

Course Durations: 21 Hours

Course Mode: Online/Offline

## About Company:

EduNextgen extended arm of Product Innovation Academy is a growing entity in education and career transformation, specializing in today's most in-demand skills. A platform with blended learning programs supported by in-trend technology platforms for learning. Engaging organizations for learning development objectives.

Training courses are designed and updated by renowned industry experts. Our blended learning approach combines online classes, instructor-led live virtual classrooms and virtual teaching assistance.

## About The Course:

Internet of Things (IoT) is presently a hot technology worldwide. IoT is creating a giant network where all the devices are connected to each other and providing them with the capability to interact with each other. From this training you will learn about IoT and its fundamentals, IoT Devices and Sensors. Understanding various Communication and Protocols for the IoT Systems.

This course is designed for Software Developers, Engineers, Data Analysts, Big Data Professionals and even college students who wants to make a career in the field of Internet of Things.

\*The course curriculum and contents are made by industries expert.

## Why This Course:

- About IOT, Fundamentals, Architecture, Sensors, Edge Devices, Edge Devices Programming etc.
- Hands-on Experience and interview based Assignments and Quizzes.
- Projects from Different Domains
- Live Support (24x7)

## Participants will get the Access to:

- LMS Access
- Assignments
- Quizzes
- Industry Grade Projects
- Live Support via Mail, Call & Screen Sharing
- Course Completion Certificate

## Batch Schedule:

Weekend: 3 Hours per day (Online), 4 Hours per day (Offline)

Weekday: 2 Hours per day (Online), 2 Hours per day (Offline)

## Course Curriculum

### Module 1: IoT Introduction (3 hour)

This module will discuss about the Internet of Things, its evolution and some Use Cases. Below topics are covered in this module:

- IoT Introduction
  - What is IoT?
  - Evolution of IoT
  - High level use cases and domains
- 

### Module 2: Fundamentals and Architecture (3 hours)

This module will help you to understand about fundamentals and Architecture of IoT. It will also give an idea about Cloud, Gateway and Edge Device. Below topics are covered in this module:

- Architecture & Elements of IoT
  - Sensors, Controller/Actuators Network, Analytics, Gateway
  - Edge Device Introduction
  - Gateway Introduction
  - Cloud Introduction
- 

### Module 3: Sensors and Hardware (3 hours)

This module will help you to understand about IoT Sensors, Controllers and ADC System. Below topics are covered in this module:

- Sensors- Sensing/Masurement, Temperature, Humidity, Pressure, Flow
  - Controllers/Actuators - Controlling/Actuating
  - ADC - Analog, Digital, Pulse Mode, Voltage, ADC, Input/Output Basic, Analog, Digital, Pulse Mode, Voltage
  - Powering Sensors- Passive, Active Power, PoE, MilliAmp Power, Power Harvesting Sensors, Battery Power
- 

### Module 4: Edge Devices (3 hours)

This module will help you to understand about Micro Controller, Arduino Physical Board and ARM Cortex SoCs. Below topics are covered in this module:

- Introduction to Micro Controller
  - Arduino, ARM Cortex SoCs
-

## Module 5: Edge Devices Programming (3 hours)

This module will you to understand to do programming on Edge Devices such as programming Arduino. Below topics are covered in this module:

- Blink LED [Hello world of Electronics]
- Reading Data from Sensors using Analog, Digital Mode
- Exposing Data through Serial Port
- On/Off Power Relay
- Sense Temperature, Pressure, Humidity, Light Intensity using Edge Devices
- Ultrasonic and IR Sensors for Motion and Distance Detection
- Controlling Relay to turn light on/off, LED and Buzzer
- Options (any one of the below):
- C Programs for ARM/TI
- Micro Python/JavaScript for ESP32

---

## Module 6: Gateway Introduction (3 hours)

This module will help you to understand Various Communication and Information Exchange Methodology for IoT. Below topics are covered in this module:

- Introduction to Gateway
- Role of Gateway in IoT Eco Systems
- Gateway and Edge Devices Connectivity Modes
- Serial Port
- WIFI
- BLE/Bluetooth
- Gateway Solutions, Raspberry PI, OpenWRT, Single Board Computers

---

## Module 7: Communication Protocol for IoT (2 hours)

This module will help you to understand about Various Communication Protocols used for IoT. Below topics are covered in this module:

- Edge to Gateway: MQTT, CoAP, IPv6, LoRA, 6LowPAN, 802.4.15, Network, ZigBee], BLE, WIFI
- CAN BUS, Serial Port, Modbus, DNP
- Topologies: Master/Slave, Star/Mesh, Point to Point
- Module 8. MQTT Introduction
- MQTT Introduction
- MQTT-SN Introduction
- MQTT over HTTP & RESTful Architecture for IoT