Radio Communications for Industry

State ID: SC-MES-V1384

About this course

This two day course is aimed at personnel in the mining, oil & gas industry, and in both public and private defence and security sectors.

You'll benefit from this workshop if you are involved in SCADA, instrumentation, process control and other control/monitoring systems roles such as:

- Instrumentation technician/Instrumentation and control engineers
- Electronic technicians
- Electrical engineers
- Process development engineers/Process control engineers
- Control systems sales/applications engineers
- Consulting or Design engineers
- Maintenance supervisors
- Project engineers

Gain these skills

- Implement simple RF links for control and monitoring system
- Understand the jargon, terminology and latest techniques of wireless communications
- Design (using software tools), install and commission (using dedicated test equipment) an effective RF link
- Perform simple path loss and gain/loss calculations in decibels
- Learn how to troubleshoot wireless system problems using RF test equipment
- Select the main components of RF links
- Conduct a site survey
- Implement effective security on wireless systems
- Explain infrastructure requirements for RF systems

Day 1 topics

- Communication system modes
- Basic elements of a wireless link
- Production and composition of an electromagnetic wave
- Free Space attenuation vs. frequency
- Factors influencing propagation of radio waves
- Multipath interference effecting a wireless link
- Frequency spectrum allocation
- Gain and loss decibel measurements/calculations with examples
- Modulation techniques with a practical exercise on digital modulation performance in a wireless environment
- Spread spectrum techniques
- Multiple access techniques
- Antenna types and selection, Diversity methods
- Transmission lines types and selection
- Data communication standards
- Typical RF test equipment used for troubleshooting, system design and commissioning
- Typical RF measurements with practical examples such as VSWR, return loss, insertion loss, etc.

Day 2 topics

- Wireless system design procedure and infrastructure requirements
- Practical exercise in wireless system path profiling using software tools
- Practical exercise on the implementation of a wireless system design based on industry practice

Details

Semester 2, 2019

Midland - on campus

When: **Semester 2, 2019**

How: **On campus**

Fees and charges

$450.00 including GST