Certified Wireless Infrastructure Technician Training

Description

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Introduction:

Learners can take their existing network cabling knowledge and skills to the next level by gaining a valuable insight into current and emerging wireless networking technologies used to provide in-building wireless coverage. Methods used for connection to backbone networks also feature with explorations into the principles of microwave radio bearers, fibre systems and cable technologies. Each subject area covers the latest standards and codes of practice, and ensures technicians are armed with everything they need to undertake installation projects to the highest possible standards.

Focused practical hands-on sessions are incorporated throughout this program including a focus on advanced wireless infrastructure installation, troubleshooting, wireless coverage surveys and network testing tools. The organisation and management of site records and wireless system test results through OEM software is also included.

The Contents:

Role of the CWIT in:

- The core layer
- The distribution layer
- The access layer

Regulations, Standards, Codes, Organisations and Forums

- Wireless regulations, standards, codes and organisations
- Wireless trade organisations and forums
- Emerging wireless technologies and related standards

Fundamentals of Wireless Communications

- Electromagnetic Spectrum

- Advantages of the wireless solutions
- RF propagation
- Modulation schemes

Wireless Networking Principles

- Cellular, WLAN, WAN and Microwave technologies
- Femto/Pico/Micro and Macrocells
- WLAN types
- Frequency Bands and Channel Numbers
- Core Networks
- MIMO antennas
- Remote Radio Head (RRH)
- PoE Switches
- Self-organising Networks (SON)
- Network and Security Gateways
- Coverage and Capacity 2G, 3G, 4G LTE and 5G NR
- WIFI 4, 5, 6 and 6E
- Optimal positioning of RF units
- LiFi
- Wiring the Wireless Network

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Planning for In-Building Installations

- On-site health & safety assessment
- Wireless infrastructure administration & floor plans
- Capacity & Coverage plans arising from use of planning tools
- Ethernet and fibre cable route planning
- Equipment mounting choices and types
- Iteration process – ideal vs. practical choices
- Rack space and equipment connection planning
- PoE and AC/DC planning
- Active and Passive Distributed Antenna Systems
- Convergence of IBW solutions
- The role of Wireless in Smart Cities

In-Building Installations

- Structural support for wall and ceiling RF unit fixings
- Tools used for wall and ceiling fixings
- PPE, steps, ladders, towers used during mounting of RF units
- Installation of PoE switches and servers
- Connection, earthing and AC/DC power
- Testing and connection of Ethernet and optical fibre cables
- Installation of internal RF antenna 1800MHz, 2.4GHz, 5GHz and 6 GHz
- Extending IBW solutions out of the building

In-Building Commissioning

- Powering up switches and servers
- Use of CLI and GUI
- Entry of initial parameters to enable SON
- Testing: RF coverage, cable compliance, handover and provision of service
- Optimisation of RF coverage through physical adjustments
- Documenting test results

Wireless Infrastructure Troubleshooting

- Identification of faulty RF units or PoE devices
- PoE testing
- Coverage testing using test phone
- Typical replacement procedures: RF units, switches, servers

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