

COURSE DESCRIPTION

Distributed Control Systems, PLCs and SCADA are launched long time back and today these automation systems are being used in many industries. The SCADA is being extensively used in oil and gas, petrochemicals, power, steel and cement manufacturing/ production, packing, raw material processing etc. for monitoring, operation, alarms and sequence of events recording, database management, reports and logs etc. An effective SCADA system provides better front end for the process operators with enhanced graphics and plant mimics and also helps process and instrumentation engineers for better diagnostics and maintenance. This is an introductory course, which aims to build a good understanding about the basics of SCADA and communication standards and protocols. It focuses on providing the practical aspects of SCADA applications, design, operation & maintenance. A special emphasis on real life implementations, case studies and international standards would ensure participants to co-relate the theory with their day-to-day practice. A brief introduction to hierarchical structure of automation and control systems would help the participants to enhance their exposure related to control pyramid and interface to office automation systems.

COURSE OBJECTIVES

Upon Completion of this course the participant will be able to

- Have a brief exposure to Hierarchical Structure of Automation and Control Systems
- Learn SCADA fundamentals and architectures
- Understand SCADA programming for front end displays
- Understand alarm management, data logging, trends and reports
- Have knowledge on SCADA Project Engineering, Design and Selection vis-à-vis applications
- Master the art of SCADA maintenance and troubleshooting
- Understand ISO OSI Seven Layer Communication Structure
- Learn communication interfaces viz. RS 232, RS485, Ethernet
- Learn communication protocols viz. Modbus
- Have knowledge of SCADA communication applications

WHO SHOULD ATTEND

Instrumentation, Electrical, Mechanical and Process Engineers, Project Engineers, Maintenance Engineers and Supervisors interested to work in the field of SCADA, DCS/ Automation and Process Control. The course will also definitely be beneficial for the all the other department people concerned with the plant operations, production, maintenance and safety. It could be also useful for the procurement and quality personnel.

Training Methodology

Training will be delivered through lectures and demonstration with emphasis on practical examples and case studies. Experienced instructor is provided to guide the participant using demonstrations and hands on lab exercises so that they are prepared to work confidently in the field of automation.

THE INSTRUCTOR

Mr. Sudhir Panditrao

The faculty for this course, Mr. Sudhir Panditrao has done his graduation and masters in instrumentation engineering with specialization in process instrumentation.

During his professional career spanning 22 years, Mr. Panditrao has worked in the areas of instrumentation and automation design, detailed engineering, projects, installation and commissioning at site for variety of industry applications. He has experience of working in the Middle East as a profit centre head that included international projects, sales and marketing in instrumentation and industrial packaging. He has worked as a consultant to various leading international organizations.

Mr. Panditrao has carried out training in the areas of instrumentation,

industrial automation, PLC, DCS, SCADA, advanced process control, automation project engineering etc. for many professionals, students and professors from several leading companies, engineering colleges and institutes. He has worked as an Asst. Professor with one of the leading technical institutes and has published many papers. He is associated with number of institutes as a visiting faculty and is a member of board of studies and postgraduate recognized teacher at University. He has presented a paper at IEEE Conference on Advance Process Control at Vancouver, Canada in May 2005.

COURSE OUTLINE

Module 1

Evolution of Process Control/ Automation
Hierarchical Structure of Control Systems
Current Scenario - PLC, SCADA and DCS based automation
SCADA Block Diagram, Components, Architectures, Redundancy Concepts
SCADA hardware configuration

Module 2

Introduction to HMI and SCADA functionality
SCADA programming and operations
Plant Mimic and Animations
Alarms Philosophy, Configuration and Management
Continuous Process Control Application and Case Study

Module 3

SCADA features
Development and Applications of Data Logs, Database Management
Trends and Reports
Security and Access Controls

Module 4

SCADA Communications
ISO/OSI Seven Layer Communication Structure
Communication Interfaces RS232, RS485, Ethernet
Communication Protocols
Modbus ASCII, RTU

Module 5

SCADA Engineering
Design/ Specifications and Selection
Documentation and Project Engineering
Installation and Commissioning
Diagnostics
Batch Process Control Application and Case Study