FUNDAMENTALS OF INDUSTRIAL AUTOMATION

WHAT YOU WILL LEARN:

- An appreciation of the latest developments in industrial automation
- Cutting edge best practice in instrumentation, PLCs, PACs
- Update on fieldbus, industrial ethernet and industrial wireless
- Review of current SCADA practice
- Best practice in industrial automation
- A clear understanding of the acronyms and terminology used

WHO SHOULD ATTEND:

This course is aimed at you if you are interested in gaining an overall appreciation and general understanding of industrial automation and control technology.

- Engineering managers
- Mechanical and electrical engineers
- Instrumentation engineers
- Maintenance engineers, supervisors and technicians
- Sales engineers
- Programmers
- Project leaders and managers
- IT managers
- Process engineers
- Production managers and engineers
- Business managers

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The Workshop

The elements of an industrial control system form part of an interconnected web using Ethernet, Fieldbus and wireless. Information is effortlessly transferred from an instrument to the SCADA terminal on a boardroom table. In this workshop real life examples from current control system technologies are used to give you the latest background in current vendor solutions. The material is presented in an easy to understand practical way enabling you to apply the concepts quickly and effectively to your next automation project.

Once you have completed the course you should have a good overall understanding of how to harness the power of industrial automation and to deal with contractors and experts working in the area. This will result in quicker ability to make decisions on the best way forward resulting in a quicker time to design, install and commission industrial automation equipment and, naturally, reduced costs.

Practical Sessions

The course is made highly interactive with short clips of videos, practical design exercises, and practical hands-on sessions with simulation software to demonstrate the key concepts.

The Program

INTRODUCTION
- Objectives of course
- Road map for the course
- History and background
- Building blocks of industrial automation
- Digital control
- Hierarchy and pyramid of control (sensor to boardroom)

INSTRUMENTATION
- Sensors
- Instrumentation
- Actuators and valves
- Fieldbus
- Impact of Fieldbus and wireless PLCs, PACs, DCSs AND SCADA SYSTEMS
- Programmable Logic Controllers (PLCs)
- Programmable Automation Controllers(PACs)
- Operator panels
- Distributed Control Systems (DCSs)
- Supervisory and Control and Data Acquisition Systems (SCADA)
- Soft PLCs
- Standard programming languages (IEC 61131-3)

INDUSTRIAL DATA COMMUNICATIONS
- Essentials of data communications (OSI layers)
- Essentials of RS-232/RS-485
- Fieldbus and DeviceNet systems
- ASi-bus
- Profibus
- Foundation fieldbus
- Industrial ethernet and TCP/IP
- Industrial versus commercial ethernet
- Industrial wireless
- Battle of the application layers
- Industrial network security
- OPC

PROCESS CONTROL
- PID control
- Cascade control
- Advanced process control
- Implementation of control

FROM SCADA TO BUSINESS SYSTEMS
- Manufacturing Execution Systems (MES)
- S88 batch language
- System integration models and concepts - S95 standard

SUMMARY
- Tying all the components together
- A view of the future

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