





**Definitions**

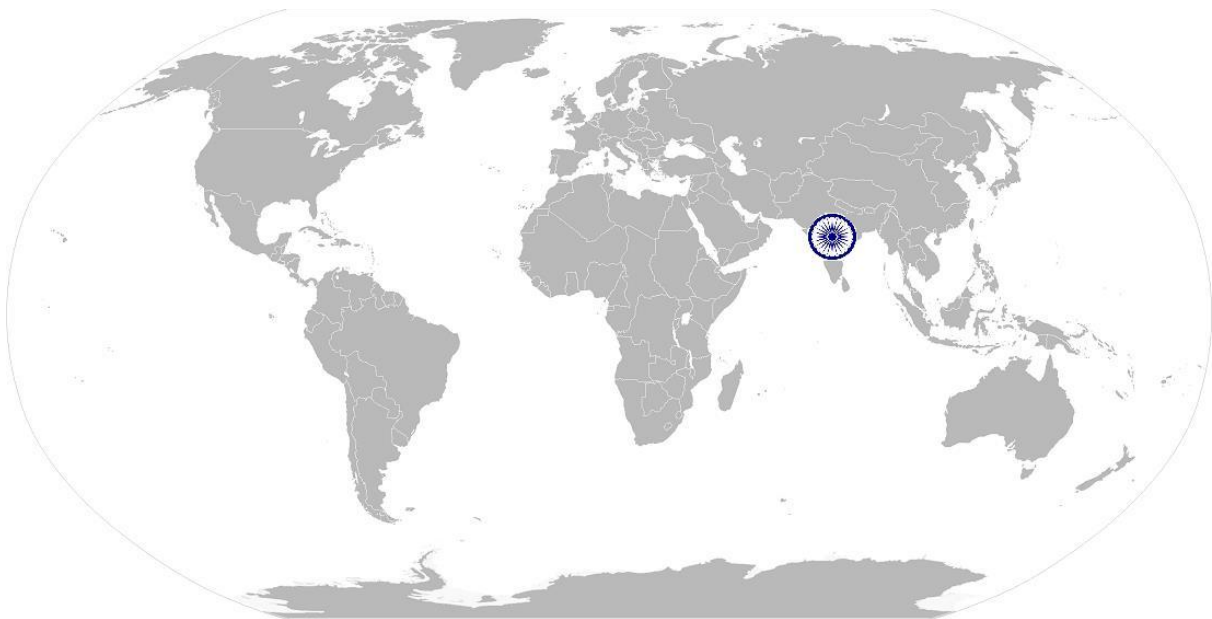
Keywords/Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job Role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
OS	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task
NOS	NOS are Occupational Standards which apply uniquely in the Indian context
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Unit Code	Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'.
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for



Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles

<b>Acronyms</b>	<b>Keywords /Terms</b>	<b>Description</b>
	Node B	UMTS equivalent to Base Station for 3G systems
	eNode B	Base Station for 4G/ LTE systems. Also known as Evolved Node B or E-UTRAN Node B
	BSC	Base Station Controller
	BSS	Base station subsystem
	BTS	Base Transceiver Station
	FTP	File Transfer Protocol
	FM Engineer	Field Maintenance Engineer
	GPRS	General Packet Radio Service
	GGSN	Gateway GPRS Support Node
	HLR	Home Location Register
	IF cable	Intermediate Frequency cable
	IP Network	Internet Protocol Network
	MUX	Multiplexer
	MGW	Media Gateway
	MML	Man-Machine Language
	MSC	Mobile Switching Centre
	MMU	Man-Machine Unit
	OHS	Organizational Health & Safety
	RF Cable	Radio Frequency Cable
	SGSN	Serving GPRS Support Node
	SHE	Safety, Health & Environment
	SDH	Synchronous Digital Hierarchy
	PDH	Plesiochronous digital hierarchy
SMPS	Switch Mode Power Supply	
VSWR	Voltage Standing Wave Ratio	

