

UNIT ID: 2283

Domain TELECOMMUNICATION AND WIRELESS TECHNOLOGY

**Title: Demonstrate an understanding of mediums
of communication network**

Level: 4

Credits: 9

Purpose

This unit standard is intended for those who demonstrate an understanding of mediums of communication network .People credited with this unit standard are able to demonstrate an understanding of microwave transmission networks, demonstrate an understanding of wired transmission network, demonstrate an understanding of optical fibre networks,

This unit standard is intended for those who work in the telecommunication and wireless technology working environment.

Special Notes

1. Entry information:

Prerequisites:

- None

2. This unit standard is to be delivered and assessed in the context of information and communication technology.

3. Assessment evidence may be collected from a real or a simulated workplace in which telecommunication and wireless technology operations are carried out.

4. Tools and equipment may include but are not limited to computer, external devices, storage devices and other and basic computer applications.

5. Performance of all elements in this unit standard must comply with industry standards.

6. Regulations and legislation relevant to this unit standard include the following:

- Labour Act 2007(Act No 11, 2007)
- Regulations relating to the health and Safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007 and all subsequent amendments.

Quality Assurance Requirements

This unit standard and others within this sub-field may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment

arrangements are available from the Namibia Qualifications Authority on www.namqa.org and the Namibia Training Authority on www.nta.com.na

Elements and Performance Criteria

Element 1: Demonstrate an understanding of Microwave Transmission Networks

Range

Microwave transmission may include but not limited to antenna's gain, polarization, radiation pattern, return loss, frequency operation and waveguides.

Performance Criteria

- 1.1 State and adhere to health and safety when working with radio wave.
- 1.2 Microwave antennas are explained in context of frequency, wavelength and application.
- 1.3 Microwave frequency planning is illustrated and performed.
- 1.4 Waveguides are illustrated.
- 1.5 Wave propagation is explained.
- 1.6 Path loss simulation is explained.

Element 2: Demonstrate an understanding of Wired Transmission Network.

Range

Wired transmission may include but not limited to Unshielded Twisted Pair cable (UTP), and coaxial cable.

Transmission in electrical network may include but not limited to series and parallel resonant circuit, passive circuit, balance and unbalance network.

Performance Criteria

- 2.1 State and adhere to health and safety when working with wired transmission.
- 2.2 Characteristics of twisted pair and coaxial cable are described.
- 2.3 Balanced and unbalanced transmission lines are compared.
- 2.4 Transmission in electrical network is illustrated.

Element 3: Demonstrate an understanding of Optical Fiber Networks

Range

Optical network hierarchy may include but not limited to plesiochronous digital hierarchy (PDH) Synchronous digital hierarchy (SDH), Metro Ethernet, MPLS, DWDM, FTTX and Synchronous optical network (SONET).

Performance Criteria

- 3.1 State and adhere to health and safety when working with optical fiber.
- 3.2 Optical fiber network hierarchy is illustrated.
- 3.3 Single-mode and multi-mode are explained and illustrated with reference to optical fiber communications.
- 3.4 Application of photonics is explained.
- 3.5 Signaling and modulation formats are explained and illustrated.
- 3.6 Frequency and wave length allocation is illustrated.

Registration Data

Subfield:	Information and Communication Technology
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