

## Certificate Course in Internet of Things

### Detailed Curriculum

<b>Name of Unit of Qualification</b>	:	Introduction to IOT
<b>Duration</b>	:	10 Hours
<b>Topics</b>	:	IoT fundamentals, IOT Architecture, protocols, components, Communication Technologies,

<b>Performance Criteria (OUTCOME) No.</b>	<b>Contents</b>	<b>Hrs.</b>
1. Understanding of IoT	Understanding IoT fundamentals, IOT Architecture and protocols, Various Platforms for IoT, Real time Examples of IoT, Overview of IoT components and IoT Communication Technologies, Challenges in IOT.	10

<b>Name of Unit of Qualification</b>	:	Arduino Simulation Environment
<b>Duration</b>	:	10 Hours
<b>Topics</b>	:	Arduino Uno Architecture, Setup the IDE, Arduino Software, Interfacing.

<b>Performance Criteria (OUTCOME) No.</b>	<b>Contents</b>	<b>Hrs.</b>
2. To understand Arduino Uno Architecture, Arduino Software and Interfacing.	Arduino Uno Architecture Setup the IDE, Writing Arduino Software, Arduino Libraries, Basics of Embedded C programming for Arduino, Interfacing LED, push button and buzzer with Arduino, Interfacing Arduino with LCD.	15

<b>Name of Unit of Qualification</b>	:	Sensor & Actuators with Arduino
<b>Duration</b>	:	20 Hours
<b>Topics</b>	:	Different type of Sensors, Actuators

<b>Performance Criteria (OUTCOME) No.</b>	<b>Contents</b>	<b>Hrs.</b>
3. To understand working of different sensors and actuators.	Overview of Sensors working Analog and Digital Sensors, Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with, Arduino	25

	Interfacing of Actuators with Arduino, Interfacing of Relay Switch and Servo Motor with Arduino.	
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<b>Name of Unit of Qualification</b>	:	Basic Networking with ESP8266 WiFi module
<b>Duration</b>	:	10 Hours
<b>Topics</b>	:	ESP8266 Wi-Fi Module

<b>Performance Criteria (OUTCOME) No.</b>	<b>Contents</b>	<b>Hrs.</b>
4. To understand about ESP8266 Wi-Fi Module.	Basics of Wireless Networking, Introduction to ESP8266 Wi-Fi Module, Various Wi-Fi library, Web server- introduction, installation, configuration, Posting sensor(s) data to web server.	10

<b>Name of Unit of Qualification</b>	:	IoT Protocols & Cloud Platforms for IOT
<b>Duration</b>	:	10 Hours
<b>Topics</b>	:	IoT Protocols, Cloud Architecture, Cloud Platforms for IoT.

<b>Performance Criteria (OUTCOME) No.</b>	<b>Contents</b>	<b>Hrs.</b>
5. To understand IoT Protocols & Cloud Platforms for IOT	M2M vs. IOT, Communication Protocols, Cloud Platforms for IOT Virtualization concepts and Cloud Architecture, Cloud computing, benefits, Cloud services SaaS, PaaS, IaaS, ThingSpeak API and MQTT, Interfacing ESP8266 with Web services.	10

<b>Name of Unit of Qualification</b>	:	Soft Skills
<b>Duration</b>	:	10 Hours
<b>Topics</b>	:	Project Work in a peer group setting

<b>Performance Criteria (OUTCOME) No.</b>	<b>Contents</b>	<b>Hrs.</b>
6. Develop problem solving skills through project work	Industry Level Project Work undertaken in a peer group setting. Learn problem solving and soft skills in a team environment.	10