# National Occupational Standard



## Overview

**This unit is about maintaining site hygiene which requires maintenance of the equipments, mechanical stability, rack layout and power consumption patterns. The candidate co-ordinates with ICT engineer and carry out the assigned tasks in a timely manner.**

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TEL/ N6222

## Site hygiene

National Occupation Standard

<b>Unit Code</b>	TEL/ N6222
<b>Unit Title (Task)</b>	Site hygiene
<b>Description</b>	This OS unit is about maintaining the site hygiene such as maintenance of equipments and other critical aspects such as rack positioning and power consumption patterns.
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• maintain basic site hygiene</li> <li>• maintain the right documentation about site layout, equipment, racks etc</li> <li>• maintain the right escalation matrix in case of emergency</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope:</b>	
<b>Element</b>	<b>Performance Criteria</b>
	To be competent, the user/individual on the job must be able to: PC1. maintain site hygiene of ICT equipment, as per organization's norms PC2. check placement and mechanical stability of equipment racks at the ICT site PC3. check power consumption pattern and report any unusual consumption to supervisor PC4. maintain the escalation matrix in case of emergency PC5: maintain the list of equipment, Rack etc PC6: prioritize and execute tasks in a high-pressure environment
<b>Knowledge and Understanding</b>	
<b>A. Organizational Context (Knowledge of the company / organization &amp; its process relevant to area of responsibilities)</b>	The user/individual on the job needs to know and understand: KA1. checklists for preventive maintenance and site hygiene KA2 asset layout as per company standards KA3. process for handling equipments & reporting process KA4. environmental & Quality check KA5. risk and impact of not following defined procedures/work instructions KA6. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures ,fire and power failures KA 7. the weight, size requirement of the equipments KA8. power consumption of installed equipment KA9. asset layout as per company standards

