

Model Curriculum

Telecom Network Security Technician

SECTOR: TELECOM

SUB-SECTOR: Network Managed Services

OCCUPATION: Operation and Maintenance

REF ID: TEL/Q6208

NSQF LEVEL: 4



Certificate

COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

TELECOM SECTOR SKILL COUNCIL

for

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/ Qualification Pack: 'Telecom Network Security Technician'
QP No. 'TEL/ Q62o8 NSQF Level 4'

Date of issuance: **June 10th, 2015**

Valid up to: **June 14th, 2017**

* Valid up to the next review date of the Qualification Pack

Authorised Signatory
(Telecom Skill Development Council)

TABLE OF CONTENTS

1. Curriculum	01
2. Trainer Prerequisites	05
3. Annexure: Assessment Criteria	06

Telecom Network Security Technician

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Telecom Network Security Technician”, in the “Telecom” Sector/Industry and aims at building the following key competencies amongst the learner.

Program Name	Telecom Network Security Technician		
Qualification Pack Name & Reference ID	TEL/Q6208		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	ITI (IT related streams)		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Install, configure and test the routing plan • Monitor network traffic and resolve any congestion or connectivity issues • Troubleshoot common WAN and LAN issues • Test all LAN devices for switching loops and WAN devices for routing loops • Record and maintain network details for future fault localization • Test and resolve congestion issues on the network 		

This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Telecom Network Security Technician” Qualification Pack issued by “Telecom Sector Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Overview</p> <p>Theory Duration (hh:mm) 05:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> • Introduction to data communication networks such as LAN and WAN systems • Basic concept of firewalls, routers, switches, WI-FI and access points • Configuration of routing and switching equipment • Different routing protocols TCP/IP, UDP, Telnet etc. • Basic knowledge of IP addressing both IPV4 & IPV6 • Knowledge of different ways of configuring access list 	Laptop, white board, marker, projector
2	<p>Key concepts</p> <p>Theory Duration (hh:mm) 05:00</p> <p>Practical Duration (hh:mm) 05:00</p> <p>Corresponding NOS Code NA</p>	<ul style="list-style-type: none"> • Explain the various mobile and data technologies • Know and understand the various product and service offerings in the telecom sector • Outline the documentation process and documents needed for mobile customers • Explain the key concepts related to Networking • State the importance of workplace • Ergonomics and respect at workplace • Express the importance of data confidentiality in the telecom industry 	Laptop, white board, marker, projector
3	<p>Network planning and infrastructure requirement</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 20:00</p> <p>Corresponding NOS Code TEL/N6229</p>	<ul style="list-style-type: none"> • Identify requirements of nodes, operating systems, internet connectivity pattern and applications in the network • Identify protocols used for communications with ISP • Plan the space requirement for network devices • Understand the IP addressing schemes for customer • Know how to define and create VLAN as per requirement • Know the requirement about Scope out the power and backup requirements 	Network management tools, Diagnostic tools, Test equipment: line tester, Ethernet tester, VSWR meter, RF power meter, Optical meter
4	<p>Installation of network devices & Network testing and evaluation</p> <p>Theory Duration (hh:mm) 10:00</p> <p>Practical Duration (hh:mm) 20:00</p>	<ul style="list-style-type: none"> • Understand the installation, configuration and testing the routing plan, LAN and WAN devices • Learn how to check the connectivity from nodes • Know how to test inter department, intra department connectivity and load on network devices when under full capacity • Learn how to test all NMS software to ensure the working of software ,LAN devices for switching loops and WAN devices for routing loops • Understand the procedure to test and resolve congestion issues on the network 	Network management tools, Diagnostic tools, Cables: RJ45, RS232 and Hi-Speed USB, Test equipment: line tester, Ethernet tester,

