Radio Communications for Industry

State ID: SC-MES-V1384

About this course

This 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

Topics covered including practical exercises

- 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.
- 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

In order to comply with COVID-19 Government directed social distancing guidelines, some courses may include a mix of online learning, virtual classrooms (live web conferencing with your lecturer and class) and classroom delivery, as well as practical and work experience placements.

Lecturers will provide specific instructions to their student groups on how training will be undertaken.

Continuous enrolment, 2020

Midland - On Campus and on-line

When: **Continuous enrolment**

How: **On campus**

Units

Core

National ID	Unit Title
V1384	Radio Communications for Industry

Important information

The delivery format of this course is a combination of online theory and on campus practical component. The practical component can be completed over two half days on campus by appointment.

Fees and charges

$450.00 including GST

Please note, fees are subject to change.