QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR POWER SECTOR

Contents

What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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Introduction

Qualifications Pack- Senior Power System Technician (Transmission)

SECTOR: Power

SUB-SECTOR: Transmission

OCCUPATION: Lineman

REFERENCE ID: PSS/Q0106

ALIGNED TO: NCO-2004/7248.50

Senior Power System Technician (Transmission) inspects and supervises operations and is responsible for operating, maintaining and repairing overhead and underground electrical transmission systems. Also responsible for record keeping and monitoring vendor services.

Brief Job Description: The incumbent in the job will inspect poles, towers and other related hardware in transmission systems. They monitor and contribute to installations, maintainenace and repair of overhead and underground powerlines and cables, and other associated equipment such as insulators, conductors, lightning arrestors, switches, metering systems, transformers and lighting systems. They also supervise their team and vendor teams and their performance.

Personal Attributes: The candidate should be able to read, write and communicate effectively and clearly with a number of stakeholders. The candidate will have to be able to lead people and provide necessary support to them for on-the-job performance. The candidate should demonstrate patience and ability to work and inspect work in detail.

Job Details

Qualifications Pack Code	PSS/Q0106		
Job Role	Senior Power System (Transmission)		
Credits (NSQF)	TBD	Version number	1.0
Sector	Power	Drafted on	04/01/2016
Sub-sector	Transmission	Last reviewed on	19/07/2016
Occupation	Lineman	Next review date	18/07/2018

Job Role	Senior Power System Technician (Transmission)
Role Description	Senior Power System Technician inspects monitors and contributes towards operation, maintenance and repairs of overhead and underground power transmission systems.
NSQF level	5
Minimum Educational Qualifications	10th Pass
Maximum Educational Qualifications	Not Applicable
Training (Suggested but not mandatory)	Electrical - 6 months, preferably ITI
Experience	5 years as power system technician/lineman
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. PSS/N0113 Inspection of power transmission substation, lines and components 2. PSS/N0112 Repair and maintenance of power transmission lines and components 3. PSS/N0110 Supervise work and crew in power distribution installation and maintenance work 4. PSS/N2001 Use basic health and safety practices as the workplace 5. PSS/N1336 Work effectively with others **Optional:** Not Applicable
Performance Criteria	As described in the relevant OS units

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.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
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.
Sub-functions	Sub-functions are sub-activities essential achieving the objectives of the function.
Job role	Job role defines unique set of functions that together form a unique employment opportunity in an organization.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve consistently while carrying out a function at the workplace. Occupational Standards as set of competencies is applicable both in Indian and overreaching global contexts.
Performance Criteria	Performance Criteria defined for a task are statements that together specify the standard of performance while carrying out the task.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in Indian context.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack(QP)	Qualifications Pack comprises set of OS, together with the educational, training and other criteria that are required to perform a job role satisfactorily at workplace. A Qualifications Pack is assigned a unique qualification pack code for clear identification.
Knowledge and Understanding	Knowledge and Understanding are statements which together as a set specify the technical, generic, professional and organization specific knowledge that an individual needs to possess in order to perform and meet the required standards consistently.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates. It includes elements of operational knowledge contents defined in relation to functioning of an organization that a skilled professional need to possess specific to its precise areas of responsibility.
Technical Knowledge	Technical Knowledge is the specific domain knowledge needed to accomplish the task in combination with other competencies. It is usually coined with specifically

	designated roles and responsibilities.
Core Skills/Generic Skills	Core Skills or Generic Skills as set are group of skills. It is key to working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include mainly communication related skills that are applicable to most job roles.
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.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.