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	Corresponding NOS Code TEL/N6229		VSWR meter, RF power meter, Optical meter
5	Maintenance and troubleshooting of network Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code TEL/N6229	<ul style="list-style-type: none"> Learn how to monitor network traffic and resolve any congestion or connectivity issues Understand the evaluation and implementation of network management software Understand how to troubleshoot common LAN issues Know how to record, manage and archive network data 	Network management tools, Diagnostic tools
4	Technical Knowledge and skills Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code TEL/N6231 TEL/N6232 TEL/N6233	<ul style="list-style-type: none"> Understand the basic concepts of IP addressing format for IPV4 & IPV6 Knowledge of different network protocols TCP/IP, UDP, Telnet etc. Understand the different ways of configuring access-list Knowledge of LAN, VLAN and their limitations Understand the tools and techniques for network management & support Knowledge of Organizational network topology including all wired/wireless media devices, firewalls & industry network standards Usability of various network management systems Knowledge of network protocol standards used by networked devices for communication 	Laptop, white board, marker, projector, Cables: RJ45, RS232 and Hi-Speed USB, Test equipment: line tester, Ethernet tester, VSWR meter, RF power meter, Optical meter
5	Network & Data security Theory Duration (hh:mm) 15:00 Practical Duration (hh:mm) 20:00 Corresponding NOS Code TEL/N6230	<ul style="list-style-type: none"> Learn how to identify requirements of nodes, operating systems, internet connectivity pattern and applications in the network from security perspective Knowledge of security policies and procedures Know how to define, manage and monitor access control Understand the network-based intrusion detection and risk assessment Evaluate system using vulnerability scanners to verify system security Know how to monitor the network, identify anomalies from security perspective, investigate & identify security incidents and perform remediation Learn how to record and document any security incidents Know how to document, summarize and share results of vulnerability and penetration tests 	Network management tools, Diagnostic tools

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> periodically report identified risks and available counter measures 	
7	Troubleshooting and testing effectiveness Theory Duration (hh:mm) 10:00 Practical Duration (hh:mm) 15:00 Corresponding NOS Code TEL/N6229	<ul style="list-style-type: none"> Know how to handle the fault notifications on prompt basis Learn how to apply structured approach to network troubleshooting Know how to rectify and test effectiveness of the troubleshooting Record all network events by maintaining a network issues log Know how to register & file the remediation work carried out to resolve network issues Understand how to monitor & report network issues 	Network management tools, Diagnostic tools
8	Health and safety Theory Duration (hh:mm) 05:00 Practical Duration (hh:mm) 10:00 Corresponding NOS Code TEL/N6231	<ul style="list-style-type: none"> Learn about General Safety while handling electrical/electronic devices Understand Proper use of PPE (Personal Protective Equipment's) Understand on Work Environment Area Protection Learn to escalate safety incidents to relevant authorities as per guidelines Identify and correct any hazards that you can deal with safely, competently and within the limits of your authority follow your organization's emergency procedures promptly, calmly, and efficiently ensure that work is carried out in accordance to the level of competence and legal requirements 	Laptop, white board, marker, projector, Personal protection equipments like anti-static bands, harness, belts and helmets
	Total Duration Theory Duration 80:00 Practical Duration 120:00	Unique Equipment Required: Laptop, white board, marker, projector	

Grand Total Course Duration: **200Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Telecom Sector Skill Council of India](#))

Trainer Prerequisites for Job role: "Telecom Network Security Technician" mapped to Qualification Pack: "TEL/Q62o8, v1.o"

Sr. No.	Area	Details
1	Description	Individuals at this job responsible for the implementation, maintenance, and integration of WAN, LAN and server architecture. This individual is also responsible for implementation and administration of network security hardware and software, enforcing the network security policy and complying with requirements of external security audits and recommendations
2	Personal Attributes	A trainer should be willing to work on-field and be able to handle high pressure situations. He should be adaptable to changing work environments and have good practical knowledge to successfully perform the assigned responsibilities
3	Minimum Educational Qualifications	Graduate in Science /Engineering/Technology - Electronics, Computer Science and IT
4a	Domain Certification	Certified for Job Role:" Telecom Network Security Technician" mapped to QP: "TEL/Q62o8, v1.o". Minimum accepted score is 80%
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "TEL/Q62o8". Minimum accepted % as per respective SSC guidelines is 80%.
5	Experience	Minimum 1 year

