

**Course Name** : *Basics of PLC*

**Course Duration** : 50Hrs.

**Course Overview**

○ **Intended Audience**

- This course is suited for engineers, designers, Application Programmers, Maintenance engineers, Commissioning Engineers and Project Managers

○ **Prerequisites**

- Diploma / Degree students in Electrical / Electronics / Instrumentation / ENTC / Biomedical / Mechanical Engineering.

○ **Course Objective**

- After successfully completing this course, you should be able to:
  - Identify the components and performance characteristic of the PLC.
  - Install a PLC system, including the HMI and communication cabling.
  - Use the various address types to edit, reload and run a program.
  - Document, test, and basically troubleshoot the control system and its program.
  - Understand and create binary operations, timers, counters etc.
  - Interface an HMI with the PLC control system.

○ **Course Contents**

- Basic constituents of PLC: Signal modules, CPU, Power Supply, mounting rail and MMC.
- How PLC works?
- Installation guidelines, powering and wiring of modules with information on addressing
- Programming:
  - Programming language and representation in STL, FBD, LAD
  - Hardware Configuration and setting object Properties of Modules in STEP
- Programming instruction: AND, OR, AND-before-OR, OR-before-AND, NO/NC contacts, Edge detection instructions. Set / Reset, Elementary data type
- Overview of SIMATIC S7 – PLC:
  - Programming Units and using PC as Programming Unit
  - Hardware Configuration and setting object Properties of Modules in STEP
  - Step 7 Instructions and programming: Set / Reset, Elementary data type, Load/Transfer, Comparison, basic math instructions.
  - Timers / Counters List etc
- Using Symbol Table and VAT.
- STEP 7 blocks and structured programming
- Using Data Blocks.

- Use of Organisation Blocks.
- Analog signal processing.
- Introduction to HMI.