

**Course Title**                      **Advanced Wireless Technologies – 7CS003**

**Duration**                              **5 Days**

### Course Overview

This comprehensive and authoritative five day briefing is designed for technicians who have a background in telecommunications but have no previous experience of commercial wireless applications. The course provides an essential introduction to 802.11 (WiFi) and 802.16e/m (Roaming WiMax) Wireless networks.

### Delivery Method

|                | Y/N |              | Y/N |                     | Y/N |                 | Y/N |                  | Y/N |
|----------------|-----|--------------|-----|---------------------|-----|-----------------|-----|------------------|-----|
| Classroom      | y   | Tutor Led    | y   | Webinar             |     | Self paced labs |     | Facilitated labs |     |
| Demonstrations | y   | Case studies |     | Syndicate exercises | y   | Self paced      |     | Lectures         |     |

### Course Prerequisites

The ability to work with Microsoft Windows is useful; however delegates require no previous technical knowledge or experience of wireless technologies or 4G protocols prior to attending this course. An understanding of the radio frequency spectrum is required as covered in the Wireless and Radio Engineering course.

### Course Objectives

On completing this Wireless course delegates will be able to:

- Understand the principles and protocols of 4<sup>th</sup> Generation (4g) mobile communications (WiMax and Long Term Evolution LTE)
- Understand how Wireless can be used to reduce wide area networking costs.
- Understand how Wireless can be used by mobile and roaming users, as an alternative to fixed line, dial-up and mobile communications solutions.
- Describe the organisations and laws governing the use of wireless networks.
- Understand the fundamental concepts and operating principles of Wireless.
- Describe the concepts and benefits of Voice over Wireless (Wireless VoIP).
- Appreciate the product ranges and offerings of the major enterprise Wireless vendors.
- Appreciate the choices that organisations face when implementing wireless LANs.
- Understand the terminology and jargon used with wireless LANs.
- Perform and understand professional planning, surveys, design and implementation processes with 802.11 wireless LANs and 802.16e/m WiMax.
- Understand and quantify the support issues and resources for Wireless for your customers.
- Calculate the costs of implementing and supporting Wireless networks for your customers.
- Understand the security issues with Wireless and its potential impact on your customers.
- Understand the security mechanisms and countermeasures that are available for Wireless vulnerabilities.
- Understand the Wireless network auditing that is required by organisations running Wireless networks.

### Content Headings

Introduction to Earlier Technologies  
Introduction to Wireless and 4g Networking  
Understanding Wireless Basics  
4g Technology: An Introduction  
4g History  
How 4g Works  
4g Applications and Services  
4g Regulatory Issues  
4g and Other Broadband Wireless Futures  
Wireless Bridge Links  
WiFi Mesh Networks  
Wireless Ad Hoc networks  
Defining WiFi Network Requirements  
Assessing Enterprise WiFi Vendors  
Assessing WiFi Network Suppliers  
Voice over WiFi (VoWiFi or Wireless VoIP)  
WiFi Security  
WiFi Network Management  
Site Surveys, Design and Implementation

### Assessment Method

|                   | Y/N |                          | Y/N |                          | Y/N |
|-------------------|-----|--------------------------|-----|--------------------------|-----|
| Assessed lab/task | y   | End of course assessment | y   | End of module assessment |     |