TEL/ N6222

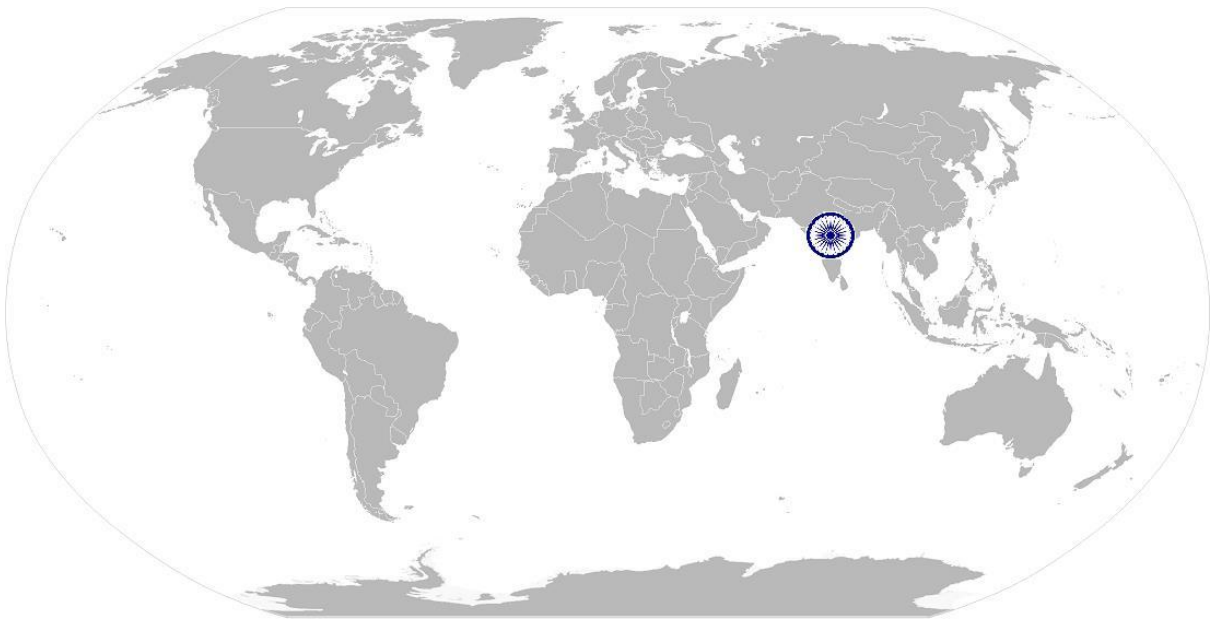
## Site hygiene

<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1.basic use of ICT equipment as given below</p> <p>KB2.knowledge of IP standard &amp; protocols like OSI Layer, Number system, Ethernet Standards</p> <p>KB3.knowledge of GSM,3G Technology</p> <p>KB4.knowledge of SDH &amp; DWDM technology</p> <p>KB5:knowledge of Cloud Computing technology, its building blocks</p> <p>KB6.how to calculate power cost and site up-time</p> <p>KB7.safety requirements at the ICT site able connectors etc</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<p>The user/ individual on the job should be to:</p> <p>SA1. having skills to provide advice and guidance to peers &amp; juniors</p> <p>SA2. ability to liaise with third party vendors</p> <p>SA3. communicate with supervisor</p> <p>SA4. ability to communicate in the local language</p> <p>SA5. understand the various Alarm codes, as per company's nomenclature.</p>
<b>B. Domain Specific Skills</b>	<p><b>Technical skills</b></p> <p>The user/ individual on the job should :</p> <p>SB1. equipment installtion of BTS, NodeB, Router, Transmission equipment like SDH, DWDM</p> <p>SB2. work on ICT nodes login applications like Secure CRT, Hyper terminal etc.</p>





# National Occupational Standard



## Overview

**This unit is about performing Preventive Maintenance at ICT sites by obtaining maintenance schedule from the supervisor. This unit explains how to perform health checkups of the site.**

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TEL/N6223

## Preventive Maintenance

<b>Unit Code</b>	TEL/N6223
<b>Unit Title (Task)</b>	preventive maintenance
<b>Description</b>	This unit is about carrying out regular preventive maintenance activities at ICT nodes to ensure their optimal working.
<b>Scope</b>	This unit/task covers the following: <ol style="list-style-type: none"> <li>1. ensure preventive maintenance activities at the ICT site</li> <li>2. checking the health of the site by performing repair and maintenance.</li> <li>3. ensuring all the optimal requirements are met.</li> </ol>
<b>Performance Criteria(PC) w.r.t. the Scope:</b>	
<b>Element</b>	<b>Performance Criteria</b>
	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. obtain the preventive maintenance schedule from the supervisors and adhere to the same</p> <p>PC2. keep a check on site up-time and make the logs</p> <p>PC3. notify the network operations center (NOC) or supervisor as per the laid plan prior to undertaking the maintenance work as per the schedule</p> <p>PC4. perform health check on site like checking power etc</p> <p>PC5: document the work done &amp; prepare a report along with ICT Engineer/ NOC</p>
<b>Knowledge and Understanding</b>	
<b>A. Organizational Context</b> (Knowledge of the company/ organization & its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. pm(preventive maintenance) as per the company norms/industry standards</p> <p>KA2. site up-time targets of the company, to avoid penalties</p> <p>KA3. repair and maintenance guidelines of the company</p> <p>KA4. clear notification matrix in case of preventive maintenance</p> <p>KA5. power requirement of site and equipments</p>