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Telecom Network Security Technician
Qualification Pack	TEL/Q62o8
Sector Skill Council	Telecom

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre(as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on these criteria.
5	To pass the Qualification Pack, every trainee should score a minimum of 40% in every NOS and 50% overall.
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

Assessable Outcome	Assessment Criteria	Total Mark (300)	Out Of	Theory	Skills Practical
1. TEL/N6229 (Network Administration)	PC1: Identify requirements of nodes, operating systems, internet connectivity pattern and applications in the network	100	5	3	2
	PC2: Identify protocols used for communications with ISP		5	3	2
	PC3: Define IP addressing schemes for customer		5	3	2
	PC4: Define and create VLAN as per requirement		5	3	2
	PC5: Plan space requirements for network devices		3	3	0
	PC6: Scope out Power and backup requirements		5	3	2
	PC7: Install, configure and test routing plan		5	3	2
	PC8: Install, configure and test LAN and WAN Devices		5	2	3
	PC9: Check connectivity from nodes		5	2	3
	PC10: Granting, controlling and monitoring network access of all users		5	3	2
	PC11: Support Disaster Planning Recovery Services		3	3	0
	PC12: Testing inter department and intra department connectivity		3	1	2

	PC13. Testing Load on Network Devices when under full capacity		3	1	2
	PC14. Testing all NMS software are working		3	1	2
	PC15: Testing all LAN Devices for switching loops and WAN devices for routing loops		5	2	3
	PC16: Testing and resolving congestion issues on the network		5	2	3
	PC17: Ensure compliance to user and application acceptance criteria		5	2	3
	PC18: Monitoring network traffic		5	2	3
	PC19: Evaluating and implementing network management Software		5	2	3
	PC20. Keeping device firmware and other software up to date		3	1	2
	PC21: Record and maintain network details for future fault localization		3	1	2
	PC22. Document, summarize and share results of NMS		3	2	1
	PC23. Record and maintain network access details		3	1	2
	PC24.Record, manage and archive network data		3	1	2
			100	50	50
2.TEL/N6230(Network and data security)	PC1. Identify requirements of nodes, operating systems, internet connectivity pattern and applications in the network from security perspective	100	10	5	5
	PC2. Network-based Intrusion Detection		10	5	5
	PC3. Host-based Intrusion Detection		10	5	5
	PC4. File integrity verification and monitoring software		10	5	5
	PC5. Define and enforce security policies and procedures		8	3	5
	PC6. Define and monitor access control		8	3	5
	PC7. Setup and administrate firewall		10	5	5
	PC8. Evaluate system using vulnerability scanners to verify system security		10	5	5
	PC9. Develop mitigations strategies in case of intrusions		10	5	5
	PC10. Evaluate and recommend new security policies and products		8	5	3
	PC11. Record and document any security incidents		2	2	0
	PC12. Document summarize and share results of vulnerability and penetration tests		2	2	0
	PC13. Periodically report identified risks and available counter measures		2	2	0
			100	52	48

3. TEL/N4121 (Maintain a Healthy, Safe and Secure Working Environment)	PC1. Ensure that work is carried out in accordance to the level of competence and legal requirements	100	10	6	4
	PC2. Ensure that sites are assessed for health and safety risk as per company's guidelines prior to commencement of work		12	6	6
	PC3. Ensure environmental conditions and hazards like Earth Potential Rise (EPR) are considered while carrying out work		15	9	6
	PC4. Identify and correct any hazards that you can deal with safely, competently and within the limits of your authority		15	10	5
	PC5. Report any hazards that you are not competent to deal with to the relevant person in line with organizational procedures and warn other people who may be affected		12	7	5
	PC6. Follow your organization's emergency procedures promptly, calmly, and efficiently		12	6	6
	PC7. Identify and recommend opportunities for improving health, safety, and security to the designated person		14	8	6
	PC8. Complete any health and safety records legibly and accurately		10	5	5
		300	100	57	43