

PERFORM COMPUTER NETWORK MAINTENANCE

ISCED UNIT CODE: 0612 451 08A

TVET CDACC UNIT CODE: IT/OS/NSA/CR/05/5/MA

UNIT DESCRIPTION:

This unit covers the competencies required to Perform Computer Network maintenance. It involves the following: Analyze Computer Network Performance, Troubleshoot Computer Network Components and Perform Computer Network Component Repair.

Elements <i>These describe the key outcomes which make up workplace functions</i>	Performance Criteria <i>These are assessable statements which specify the required level of performance for each of the elements (Bold and italicized terms are elaborated in the range)</i>
1. Analyze Computer Network Performance	1.1 Network <i>Traffic analysis</i> is performed as per work procedure. 1.2 Network <i>Bandwidth utilization</i> is monitored as per work procedure. 1.3 Computer network <i>Latency measurement</i> is conducted as per work procedure. 1.4 Network <i>Device performance monitoring</i> is performed as per work procedure.
2 Troubleshoot Computer Network Components	2.1 <i>Basic electronic skills</i> are applied as per industry standards 2.2 Network components and connections are tested as per industry standards 2.3 Network configuration is verified as per work procedure 2.4 Logs and error messages are reviewed as per work procedure 2.5 Report is generated as per the work procedure

3 Perform Computer Network Component Repair	3.1 Faulty network component is Isolated as per work procedures 3.2 Problem-solving procedure is established as per work procedures 3.3 Maintenance tools are selected 3.4 Faults Identified are solved as per work procedure. 3.5 Network component repair procedure is documented as per work procedure.
4 Maintain computer network	4.1 Hardware maintenance and regular software updates are performed 4.2 Network monitoring and Performance optimization is implemented as per work procedure 4.3 Backup and disaster recovery is performed as per work requirement 4.4 Documentation and inventory are maintained 4.5 Compliance and regulatory updates are conducted as per work procedure

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

1. Traffic analysis may include but not limited to:	● Bandwidth monitoring ● Packet inspection ● Performance optimization ● Forensic analysis ● Real-time monitoring and alerts
2. Bandwidth utilization may include but not limited to:	● Web browsing ● File downloads
3. Latency measurement may include but not limited to:	● Ping ● Traceroute ● Wireshark ● Network monitoring tools
4. Device performance monitoring may include but not limited to:	● Metrics tracking ● Alerting ● Real-time monitoring ● Security monitoring
5. Basic electronic Skills may include but not limited to:	● Cable termination and crimping ● Signal transmission ● Power Over Ethernet (POE)

	• Basic implementation of Networking protocols
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REQUIRED KNOWLEDGE AND SKILLS

This section describes the knowledge and skills required for this unit of competency.:

Required knowledge

- Network security measures
- Network testing procedures
- Safety awareness
- Environmental conservation
- Workplace safety and health
- Basics electronics

Required skills

- Critical thinking
- Communication skills
- Problem-solving skills
- Creativity and innovation
- Network security configuration
- Network configuration techniques
- Network Monitoring
- Technical proficiency
- Scripting and automation
- Operating systems proficiency
- Server Administration
- Basic programming

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills range.

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Troubleshoot computer network components as per work procedure 1.2 Performed network component repair as per work procedure 1.3 Maintained a computer network as per work procedure
	The following resources should be provided:

2. Resource implications	2.1 Appropriately simulated environment where assessment can take place 2.2 Access to relevant work environment 2.3 Resources relevant to the proposed activities or tasks; including computers, media, routers, switches, ports etc.
3. Methods of assessment	Competency in this unit may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Portfolio of evidence 3.4 Interviews 3.5 Third party report 3.6 Practical assessment 3.7 Written tests
4. Context of assessment	4.1 This Competency may be assessed in a workplace or a simulated workplace.
5. Guidance information for assessment	5.1 Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.