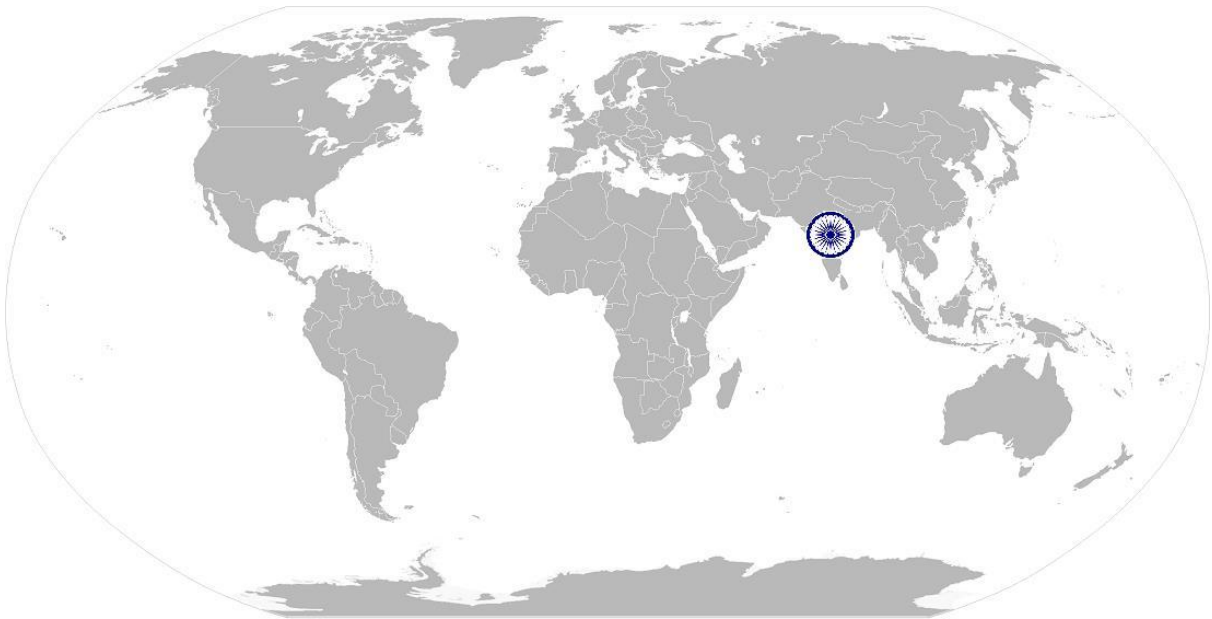
TEL/N6223

### Preventive Maintenance

<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. pm schedule of ICT equipment for Fan try cleaning etc</p> <p>KB2. the basic use and care of power checking tools and mechanical equipment</p> <p>KB3. safety hazards and perform duties in a safe manner</p> <p>KB4. knowledge of Manuals and ability to refer them</p> <p>KB5. use of Laptop and how to connect to equipment</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<p><b>Personal skills – Communication</b></p> <p>The user/ individual on the job need to know and understand how to:</p> <p>SA1. read and comprehend company polices and guidelines to conduct timely preventive maintenance activities</p> <p>SA2. comprehend formats and checklists to verify PM (preventive maintenance)</p> <p>SA3. follow the Notification matrix in case of PM</p>
<b>B. Domain specific skills</b>	<p><b>Technical skills</b></p> <p>The user/ individual on the job should:</p> <p>SB1. login to the equipment using relevant cables (RJ45, RS232, Hi Speed USB) for different ICT site equipment</p> <p>SB2. work on ICT nodes login applications like Secure CRT, Hyper terminal etc.</p> <p>SB3. understanding of physical and logical redundancy</p> <p>SB4. undertake standard logical and physical maintenance tasks for the ICT nodes</p> <p><b>Fault diagnostics and handling</b></p> <p>The user/ individual on the job should :</p> <p>SB5. perform standard ICT Fault-finding (troubleshooting) techniques and functioning of test equipment</p> <p>SB6. understand alarm coding and interpret fault type</p> <p>SB7. conduct physical maintenance tasks like checking temperatures, fan working condition, earthing, equipment grounding, distribution of cables etc</p> <p>SB8. conduct logical maintenance tasks like checking alarm status, system availability parameters, logical redundancy etc.</p>



# National Occupational Standard



## Overview

This unit is about Site management such as ensuring closure of alarms within the SLA while coordinating with the superiors.

