
Practical

SCADA SYSTEMS

for Industry



FOCUSSING ON:

- Fundamentals of SCADA Systems
- Communication Protocols & Standards
- Essentials of OPC applied to SCADA
- Wireless for SCADA
- SCADA System Security

WHAT YOU WILL GAIN:

At the end of this workshop participants will have an understanding of:

- The fundamentals of SCADA systems
- The essentials of SCADA software configuration
- Tricks and tips in installation of SCADA systems
- The essentials of SCADA telecommunications links
- The use of Industrial Ethernet in SCADA systems
- OPC and SCADA systems
- SCADA network security issues
- How to troubleshoot SCADA systems

WHO SHOULD ATTEND:

- Instrumentation and Control Engineers
- Process Control Engineers
- Electrical Engineers
- Consulting Engineers
- Design Engineers
- Control Systems Sales Engineers
- Maintenance Supervisors
- Control System Application Engineers
- Project Engineers
- Technicians
- Plant Engineers
- IT Personnel



Technology Training that Works

THE WORKSHOP

SCADA has traditionally meant a window into the process of a plant or gathering of data from devices in the field, but now the focus is on integrating this process data into the actual business and using it in real time. The emphasis today, is on using Open Standards such as communication protocols (eg IEC 60870, DNP3 and TCP/IP) and 'off-the-shelf' hardware and software to keep the costs down. This comprehensive two day workshop covers the essentials of SCADA systems.

A selection of case studies is used to illustrate the key concepts with examples of real world working SCADA systems in the water, electrical and processing industries. This workshop will be an excellent opportunity to network with your peers as well as gain significant new information and techniques for your next SCADA project.

Although the emphasis of the workshop will be on practical industry topics highlighting recent developments using case studies. The latest application of SCADA technologies and the fundamentals of SCADA systems will be covered. The workshop is aimed at those who want to be updated on the latest developments in SCADA systems and want to get a solid appreciation of the fundamentals of SCADA design, installation and troubleshooting.

PRACTICAL SESSIONS

Practical sessions include:

- Constructing a simple SCADA system
- Operating the SCADA system
- Design of display SCADA
- Alarm configuration
- Configuration of SCADA network
- Simple analysis of SCADA LAN network

ON-SITE TRAINING

- ✓ **SAVE** over 50% by having an IDC workshop presented at your premises.
- ✓ Customise the training to **YOUR** workplace.
- ✓ Have the training delivered when and where you need it.

Contact us for a **FREE** proposal.

THE PROGRAM

DAY ONE

BACKGROUND TO SCADA

- Fundamentals
- Comparison of SCADA, DCS, PLC and Smart Instruments
- Typical SCADA installations
- Definition of terms

SCADA SYSTEMS HARDWARE

- Fundamentals
- Comparison of SCADA, DCS, PLC and Smart Instruments
- Typical SCADA installations
- Definition of terms
- Remote Terminal Unit (RTU) structure
- Analog and Digital input/output modules
- Application programs
- PLC's used as RTU's
- Master site structure
- Communications architectures
- Point-to-point and point-to-multipoint systems
- System reliability and availability
- Configuration of a master station

SCADA SYSTEMS SOFTWARE

- Fundamentals
- Components of a SCADA system
- Software - Design of SCADA packages
- Configuration of SCADA systems
- Building the user interface
- Connecting to PLC's and other hardware
- SCADA system design
- The Twelve Golden Rules

HUMAN MACHINE INTERFACES (HMI'S)

- Human and ergonomic factors
- HMI configuration
- Design and layout
- Alarming and reporting philosophies
- Alarm system design

GOOD INSTALLATION PRACTICE

- Recommended installation practice
- Ergonomic considerations

LANDLINE MEDIA

- Background to cables
- Noise and interference on cables
- Twisted pair cables
- Fibre optic cables
- Public network provided services

DAY TWO

WIDE AREA NETWORK (WAN) TECHNOLOGIES

- Digital hierarchies, T1 and E1
- Packet switching
- Frame relay
- ATM
- SDH/sonet

LOCAL AREA NETWORKS (LAN'S)

- Ethernet networks
- Industrial Ethernet
- TCP/IP
- LAN connectivity: Bridges, Routers and Switches
- Redundancy options
- Web based Industrial SCADA
- Wireless
- OPC

INDUSTRIAL COMMUNICATIONS PROTOCOLS

- RS-232 interface standard
- RS-485 interface standard
- Fieldbus
- Modbus
- DNP3.0

MODEMS

- Introduction
- Modem principles
- Asynchronous/synchronous
- Modulation techniques
- Error detection and correction
- Modem troubleshooting

SCADA NETWORK SECURITY

- Introduction
- Authentication
- Encryption
- SCADA firewalls
- Firewall architectures
- Firewall guidelines

TROUBLESHOOTING AND MAINTENANCE

- Troubleshooting SCADA systems
- Maintenance tasks

SPECIFICATION OF SYSTEMS

- Common pitfalls
- Standards
- Performance criteria
- Testing
- Documentation
- Future trends

PROJECT MANAGEMENT OF SCADA SYSTEMS

- Phases of a SCADA project
- Specification of systems
- Implementation and commissioning

SUMMARY, OPEN FORUM AND CLOSING