touch with your tutor to clarify your doubts and receive a curated content of articles every day to stay up to date in this field.
- **Continuous Learning**: Receive assignments and reference notebooks every day to continue the learning at your own time. Refer books on IOT present at the institute to further your understanding.
- **Add-on Courses**: Get Add-on courses on Business English and Soft Skills, to further your skills.

CONTENT

- What "the Internet of Things" means and how it relates to Cloud computing concepts
- How open platforms allow you to store your sensor data in the Cloud
- The basic usage of the Arduino, RaspberryPi & Nodemcu environment for creating your own projects at low cost
- How to connect your Arduino & RaspberryPi with your Android phone.
- Basic usage of RaspberryPi.
- Use of Arduino & RaspberryPi in IoT
- How to create your own dashboard
- How to send data to the Internet and talk to the Cloud.
- How to get sensor readings from cloud servers.
- How to control any device from anywhere across the world.
- How to connect to cloud ready IoT Server.
- Python programming language for IOT Projects.

ADDONS

- Advance MS Excel
- CV preparation, mock interviews & Guidance
- Business English & Communication Skills

- **Duration:** 4 Weeks (2 Weeks Classroom Training + 2 Week Project Time).

Hardware Kit Description

S No	Item	Components/Specs
1	Development Board	Arduino Uno R3, Nodemcu , Raspberry Pi
2	Sensors & actuators	PIR, Reed, Temp, Humidity, Power and Light
3	Communication Channels	Bluetooth, Wifi , Zigbee , GPRS , GPS, MQTT and CoAP
4	Tutorials and platform access	• End to End Training material. • Detailed tutorials and solutions for device programming. • platform access to connect the device • Email support for any queries/issues with the tutorials • Program the device and then connect it to cloud

Classroom Sessions:

- Introduction to the Internet of Things
  - What is Internet of Things
  - About Internet of Things
  - Advantages with Internet of Things
  - Internet of Things Applications
  - Future Prospects of Internet of Things
- Programming fundamentals
  - Introduction to Python
  - Python Functions
  - Variables
  - Files and Directories
  - Lists , Tuples , Dictionaries and Sets
  - APIs
- Communication Channels
  - Connectivity – Bluetooth
  - Connectivity – Wifi
  - Connectivity – Zigbee
  - Connectivity – GPRS
  - Connectivity – GPS
  - Connectivity – MQTT and CoAP
  - Security Protocols
- Cloud and Databases
  - What is Cloud and How it works
  - Different types of Servers / cloud
  - AWS / Google / Azure / Thingspace
  - Cloud Security
  - MySQL and Other Spaces
- Different Devices Used in Projects
  - Hardware
    - Arduino
    - Nodemcu
    - Raspberry Pi
    - ESP8266
    - Bluetooth HC05
  - Sensors and Actuators
    - Sensors (Temperature, Motion , Humidity etc..etc..)
    - Motors
    - Power Adapters
  - Arduino
    - Using Aurduino IDE
    - Using IO Ports
    - Connecting Actuators
    - Run the Sample Programs
    - Connecting with Wifi & Bluetooth
  - Raspberry Pi
    - Bootup of Raspberry Pi
    - Installation of OS
    - Connecting the Sensors
    - Using Serial Ports and USB
    - Executing the Programs
    - Connecting using Wifi

Projects:

- Setting the Development Board
- Connecting all the Components
- Executing the Code using Python
- Final Implementation

Sample Projects in IOT:

- **Project 1:** Simple LED Program for Arduino
- **Project 2:** LED Blink Project
- **Project 3:** Simulated Light Control
- **Project 4:** Intelligent Gas Leakage Detector Using Arduino, Raspberry Pi , Nodemcu
- **Project 5:** Smart Agriculture Monitoring System Project Using Arduino, Raspberry Pi, Nodemcu
- **Project 6:** Greenhouse Monitoring and Control System using IOT Project Using Arduino, Raspberry Pi, Nodemcu
- **Project 7:** Heart Monitoring System Using ECG Using Arduino, Raspberry Pi
- **Project 8:** Weather Reporting Over IOT Using Arduino, Raspberry Pi, Nodemcu
- **Project 9:** Circuit Breaker Project Using Arduino, Raspberry Pi, Nodemcu
- **Project 10:** Pollution Monitoring System Over IOT Using Arduino, Raspberry Pi, Nodemcu
- **Project 11:** Smart Energy Grid Using Arduino, Raspberry Pi, Nodemcu
- **Project 12:** Paralysis Patient Health Care Project Using Arduino, Raspberry Pi
- **Project 13:** Car Parking System Using Arduino, Raspberry Pi, Nodemcu
- **Project 14:** Smart Trash Box With IOT Notifications Using Arduino, Raspberry Pi
- **Project 15:** Asset tracking System Using Arduino, Raspberry Pi
- **Project 16:** ICU Patient Monitoring System Using Arduino, Raspberry Pi
- **Project 17:** Biometric Attendance System Over IOT Using Arduino, Raspberry Pi, Nodemcu
- **Project 18:** Gas Pipe Leakage Detector Using Arduino, Raspberry Pi
- **Project 19:** Irrigation Monitoring & Controller System Using Arduino, Raspberry Pi
- **Project 20:** Electronic Door Opener Using Arduino, Raspberry Pi, Nodemcu
- **Project 21:** Home Automation Appliance control Using Arduino, Raspberry Pi, Nodemcu
- **Project 22:** Alcohol & Health Monitoring System Using Arduino, Raspberry Pi, Nodemcu
- **Project 23:** Liquid Level Monitoring System Using Arduino, Raspberry Pi, Nodemcu
- **Project 24:** Office Automation Using Arduino, Raspberry Pi
- **Project 25:** Industry Automation Using Arduino, Raspberry Pi
- **Project 26:** Weather Reporting System Using Arduino, Raspberry Pi, Nodemcu
- **Project 27:** Fire Department Alerting System Using Arduino, Raspberry Pi, Nodemcu
- **Project 28:** Solar Power Temparature Monitoring System Using Arduino, Raspberry Pi
- **Project 29:** Streetlight Control System Using Arduino, Raspberry Pi, Nodemcu
- **Project 30:** Traffic Signal Monitoring & Controller System Using Arduino, Raspberry Pi, Nodemcu
- **Project 31:** Air Pollution Monitoring System Using Arduino, Raspberry Pi, Nodemcu
- **Project 32:** Energy Meter Monitoring Over IOT Using Arduino, Raspberry Pi, Nodemcu
- **Project 33:** Patient Health Monitoring Project Using Arduino, Raspberry Pi
- **Project 34:** Theft Detection Using Arduino, Raspberry Pi etc...etc...