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TEL/N6224

## Site Management

<b>Unit Code</b>	TEL/N6224
<b>Unit Title (Task)</b>	Site management
<b>Description</b>	This unit is about carrying out site management at ICT nodes to ensure network availability and their optimal working.
<b>Scope</b>	This unit/task covers the following: 1. operational maintenance of the site 2. ensuring alarms generated at the site are attended with in the SLA. 3. co-ordinate and assist the superiors to maintain the timelines.
<b>Performance Criteria(PC) w .r.t. the Scope:</b>	
<b>Element</b>	<b>Performance Criteria</b>
	To be competent, the user/individual on the job must be able to: PC1. receive change requests from the Configuration Management team or the NOC PC2. identify criticality, and timelines for carrying out the changes with ICT engineer and NOC PC3.assist to ICT Engineer in developing work plan and identify dependencies PC3.check number of alarms active at the site PC4.attend alarms within the defined SLA(Service level Acknowledgments)
<b>Knowledge and Understanding</b>	
<b>A. Organizational Context</b> (Knowledge of the company/ organization & its process relevant to area of responsibilities)	The user/individual on the job needs to know and understand: KA1. risk and impact of not following defined procedures/work instructions KA2. escalation matrix for reporting identified incidents, troubles and/ or emergencies e.g. system failures, fire and power failures KA3. clearances/ regulatory approvals that are required prior to carrying out the installation work KA4. types of documentation in organization and importance of the same KA5. records to be maintained and implications of non-maintenance of the same KA6. knowledge of spare management and repair & return process for fault equipment KA7. SHE and OHS guidelines and regulations as per company's norms KA8. first aid requirements in case of electrical shocks, cuts, fall and other common injuries KA9. electrical and chemical, environmental related hazards and precautionary measures

TEL/N6224

Site Management

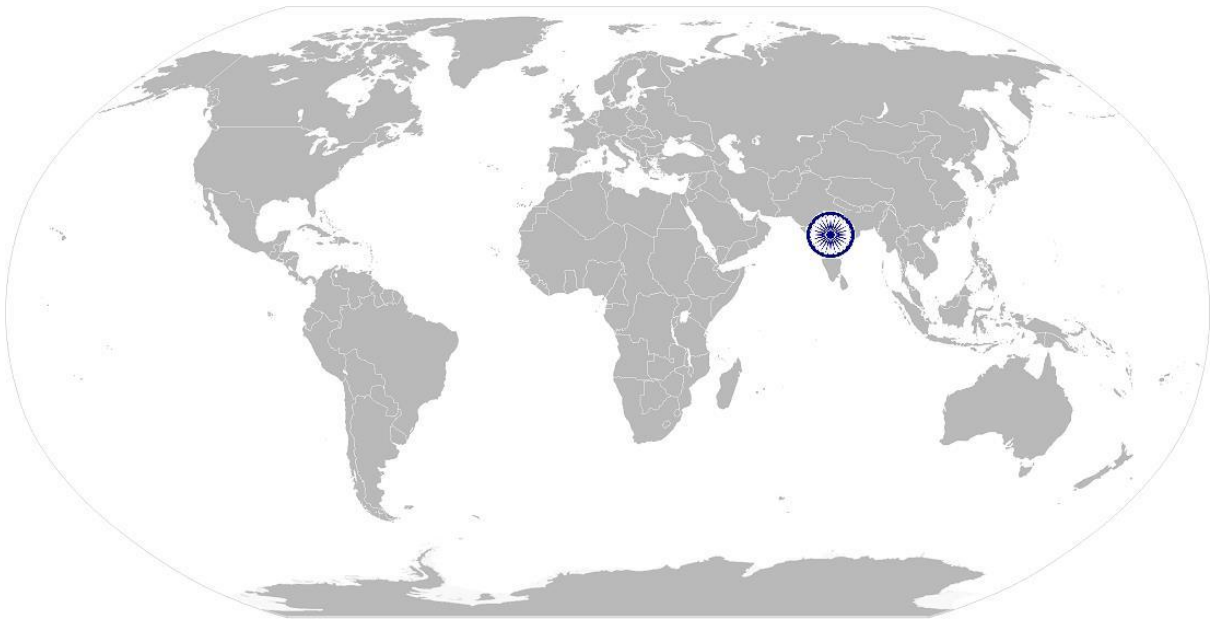
<p><b>B .Technical Knowledge</b> (To accomplish specific designated responsibilities)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. functional knowledge of all installed ICT equipment</p> <p>KB2. login process of ICT equipments</p> <p>KB3: basic knowledge of ICT technologies as given below</p> <p>KB4. knowledge of IP standard &amp; protocols like OSI Layer, Number system, Ethernet Standards</p> <p>KB5. knowledge of GSM,3G Technology</p> <p>KB6. knowledge of SDH &amp; DWDM technology</p> <p>KB7: knowledge of Cloud Computing technology, its building blocks</p> <p>KB8. knowledge of Fault Rectification &amp; Alarm handling Process &amp; Manuals and ability to refer them</p> <p>KB9. knowledge of special tools and equipment used for system repairs</p> <p>K10. Use of Laptop and how to connect to equipment</p>
<p><b>Skills (S)</b></p>	
<p><b>A. Domain specific skills</b></p>	<p><b>Planning and Execution</b></p> <p>The user/individual on the job to:</p> <p>SA1. Prioritize activities to effectively manage the ICT site</p> <p><b>Technical skills</b></p> <p>The user/ individual on the job to:</p> <p>SB1. login to the equipment using relevant cables (RJ45, RS232, Hi Speed USB) for different ICT equipment</p> <p>SB2. ability to work on ICT nodes login applications like Secure CRT, Hyper terminal etc.</p> <p>SB3. ability to work on ICT equipment like Router, Transmission equipment, BTS etc</p>