Acronyms

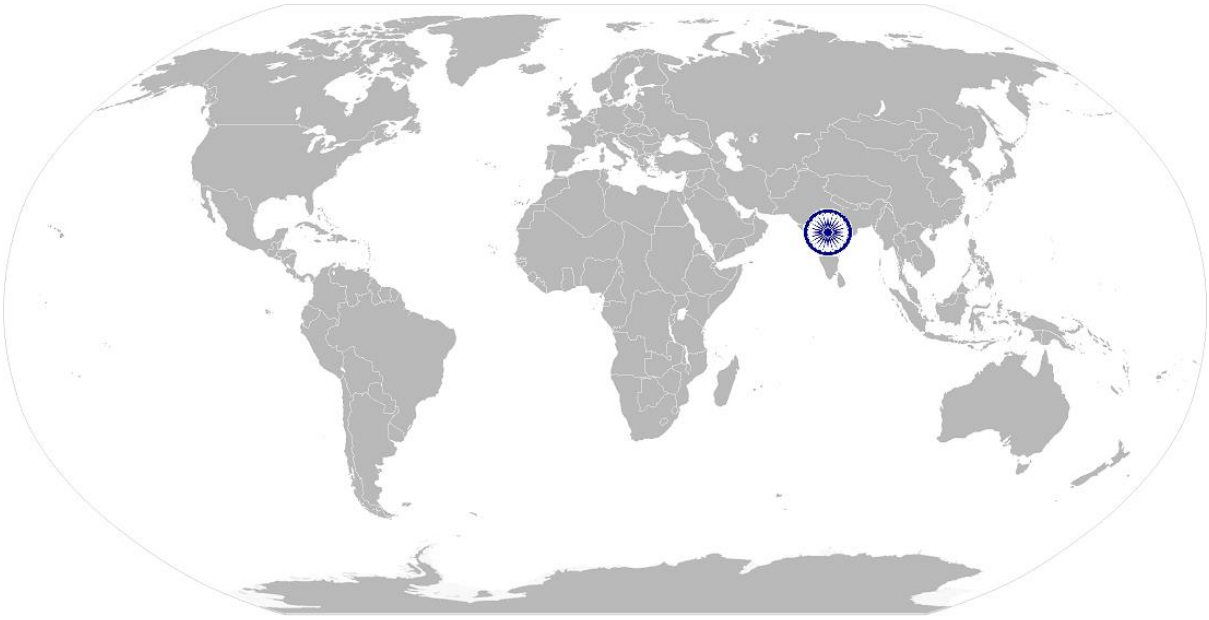
Keywords /Terms	Description
T&D	Transmission and Distribution
REC	Rural Electrification Corporation
AB Cables	Aerial Bunched Cables
HT	High Tension
LT	Low Tension
HV	High Voltage
LV	Low Voltage
BDV	Breakdown Voltage
ULF	Ultra Low Frequency
VLF	Very Low Frequency
OPGW	Optical Groundwire
KV	Kilovolt

NOS

National Occupational Standards

PSS/N0113 **Inspection of Power Transmission Substation, Lines and Components**

National Occupational Standard



Overview

This unit covers the competencies required for inspection of Power Transmission Substation, Lines and Components. It also covers the respective health and safety competencies required to perform such operations.

NOS
National Occupational Standards

N·S·D·C National Skill Development Corporation

PSS/N0113 Inspection of Power Transmission Substation, Lines and Components

National Occupational Standard

Unit Code	PSS/N0113
Unit Title (Task)	Inspection of Power Transmission, Substation, Lines and components
Description	This unit covers the competencies required by senior technicians for inspection of Power Transmission Substation, Lines and Components. This includes patrolling and visual, sensory and instrument based testing and evaluation, handling of tools and equipment and carrying out necessary tasks in a safe, efficient and effective manner. This will also include making recommendations for preventive and corrective maintenance as well. This includes working with the crew to install towers, poles, dismantling of poles and stringing operations, rigging, handling of tools and equipment for installation and carrying out necessary tasks in a safe, efficient and effective manner.
Scope	**This unit/task covers the following:** • inspect Transmission Substation • inspect Transmission Lines and Components • post inspection activities

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Inspect Transmission Substation	The user/individual on the job needs to: PC1. prepare and maintain the work area as per procedure or operation specification PC2. inspect power transformers including general transformer appearance, bushings, free of contamination, no oil leaks, auxiliary cooling system safely and as per required and approved procedures PC3. inspect circuit breakers including general breaker appearance, bushings, for contamination, oil leaks, doors locked and working safely and as per required and approved procedures PC4. inspect insulators including substation, bus support, suspension, etc. using safe and correct methods PC5. inspect any steel superstructures where applicable PC6. inspect substation components including circuit switchers, disconnect switches, coupling capacitors, capacitors, cable potheads, lightning arresters, metal-clad switchgear, relays, etc. safely, as per required and approved procedures PC7. inspect communication equipment, back-up battery systems, control house, etc. as per required and approved procedures PC8. inspect for physical security including locks on switches, enclosures, and gates, fences, gates, and warning signs (including washouts) to identify risks PC9. inspect grounds and the grounding system including broken, loose, or exposed wires and exposed ground rods as per required and approved procedures PC10. inspect for weeds and bird nests, such growth which may hamper access, deteriorate conditions of equipment and components, increase moisture content and support insect growth PC11. carry out specific equipment tests on the equipment based upon frequency of

