



## **Shaastra'16 IIT Madras Industrial Automation - PLC & SCADA Workshop**

### **Objective of Workshop**

**The Main Objective** of this Workshop is to make the aspiring engineers acquainted with the conceptual as well as practical knowledge of the Industrial Automation & Latest Technologies being used to achieve Industrial Automation. The idea of Organizing this Workshop is to inculcate the basic fundamentals of Automation in the students and provide them with a platform to work on, in the near future.

The most used guiding force behind an Automated Industrial Plant as a “**Programmable Logic Controller**” generally known as a **PLC**. **PLCs** along with certain other necessary ingredients like Sensors, Motors, Actuators, Valves, Conveyors, Boilers, SCADA Systems, Computers & many more, makes a real automated manufacturing plant.

### **What is Industrial Automation ?**

Automation is basically the delegation of human control function to technical equipment. It is the use of control systems such as computers, PLCs, Microcontrollers to control machinery and processes to reduce the need for human sensory and mental requirements as well.

Industrial Automation i.e. to "Automate Industry" is the basic need of almost every type of manufacturing and production unit today. Food/ Beverage, Metal, Mining, Power, Textile, Petrochemical, Machine Manufacturing, Automobile etc are the few examples where we see the automation today.

### **Topics to be Covered in Workshop**

#### **Session I: Presentation on Recent Trends in Industrial Automation & PLC-SCADA (Duration: 2 Hours)**

- Introduction To Automation
- Why We Need Automation
- Where Automation?
- Evolution In Industrial Automation (A Brief History)
- Different Type Of Industrial Control Mechanisms

- Introduction To PLCs
- PLC Advantages Over Microcontrollers
- Area Of Applications
- DATA Flow During Automation
- Motor Drives Introduction & Their Need
- Sensors Introduction & Their Need
- HMI Introduction & Its Need
- SCADA Introduction& Its Need

**Session II- Detail study of PLC & SCADA (Duration: 3 Hours)**

- PLC
- SCADA

**Session III- PLC I/Os Basics, Burning & Interfacing Concepts (Duration: 1 Hour)**

- Allen Bradley & Rockwell Automation's Details
- Brief Description To Input/ Output Pins Of Micrologix-1000
- Ladder Diagram Basics
- Introduction To RSLogix
- Downloading A Ladder Program In PLC Using RSLinx.
- How To Take Input >From Panel
- How To Give Output To Panel
- Running First PLC Application

**Session IV- Hands on Session on PLC Training Kit which contains Allen Bradley Micrologix 1000 PLC**

**Software: RsLogix, RSLinx, RsSimulator, Wonderware InTouch (SCADA). (Duration: 5 Hours)**

**Session V - Quiz & Competition. (Duration: 2 Hours)**

By the end of this workshop the students will become aware about the basic Knowledge of Industrial Automation, PLCs and their relevant module.

**Eligibility:** This Workshop is best suited for **Electrical, Electronics, Electrical and Electronics, Instrumentation, Chemical & Mechatronics Branch Students**. However students from other branches can also attend this workshop.

**Certification:** During the whole Event Process following Certificate will be provided:-

- **Certificate of Merit** to all Participants from **SHAASTRA'16, IIT MADRAS** in association with Innovians Technologies.
- **Certificate of Excellence** to the Winner of Industrial Automation Competition conducted at Zonal Center from **SHAASTRA'16, IIT MADRAS** in association with Innovians Technologies.

**Last Date of Registration – 20/10/2015**