# National Occupational Standard



## Overview

This unit is about performing corrective maintenance/ Fault management of ICT sites by carrying out diagnostic test and fault rectification procedures.

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TEL/N6225

**Corrective maintenance**

National Occupational Standards

<b>Unit Code</b>	TEL/N6225
<b>Unit Title (Task)</b>	Perform Corrective maintenance/ Fault Management at ICT nodes
<b>Description</b>	This unit is about carrying out corrective maintenance/ fault management at ICT nodes to ensure network availability and their optimal working.
<b>Scope</b>	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• Ensure timely response to the network alarms/ trouble tickets</li> <li>• Carry out diagnostic tests at site location and identify root cause of fault</li> <li>• Rectify fault condition or escalate in case additional technical support is required</li> <li>• Follow the escalation matrix</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope:</b>	
<b>Element</b>	<b>Performance Criteria</b>
	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. Effective corrective maintenance on all equipment</p> <p>PC2. Login to equipment using Console cable</p> <p>PC3. Escalate faults/issues at site to supervisor</p> <p>PC4. Work closely with ICT Engineer/ NOC and work in tandem for fault rectification</p> <p>PC4. Assist ICT Engineer &amp; NOC in filling the corrective maintenance checklists/reports</p> <p>PC5. Close maximum number of faults reported</p>
<b>Knowledge and Understanding</b>	
<p><b>A. Organizational Context</b> (Knowledge of the company/ organization &amp; its process relevant to area of responsibilities)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. corrective maintenance norms as per the company</p> <p>KA2. site up-time targets of the company, to avoid penalties</p> <p>KA3. repair and maintenance guidelines of the company</p> <p>KA4. keep all Fault Rectification Guides handy</p> <p>KA5: alarm Monitoring and clearance process</p>

