2016 ISA Water/Wastewater and Automatic Controls Symposium

August 2 to 4, 2016 • Wyndham Lake Buena Vista Resort • Orlando, Florida, USA
Presented by the ISA Water/Wastewater Industries Division – ***www.isawwsymposium.com***
Technical co-sponsors: Florida AWWA Section, the WEF Automation and Info Tech Committee , Florida Water Environment Association, Instrumentation Testing Association, and ISA Tampa Bay Section

August 1, 2016 – Optional Short Course

Application of Industrial Wireless Systems

ISA Course SP25C

Course Description

Length: 1 day
Date: Mon, August 1, 2016
CEU Credits: 0.7
Course Hours: 8:00 a.m. – 4:00 p.m., includes lunch
Price: $600 for ISA Members, $755 List

Description:
This course concentrates on industrial wireless applications. Using the broad range of wireless applications-such as video monitoring and security systems, asset tracking (which may rely on a multitude of wireless technologies), mobile operator needs (PDAs, tablet PCs), remote tank farm monitoring, wireless SCADA systems, Voice over wireless LAN- the multitude of operational considerations associated with industrial wireless field transmitter for monitoring, and even control systems are examined. The logical intersections with the plant's IT department are addressed. Limitations in system performance due to the ambient (RF and physical) environment where the system is deployed are addressed.

Current and near-term future technologies will be compared in terms of their applicability for the industrial environment. Integration of traditional wire-based systems and wireless systems will be discussed, along with various networking strategies.

You will be able to:

- Discuss today's wireless offerings for industrial automation
- Identify tomorrow's wireless technology
- Evaluate the strengths and weaknesses of various sensor technologies
- Determine what combination of schemes may be needed in your plant
- Compare leading methodologies for commercially available sensors
- Apply wireless and tethered technology to solve real business situations
- Identify problems in industrial automation

You will cover:

- **A Quick Review of Communication Fundamentals**: Frequencies | Narrowband Systems | Spread Spectrum Techniques | Protocols | Multiplexing
- **Communication Needs of Various Wireless Technologies:** Circuit Switched Systems | Packet Based Systems | Access Methodologies | Typical Sensor Interfaces
- **Architectures**
- **Video:** Appropriate Wireless Technology | Networking Topologies | Implementation Issues
- **Mobile Operators:** Appropriate Wireless Technology | Networking Topologies | Implementation Issues

- **Industrial Asset Tracking:** Appropriate Wireless Technology | Networking Topologies | Implementation Issues
- **Strategies and Methodologies**
- **Voice Over Wireless LAN:** Appropriate Wireless Technology | Networking Topologies | Implementation Issues
- **Industrial Wireless for Process:** Appropriate Wireless Technology | Networking Topologies | Implementation Issues
- **Mixed Networking Topologies Supporting Multiple Co-resident Wireless Applications:** Integration Issues | Realistic Implementations

About the Instructor

Peter Fuhr has been working in the areas of wireless communications, sensors and photonics for longer than he cares to admit. He was among the earliest group of individuals to embed sensors into various civil structures and helped pioneer the integration of sensors and actuators onto the comm channel that used to be called "The Information Superhighway." Dr. Fuhr has published and presented over 500 technical articles and holds numerous patents. He serves on numerous industrial, governmental, and corporate advisory boards for companies in the wireless, photonics and nanotechnological areas. He is a Senior Member of the IEEE, has served as an ISA Course Developer and Instructor for many years. Dr. Fuhr has received many awards throughout his career including the Presidential Award for Excellence in Research. Mr. Fuhr is active in the ISA100 Wireless Committee.

Course Schedule

DAY	Topics, Exercises, Etc.	Time
A.M.	Course Introductions Pre Instructional Survey Section 1: A Quick Review of Communication Fundamentals Section 2: Networking Fundamentals Section 3: Wireless Sensor Network Designs	 0.25 hours 1.00 hours 1.00 hours 1.50 hours
P.M.	Section 4: Network Designs for Specific Applications Section 5: Mixed Networking Topologies Supporting Multiple Co-Resident wireless applications Course Summary Post Instructional Survey Final Course Evaluation	1.50 hours 1.25 hours 0.25 hours 0.25 hours
		7 hours = 0.7 CEUs