Network Infrastructure Fundamentals (NIF®) Training

Duration: **1 Day**

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Network Infrastructure Fundamentals (NIF®) provides participants with a broad understanding of the technologies and physical infrastructure that support modern telecommunications and network environments.

Every communication system requires a source, a destination, and a pathway connecting the two. The source may be a smart device such as a phone, tablet, scanner, camera, or card reader. The destination, where information is processed, could be a telephone exchange or storage and processing equipment located within a data centre. Communication between these points may be carried over fibre optic cabling, copper cabling, or wireless links.

This program introduces the fundamental principles behind communications systems while providing an understanding of voice and data communication technologies. Participants learn how these technologies relate to the physical network infrastructure required to support increasingly complex communications environments.

The course also explores the physical components used to create communication pathways, containment systems, and network cabling infrastructure. This provides participants with a broader understanding of how the different elements of a modern network environment work together.

Prerequisites

There are no specific formal prerequisites for this program.

However, some general awareness of the network infrastructure sector would be beneficial and may help participants place the concepts covered during the course into context.

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What You Will Learn

One of the key aims of the program is to make the technical terminology used throughout the network infrastructure industry easier to understand.

By the end of the course, participants should be able to:

- Understand common technical terminology used within network infrastructure.
- Describe the fundamental principles behind communication systems.
- Recognize the relationship between voice and data communication technologies and network infrastructure.
- Explain the basic relationship between a communication source, destination, and pathway.
- Recognize the role of fibre, copper, and wireless communication pathways.
- Develop a broad understanding of physical network infrastructure components.
- Understand the purpose of network cabling and containment systems.
- Recognize the place of technologies such as networking, WiFi, cellular infrastructure, and IoT within modern environments.
- Understand the importance of service assurance, maintenance, and sustainability within network infrastructure.

Technical concepts are presented using straightforward language, clear explanations, and useful analogies to make complex terminology more accessible.

Training Outline

Basic Network Functions

- Fundamental network functions
- Sources, destinations, and communication pathways
- The role of network infrastructure in modern communications

Networking Technologies

- Core networking technologies
- Different communication methods used within network infrastructure

Ethernet, PON and Other Distribution Methods

- Ethernet
- Passive Optical Networks (PON)
- Other network distribution methods

WiFi

- Fundamentals of wireless network infrastructure
- The role of WiFi in communication environments

Cellular Infrastructure

- Overview of cellular infrastructure

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- Infrastructure supporting mobile communications

Audio Visual

- The relationship between audio visual systems and network infrastructure
- The role of AV technologies in modern communication environments

Security

- Security within network infrastructure
- The role of security in communications environments

Internet of Things (IoT)

- Introduction to IoT
- The place of connected devices within network infrastructure

Smart Environments

- Fundamentals of smart environments
- The role of network infrastructure in supporting connected environments

Data Communications Principles

- Fundamental principles of data communications
- Core concepts involved in transporting data across networks

Networking Protocols

- Introduction to networking protocols
- Their role within communication processes

Physical Infrastructure

- Physical network infrastructure
- Fibre optic and copper cabling
- Wireless links
- Network cabling infrastructure
- Containment systems

Service Assurance and Maintenance

- Supporting continuity of network services
- The role of infrastructure maintenance
- Service assurance principles

Sustainability Practices

- Sustainability within network infrastructure
- The importance of sustainable practices in infrastructure environments