TEL/N6225

**Corrective maintenance**

<p><b>B .Technical Knowledge</b> (To accomplish specific designated responsibilities)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. functional knowledge of all installed ICT equipment</p> <p>KB2. login process of ICT equipments</p> <p>KB3: basic knowledge of ICT technologies as given below</p> <p>KB4. knowledge of IP standard &amp; protocols like OSI Layer, Number system, Ethernet Standards</p> <p>KB5. knowledge of GSM,3G Technology</p> <p>KB6. knowledge of SDH &amp; DWDM technology</p> <p>KB7: knowledge of Cloud Computing technology, its building blocks</p> <p>KB8. knowledge of Fault Rectification &amp; Alarm handling Process &amp; Manuals and ability to refer them</p> <p>KB9. knowledge of special tools and equipment used for system repairs</p> <p>KB10. use of Laptop and how to connect to equipment</p>
<p><b>Skills (S)</b></p>	
<p><b>A. Domain specific skills</b></p>	<p><b>Technical Skills</b></p> <p>The user/ individual on the job to:</p> <p>SA1. diagnose the need for corrective maintenance based on system parameters and performance.</p> <p>SA2. work with console cable, HyperTerminal tools, LCT to login the ICT equipment</p> <p>SA3. undertake rectification tasks for ICT nodes as per guiding document with NOC instruction or ICT Engineer instruction</p> <p>SA4. prioritize to conduct corrective maintenance activities effectively</p>



**PERFORMANCE CRITERIA**

**Job Role** : ICT Technician  
**Qualification Pack** TEL/Q6206  
**Sector Skill Council** : Telecom

- 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.
- The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
- Individual assessment agencies will create unique question papers for theory and skill practical part for each candidate at each examination/training center.
- To pass the Qualification Pack, every trainee should score a minimum of 40% in every NOS and Overall 50% pass percentage.
- 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.

		Total Mark (400)	Out Of	Theory	Skills Practical
1. TEL/N6222 site hygiene	PC1. Maintain site hygiene of ICT equipment, as per organization's norms	100	25	10	15
	PC2. Check placement and mechanical stability of equipment racks at the ICT site		20	5	15
	PC3. Check power consumption pattern and report any unusual consumption to supervisor		20	5	15
	PC4. Maintain the escalation matrix in case of emergency		10	5	5
	PCS: Maintain the list of equipment, Rack etc		15	5	10
	PC6: Prioritize and execute tasks in a high-pressure environment		10	5	5
2. TEL/N6223 Perform preventive maintenance at ICT nodes	PC1. Obtain the preventive maintenance schedule from the supervisors and adhere to the same	100	15	5	10
	PC2. Keep a check on site up-time and make the logs		25	10	15
	PC3. Notify the network operations center (NOC) or supervisor as per the laid plan prior to undertaking the maintenance work as per the schedule		10	5	5
	PC4. Perform health check on site like checking power etc		20	5	15
	PCS: Document the work done & prepare a report along with ICT Engineer/ NOC		15	5	10
3. TEL/N6224 Site management	PC1. Receive change requests from the Configuration Management team or the NOC	100	15	5	10
	PC2. Identify criticality, and timelines for carrying out the changes with ICT engineer and NOC		15	5	10
	PC3. Assist to ICT Engineer in developing work plan and identify dependencies		15	5	10
	PC4. Check number of alarms active at the site		30	10	20
	PCS. Attend alarms within the defined SLA(Service level Acknowledgments)		25	10	15
4. TEL/N6225 Perform Corrective maintenance/ Fault Management at ICT nodes	PC1. Effective corrective maintenance on all equipment	100	20	10	10
	PC2. Login to equipment using Console cable		20	5	15
	PC3. Escalate faults/issues at site to supervisor		10	5	5
	PC4. Work closely with ICT Engineer/ NOC and work in tandem for fault rectification		15	5	10
	PCS. Assist ICT Engineer & NOC in filling the corrective maintenance checklists/reports		20	5	15
	PCS. Close maximum number of faults reported		15	5	10