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# Industrial Automation Training

Course details: <https://electricityforum.com/electrical-training/industrial-automation-training>

## COURSE DATES AND TIMES

Industrial Automation Training - This 12-Hour Live Online instructor-led course will give students an overview of the main products and technologies that are driving the automation controls market. Students will learn the benefits of existing and emerging hardware and software technologies and best decide which methods to

Industrial Automation is rapidly growing especially within the Power sector, Automobile, Oil and gas, Manufacturing, Mining etc. Process Automation provides the technology to control and monitor the process in industrial plants using concepts such as feedback, cascade, feed forward and advanced process control. According to an estimate provided by the International Society of Automation (ISA), 15,000 fresh automation engineers are required annually in the United States. This Industrial Automation course is designed to empower students with the foundation and intermediate level of knowledge that will help them to understand the three key modules of Industrial Automation: PLC, SCADA, and DCS.

Industrial robotics, controls and automated systems have been in general use in the manufacturing industry since the early 1980s. These industrial automation systems have seen wide acceptance in high-volume manufacturing for many years. As systems mature, they become cost effective for low-volume production in the local manufacturing sector. The integration of automation and industrial control systems, architectures and protocols has created a specific need to train industrial electrical and instrumentation staff on the development and maintenance of industrial automation systems.

## WHO SHOULD ATTEND

### Who is the online Industrial Automation training designed for?

- Graduates who like to gain skills to become an Automation Engineer
- Electrical and Instrumentation specialists who would like develop their career in Industrial Automation field
- Beginners want to learn the in-depth concepts of Automation technology and become a master of Industrial Automation concepts

- Automation Engineers who would like to know about the other key developments in Industrial Automation
- Experienced Engineers who want to upgrade their knowledge and skills and learn about trending technologies
- Engineering and Electrical Plant specialists who are looking for a course that can help them to learn Industrial Automation in an easy and efficient way

## **STUDENTS RECEIVE**

### **COURSE BENEFITS**

- This is a practical course with lots of examples provided by an expert in the field of Industrial Automation and Control Systems
- This Industrial Automation training course that helps participants understand and master the concepts of Process Automation, DCS, PLC, SCADA, MMI/HMI
- On successful completion of this Control Systems training, students will be ready to attend and succeed in interviews for DCS/PLC programmer positions
- This course is conducted by an experienced professional who has a wide range of experience and is a subject matter expert in Process Automation

## **COURSE OUTLINE**

### **Industrial Automation Course**

**Course Instructor: Paul DeJong C.E.T., Northern Dynamics**

#### **Session 1 - PLC's**

- North American

#### **Rockwell Automation the Logix Family**

- European

#### **Siemens S7-1500 & S7-1200**

- Asian

#### **Omron NX/NJ and other Families**

#### **Panasonic**

## **Mitsubishi MELSEC Families**

- CODESYS based PLC's

## **Eaton, Schneider, ABB**

### **Session 2 - HMI's / Scada**

- One of the bigger growth areas, companies want Data
- Third party companies like Wonderware & Ignition
- Rockwell and Siemens platforms

### **Session 3 – Drives, Motion, Motors and Servos**

- Drive Suppliers

## **Siemens, Rockwell, ABB**

- VFD's, V/Hz VS Vector

## **Energy and maintenance savings**

- Motors, Induction vs PM vs old DC

## **Energy Savings vs Maintenance and overall Costs**

- Linear Motion

## **Energy Savings vs Pneumatic / Hydraulics**

### **Session 4 - Networks and new Standards**

- Ethernet variations

## **EtherNet/IP, EtherCat, ProfiNet, Modbus/TCP**

- Old Networks

## **Profibus, Modbus/RTU, DH+**

## **Session 5 – Sensors and Actuators**

- Intelligent and Non-Intelligent Devices

## **IoT and CAN / DeviceNet networks**

- Vision

## **Session 6 - Safety Products**

- PLC's

## **Process of applying**

- Discrete Products

## **Light Curtains**

- Wired and Wireless products

## **Session 7 – Overview of the three main software packages**

- Design Studio, Siemens TIA, Omron Sysmac Studio

## **PLC, HMI and Drive access**

## **Session 8 – Further look at CODESYS and the IEC 61131-3 Standard**

- PLC, HMI and Drive access
- Use with small embedded devices like RasPi and Arduino

## **Session 9 – HMI and Scada Software**

- 3rd party packages like Wonderware & Ignition

## **Session 10 – Various Programming Languages**

- Ladder Logic

## **History and use**

- Function Block

## **Variations in Function Block languages**

- Structured Text
- Statement list
- Regional Instruction set Variations

## **North American vs European vs Asian**

## **Session 11 – Customization of code**

- Migration to Tags vs old school address based
- UDT's and Data Blocks techniques like Arrays
- Libraries and making your own instructions
- Possible programming techniques

## **Sequential Programming compared to sequencer instructions**

## **Company Based Standards**

- Integration of IT based languages

## **Visual Basic, C-Based, Python**

## **Web Programming and Integration**

## **SQL Integration**

## **Session 12 – Remote Access and Security**

- Products Like Ewon
- Integration with IT security

## **Everything uses Ethernet now which opens more security challenges**

- Standards

## **New OPC-UA vs OPC and DDE**

Contact us Today for a FREE quotation to deliver this course at your company's location.

<https://electricityforum.com/onsite-requestforquote>