



## Modern Wi-Fi Solutions to Instrumentation and Control

Date	Venues	(\$Fees	Book your seat
22 Dec -26 Dec 2024	Bahrain	2900	<a href="#">Register Now</a>

### Introduction

Technology is rapidly changing, and this is reflected in the evolution of modern instrumentation and control systems. More specifically, there is a move away from physical cabling to various devices, and the option of allowing them to seamlessly link to existing LANs and WANs, facilitating the sharing of information to an access point located anywhere in the world. Furthermore, these devices can be quickly programmed and modified, when required.

This Modern Wi-Fi Solutions to Instrumentation and Control training seminar looks at these technologies, and how their use may be beneficial to the user. The theoretical component of this seminar focuses on implementing real-world solutions, and the practical component supplements a lot of the theoretical knowledge.

#### This training seminar will feature:

- The benefits of entering a wireless world
- Wi-Fi versus current systems
- IEEE 802.11 standard
- System hardware
- Wi-Fi maintenance aspects

### Objectives

- Understanding options available to you, other than hard wiring
- Gaining familiarity with wireless devices
- Gaining the knowledge to set up a secure system
- Understanding the associated standards
- Gaining the insight required, to set up a complete system

### Training Methodology

The seminar will build up in intensity, as it proceeds. Nonetheless, it is presented in such a way that novices will feel comfortable, from the very beginning. No delegate is left behind, and the instructor will ensure that all delegates are guided along the way, with personal assistance, we required.

The seminar will consist of a theoretical component, group and open discussions, group and individual tasks, individual progress evaluations per section, applicable practical exercises, and a pre- as well as post-seminar evaluation. Delegates are encouraged to keep an open mind and to ask as many questions as deemed necessary, to ensure that maximum learning takes place. Preference will be given to applications that relate to the working environment of the delegates.

## Organizational Impact

The whole idea of going the modern Wi-Fi route is to reduce expenditure related to cables, installation, et cetera. Not only does this make the whole operation more efficient, but it means that they are able to reduce their costs, and therefore sell their final product at a reduced rate (which may, hopefully, allow them to outperform your competitors). Organizational impact would include:

- Understanding communication options other than hard-wiring
- Understanding and adhering to international wireless standards
- Implementing network security needs
- Speak with knowledge and authority on all digital communication aspects
- Understand threats to your system, and have the ability to advise your seniors/peers on continuous improvement and optimization

## Personal Impact

An individual that has a full understanding and appreciation of modern Wi-Fi solutions will stand out above his peers, as he solidifies his position as an important and vital team member. Such individuals will, without a doubt, make a great impact on their immediate working environment. Personal impact would include:

- Understanding the wireless world, and gaining familiarity with these devices
- Understand all plant communication processes, and have insight into the pros and cons of physical media
- Increase their standing, and be able to make vital decisions on current and future equipment, as well as network implementation
- Understand how the greater network fits together, as well as all of the data communication bits and pieces that are utilised
- Provide guidance on threats as well as maintenance, and implement optimal safety and security levels

## Who Should Attend?

This training seminar would be primarily aimed at people who have an interest in implementing Wi-Fi solutions for instrumentation and control applications, as well as those who manage operations that make use of Wi-Fi equipment, for instrumentation information data exchange, and who would like to enhance their knowledge and understanding of the subject matter.

**This training seminar is suitable to a wide range of professionals but will greatly benefit:**

- Automation engineers
- Consulting Engineers
- Electrical Engineers
- Electricians
- Industrial IT Specialists
- Installation and Maintenance Technicians
- Instrumentation and Control Engineers
- Maintenance Engineers
- Operations Engineers
- Process Engineers
- Process Operators
- Production professionals
- Project professionals
- System Integrators
- Other professionals who want a better understanding of the subject matter

## SEMINAR OUTLINE

## DAY 1

### Introduction, Existing Systems and Certification

- Introduction
- History
- Existing infrastructure
  - Propagation media (including copper, fiber, microwave and satellite)
- Certification
- IEEE 802.11 standard
  - History, description, protocol, channels, frequencies and layers

## DAY 2

### IDE, Applications and Spectrum

- Existing internet protocols
- Integrated Development Environment (IDE)
  - Overview, visual programming and language support
- Applications
  - Internet-of-things, cloud connectivity, automation, industrial control, etc.
- Wi-Fi spectrum

## DAY 3

### SSID, Hardware, Sensors and Controlled Devices

- Service Set Identifier (SSID)
  - BSS, BSSID, SSID and ESS
- Wi-Fi throughput
- Hardware
  - Function block, subsystems, encryption, memory, antennae, control, buffering and switching
- Assorted analog and digital sensors, typically used with Wi-Fi applications
- Controlled devices, typically used with Wi-Fi applications

## DAY 4

### Process Control, Signal Data Processing and Access Points

- Process control, for Wi-Fi applications
- Signal and data processing
- Range of Wi-Fi devices
- Wireless access points
  - Common access point applications, wireless access point vs ad hoc network, etc.

## DAY 5

### Security, Display, Alerts, Maintenance and Future Expectations

- Network security
  - Data security risks, securing methods, etc.
- Safety
- Information display and alert mechanisms
  - Displaying results, graphically, advanced features, e-mail and SMS alerts, etc.
- Maintenance

- Hardware fault finding
- Software debugging
- Diagnosis of faulty communication systems



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