

BUILD SECURE NETWORK

ISCED UNIT CODE: 0612554 10A

TVET CDACC UNIT CODE: SEC/CU/CS/CR/01/6/MA

Relationship to Occupational Standards

This unit addresses the unit of competency: Build secure network

Duration of Unit: 120 hours

Unit Description

This unit covers the competencies required in building secure network. It involves reviewing security issues, analyzing network security protocols and features, designing and perimeters, installing and configuring perimeter solutions, configuring internal network devices, testing and verifying design performance and training network users.

Summary of Learning Outcomes

Learning Outcomes	Durations (Hours)
1. Review security issues	30
2. Analyze network security protocols and features	20
3. Install and configure perimeter solutions	40
4. Test and verify design performance	20
5. Train network users	10
Total Hours	120

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Review security issues	1.1 Importance of Network Security 1.2 Common Threats and Attacks 1.3 Security Monitoring and Analysis Tools: 1.3.1 Wireshark (Packet Analysis) 1.4 Hardening Network Devices 1.5 Secure Remote Management	• Observation • Oral questioning • Written tests • Practical tests

Learning Outcome	Content	Suggested Assessment Methods
	1.6 Configure Access Control Lists (ACLs)	
2. Analyse network security protocols and features	2.1 Encryption and Secure Communication Protocols 2.1.1 SSL/TLS (Secure Sockets Layer/Transport Layer Security) 2.1.2 IPsec (Internet Protocol Security) 2.1.3 WPA2/WPA3 (Wi-Fi Protected Access) 2.2 Secure Data Transfer Protocols 2.2.1 HTTPS (Hypertext Transfer Protocol Secure) 2.2.2 SFTP (Secure File Transfer Protocol) 2.2.3 FTPS (File Transfer Protocol Secure) 2.3 Network Device Security Protocols 2.3.1 SSH (Secure Shell) 2.3.2 SNMPv3 (Simple Network Management Protocol v3)	• Observation • Oral questioning • Written tests • Practical tests
3. Install and configure perimeter solutions	3.1 Meaning of Terms 3.2 Factors to consider in acquiring perimeter solutions 3.3 Factors to consider in installation of perimeter solution 3.4 Configure Firewalls 3.4.1 Physically connect the firewall between two networks 3.5 Configure Intrusion Detection and Prevention Systems (IDS/IPS) 3.5.1 Configure IDS/IPS rules 3.5.2 Set up alerts to notify admins about suspicious activity.	• Observation • Oral questioning • Written tests • Practical tests

Learning Outcome	Content	Suggested Assessment Methods
	3.6 Configure Virtual Private Network (VPN) 3.6.1 Create VPN user accounts with strong passwords. 3.6.2 Enable multi-factor authentication (MFA). 3.6.3 Use AES-256 encryption for strong security.	
4. Test and verify design performance	4.1 Define testing objectives 4.2 Create a test plan 4.3 Conduct network performance testing 4.4 Conduct network security testing 4.5 Conduct redundancy testing.	• Observation • Oral questioning • Written tests • Practical tests
5. Train network users	5.1 Identify training objectives 5.2 Tailor security training to user roles 5.3 Network usage best practices	• Written tests • Oral questioning • Practical tests • Observation

Suggested Delivery Methods

- In Instructor led facilitation of theory
- Demonstration by trainer
- Practical work by trainee
- Viewing of related videos
- Group discussions

Recommended resources for 25 trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Trainee: Item)
A	Learning Materials			
1.	Textbooks		13 pcs	13:1
2.	Installation manuals		5pcs	5:1
3.	Charts			

4.	PowerPoint presentations	For trainer's use		
B	Learning Facilities & infrastructure			
5.	Lecture/theory room		1	25:1
6.	Computer Laboratory		1	25:1
7.	Internet Connection			
C	Consumable materials			
8.	Printing papers		1 ream	1:20
9.	Toners		2 pcs	13:1
10.	Assorted colour of whiteboard markers			
D	Tools and Equipment			
11.	Computers		25 pcs	1:1
12.	Projector		1 pc	25:1
13.	Signal testers		5 pcs	5:1
14.	Header checker		25 pcs	1:1
15.	Crimping tools		25 pcs	1:1
16.	Cable tester		5 pcs	5:1
17.	Switches		5pcs	5:1
18.	Repeaters		5pcs	5:1
19.	Routers/modem		5pcs	5:1
20.	Network tool kit		25 pcs	1:1
21.	RJ45		300 pcs	1:10
22.	UTP Ethernet Cable		300 mtrs	1:10
23.	Antistatic gloves		25 pairs	1:1
24.	Wireshark 32/64-bit Latest version		25 pc	1:1
25.	Network simulation tools: -Cisco packet tracer or -GNS3		25 pc	1:1
26.	VMware/Oracle virtual box		25 pc	1:1
27.	Kali Linux or Parrot OS		25pc	1:1