IoT Training

(40 Hours)

A training pack for Faculties

Dear Sir/Madam

Sub: To organize IoT Training in your college.

This is to bring to your kind notice that **POSITIVE QUADRANT TECHNOLOGIES LLP** is an Indian entity exploring i t s e l f in various sectors like Software Development , Augmented Reality , Virtual Reality , IoT , Simulation ,Games Development ,Mobile Applications,3D Modelling Development , Practical Educational Training, Professional Training, Corporate   Training, Web & IT Services.

IoT Training conceptualized by **some top industry professionals** in association with **POSITIVE QUADRANT TECHNOLOGIES LLP**. It is going to be India's first & biggest workshop series based on this market flag bearer of cloud systems.

This workshop will also provide a platform where young engineers can mould their imagination into reality and feel the excitement first-hand. With this end in view, we extend our support and technical expertise to the young engineers of your College in the form of t h i s workshop. We seek your cooperation and look forward towards a successful execution o f this workshop in your college.

We are hoping that you will find this training r e a l l y interesting for the students. If you have any queries, please get back to us anytime.

SYLLABUS

PLC Syllabus

- ❖ PLC Fundamentals - (Block diagram of PLC's) Applications and Types of Transformers
- ❖ Selection of PLC components (Power supply, CPU, I/Os List , Communication bus Various ranges available in PLC's)
- ❖ I/O list selection /li>
- ❖ Open-Circuit and Short-Circuit Tests
- ❖ Types of Inputs & outputs / Source Sink Concepts
- ❖ Parallel Operation of Transformers
- ❖ Wiring of the I/O devices
- ❖ Architectural Evolution of PLC
- ❖ Introduction to the field devices
- ❖ Types of Inputs & outputs / Source Sink Concepts
- ❖ Wiring of the I/O devices
- ❖ Concept of flags and Scan cycle execution
- ❖ Concept of flags and Scan cycle execution
- ❖ Setting up PLCs / Connecting CPU, I/O modules, Rack, Backplane and Communication bus
- ❖ Connecting Field devices to PLCs I/Os

SCADA System Syllabus:

- ❖ SCADA system application (Oil GAS / factory /Metro/ Solar Power Plant /Steel Plant)
- ❖ Calculation SCADA tag.
- ❖ Selection of Software basis of SCADA Tag.
- ❖ Creating Database of Tags
- ❖ SCADA Screen /Creating & Editing graphic display with animation
- ❖ Data Entry / Start Stop command
- ❖ Analog entry
- ❖ Sizing, Movement, Blinking, Visibility, Filling
- ❖ Trending
- ❖ Creating & Accessing Real-time
- ❖ Creating & Accessing Historical Trend
- ❖ Creating Alarms & Events
- ❖ Connectivity with the different hardware
- ❖ Communication protocols (modbus/ TCP/IP)
- ❖ Communication with PLC
- ❖ Communication with Data Acquisition System
- ❖ Troubleshooting the application
- ❖ Fault diagnostics and error handling
- ❖ Sorting communication problems

Data Communication Protocols

- ❖ OPC UA
- ❖ OPC DA
- ❖ Profi NET

Profibus

- ❖ MQTT

OPC Channel / Matrikon Simulation IoT

Data Acquisition

- ❖ Data Sources
- ❖ Data Destinations
- ❖ Data Acquisition in OPC Classic
- ❖ Data Acquisition in OPC UA

Data Management

- ❖ Sharing Real-Time Data
- ❖ Sharing Historical Data
- ❖ Redundancy

Different Technologies Platforms

- ❖ Python
- ❖ Java
- ❖ .NET
- ❖ PHP
- ❖ Node Red

Top IoT SCADA Competitors

- ❖ ABB
- ❖ SIEMENS & Schneider Electric
- ❖ Others

IOT Standards

- ❖ Requirement of international standard (case study)
- ❖ IOT standards in practice.
- ❖ Operating platforms /systems

Components of IOT System.(Lab)

- ❖ Design of IOT systems
- ❖ Development of prototypes.

Relevance of IOT for the future.

- ❖ IOT in everyday life
- ❖ Internet of Everything
- ❖ IOT and Individual Privacy.

IOT Applications.

- ❖ Lighting as a service (case study)
- ❖ Intelligent Traffic systems (case study)
- ❖ Smart Parking (case study)
- ❖ Smart water management (case study)

IOT for smart cities (Case study)

IOT in Indian Scenario

- ❖ IOT and Aadhaar
- ❖ IOT for health services.
- ❖ IOT for financial inclusion.
- ❖ IOT for rural empowerment.

Challenges in IOT implementation.

- ❖ Big Data Management.
- ❖ Connectivity challenges.
- ❖ Mission critical applications.