

PERFORM COMPUTER NETWORKING

UNIT CODE: IT/OS/ICT/CR/01/6

UNIT DESCRIPTION

This unit covers the competencies required to perform computer networking activities. It involves identifying network types and components, connecting network devices, configuring network components and workstations, networking testing, configuring Network types, perform Network security, monitoring and maintaining.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicised terms are elaborated in the Range)</i>
1. Identify network type and components	1.1. Site survey is conducted to determine the user needs and establish <i>network topology</i> 1.2. <i>Network components</i> are identified according to the site survey 1.3. Network design is developed according to the site survey
2. Connect Network devices	2.1. Tools, materials and devices for network are identified according to the network type 2.2. Network connection is done according <i>National and international communication standards</i> 2.3. Strength and connectivity tests of cables and equipment is done as per the network type
3. Configure network devices	3.1. <i>Network software</i> is installed and configured according to user manuals. 3.2. IP addressing scheme, subnet masking and routing protocol configuration is done 3.3. <i>Network segmentation</i> is determined as per the Network design. 3.4. <i>Network privileges</i> are allocated according to the network configuration.

ELEMENT	PERFORMANCE CRITERIA <i>(Bold and italicised terms are elaborated in the Range)</i>
4. Perform Network testing	4.1. <i>Network components</i> are tested to determine the performance. 4.2. Testing of <i>connectivity medium</i> between components is done as per the manual instructions. 4.3. Network testing is done, and report generated.
5. Configure network types e.g. LAN, WAN	5.1. <i>Network types</i> are identified as per the Network design 5.2. Network types are configured as per the type of connection 5.3. Network testing of network types is done
6. Perform Network Security	6.1. Identification and implementation of network security policy is done as per the Organization ICT policy. 6.2. <i>Network security measures</i> are identified according to the threats defined. 6.3. Network security measures are enforced in line with the <i>Network security policy</i> .
7. Monitor Network connectivity and performance	7.1. <i>Monitoring tools</i> are identified 7.2. Deployment of monitoring tools is done as per the network connection type. 7.3. Network status is determined as per the monitoring report.
8. Maintain Network	8.1. Optimization between the network Components and medium is done 8.2. Network security is applied according to vulnerability of the Network. 8.3. Maintenance schedule is performed 8.4. User training is done according to the instruction manual.

RANGE

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

Variable	Range <i>May include but is not limited to:</i>
1. Network components	1.6 Routers 1.7 Switches 1.8 Hub 1.9 RJ 45 cables 1.10 Ports 1.11 Computers 1.12 printers
2. Network topology	2.1 Star 2.2 Ring 2.3 Mesh 2.4 Hybrid 2.5 Point to point
3. Network security Measures	3.1 Intrusion detection systems 3.2 Patching and Updating 3.3 Port Scanners 3.4 Network Sniffers 3.5 Vulnerability scanners 3.6 Antiviruses
4. Network types	4.1 WAN 4.2 LAN 4.3 PAN
5. Monitoring tools	5.1 Ping 5.2 Tracert 5.3 NSLookup 5.4 Ipconfig 5.5 Speed test
6. Network security policy	6.1 document that outlines rules for computer network access, determines how policies are enforced and lays out some of the basic architecture of the company security/ network security environment
7. Network software	7.1 NetFlow 7.2 Active Directory 7.3 Zabbix

Variable	Range <i>May include but is not limited to:</i>
	7.4 Telnet 7.5 Wireshark
8. Network segmentation	8.1 splitting a computer network into subnetworks, each being a network segment to improve performance.
9. Network privileges	9.1 privilege allows a user to perform an action. Examples of various privileges include the ability to create a file in a directory, or to read or delete a file, access a device, or have read or write permission to a socket for communicating over the Internet

REQUIRED KNOWLEDGE AND UNDERSTANDING

The individual needs to demonstrate knowledge and understanding of:

1. Network Architecture
2. Network programming languages
3. Network Components and devices
4. Network types
5. Network security Measures
6. Network Monitoring procedures
7. Network testing techniques
8. Network configuration techniques
9. Network protocols
10. Network security techniques and procedures
11. Network testing procedures

FOUNDATION SKILLS

The individual needs to demonstrate the following foundation skills:

- Communications (verbal and written);
- Proficient in ICT;
- Troubleshooting
- Problem solving
- Decision Making

EVIDENCE GUIDE

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

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified network components during the site survey 1.2 Tested the Strength and connectivity of cables and equipment 1.3 Identified Network types as per the Network design 1.4 Installed and configured network software according to user manuals. 1.5 Implement the network security policy 1.6 Identified and implemented network security measures 1.7 Identified and deployed monitoring tools
2. Resource Implications	The following resources must be provided: Resources same as that of workplace are advised to be applied Including computers, media, routers, switches, ports etc
3. Methods of Assessment	Competency may be assessed through: 3.1 Observation 3.2 Oral questioning 3.3 Practical demonstration
4. Context of Assessment	Competency may be assessed individually in the actual workplace and simulated setting of the actual work place
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.