PSS/N0113 Inspection of Power Transmission Substation, Lines and Components

	operation such as Transformer gas-in-oil analysis, Oil dielectric tests, Relay tests, Infrared tests, Voltage regulation equipment tests accurately, efficiently and safely PC12. carry out predictive maintenance tests of load tap changer motor-control circuitry, and of breaker operator mechanisms accurately and safely PC13. carry out battery and battery-charger tests accurately and safely
Conducting Inspections of Power Transmission Lines	The user/individual on the job needs to: PC14. follow and develop plans and schedule inspections of Transmission lines including regular periodic and special routines such as pre-monsoon inspection PC15. establish nature and location of faults using data and/or from the supervisor PC16. identify various types of circuits and its components accurately PC17. identify type of installation and its configuration e.g. steel/aluminium, wooden PC18. identify and acquire correct tools, equipment and instruments required for Transmission line assessment and inspection PC19. ensure the tools and equipment is well maintained, calibrated and approved for use PC20. access and survey area in accordance with established procedures PC21. assess components of Transmission line for damage or risk for damage through visual, sensory and instrument methods PC22. carry out tower to tower inspection using patrolling as per job requirement, safely and efficiently PC23. identify suspension and dead-ending materials/hardware for various voltages and structure types PC24. assess and confirm condition of pole or tower structure based on Transmission line standards PC25. carry out visual checks to assess conditions of back filling/soil of foundation of tower, chimneys, tower members, galvanizing and paint condition, corrosion on tower parts, anti-climbing fixtures are in place, all signage's and warnings are in place, barb wiring, etc. PC26. check guys for damage, distance to primary conductor or equipment, insulator condition accurately PC27. check pole or tower top assemblies for damage, safely and as per required and approved procedures PC28. check for tower location provided with revetment that the retaining wall is neither broken nor in the danger of falling PC29. check earthing of tower through earthing testing, visual inspection PC30. use a thermo-vision camera to check jumpers accurately and as per approved procedure PC31. perform load checks to identify imbalanced and overloaded circuits accurately and safely PC32. check line conductors for damage, slack, tension, sparks and burns, foreign objects, clearance, etc. safely and as per required and approved procedures

PSS/N0113 Inspection of Power Transmission Substation, Lines and Components

	PC33. identify hazards of trimming trees such as limits of approach, public safety and step and touch potential PC34. conduct site inspection for emergency cases following established procedures PC35. document and record findings clearly, accurately and in required detail using correct forms and formats if any PC36. clean and test Transmission line tools according to standard procedures PC37. inspect, repair and replace Transmission line tools and equipment, if necessary after use
Post-inspection activities	The user/individual on the job needs to: PC38. prepare recommendations for corrective and preventive maintenance based on the findings of the inspection PC39. restore system to normal operating status by using switching procedures where disconnected PC40. record details of inspection accurately and clearly in required ledgers, forms and formats as per required and approved procedures PC41. make correct and required recommendations for repair and maintenance where risks, faults or damage recorded PC42. deal promptly and effectively with problems within control, and seek help and guidance from the relevant people for problems that cannot be resolved PC43. leave the work area in a safe and tidy condition on completion of the inspection and testing activities PC44. refer unresolved job related problems to appropriate personnel for support PC45. monitor the problem and keep the supervisor informed about progress or any delays in resolving the problem
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. relevant legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. relevant health and safety requirements applicable in the work place KA3. own job role and responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities KA4. reporting structure, inter-dependent functions, lines and procedures in the work area KA5. how to engage with specialists for support in order to resolve incidents and service requests KA6. importance of working in clean and safe environment practices and procedures KA7. relevant people and their responsibilities within the work area KA8. escalation matrix and procedures for reporting work and employment related issues

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B. Technical Knowledge	The individual on the job needs to know and understand: KB1. principles of electricity KB2. principles and practices of electrical safety KB3. common electricity terminology and correct interpretation of the same Terminology KB4. specific terminology used in Transmission Line work KB5. elements of the power system elements: e.g. generation, transmission, transmission metering, etc. KB6. different types of material and accessories used in power T&D Materials and accessories KB7. tools and equipment used in testing, repair and maintenance KB8. importance of carrying out regular and periodic inspection KB9. circumstances which may require ad-hoc inspections KB10. specific health and safety precautions which must be taken when carrying out Sub-station and Transmission lines inspection work KB11. corona effect and its impact for health and safety KB12. various types of circuits Types: e.g. C.T., P.T., A.C., D.C., Control, Indication & Annunciation Circuits KB13. line diagrams, maps and circuitry various types of circuits KB14. key faults in substation, Transmission lines and components KB15. fault indicators such as burns, tests, broken wires, damaged insulation, etc. KB16. overhead Transmission system apparatus such as regulators and reclosers KB17. overhead Transmission system standards KB18. access points such as vaults, open trenches and manholes KB19. underground Transmission system apparatus such as transformers, switching cubicles and junction boxes KB20. cable locating and fault detecting equipment KB21. co-existing underground utilities KB22. types and sizes of conductors and cables KB23. different types of insulators KB24. classification of conductor and insulator damage including fretting, abrasion, fatigue breaks, tensile breaks KB25. importance of ensuring that tools and equipment are suitable, well maintained, calibrated and operating effectively KB26. importance of following good housekeeping and fire prevention procedures KB27. material preparation methods and techniques to be undertaken, prior to using for testing and inspection activities KB28. preparation of equipment for testing and repair activities KB29. hazards and risks of working at heights especially with respect to wind velocity and vibration KB30. components of Transmission lines KB31. procedures for handling Transmission line components with imperfections/ defects that cannot be removed/repaired and how can they be minimized KB32. problems and conditions which render electrical poles or towers in need of maintenance or replacement

PSS/N0113 Inspection of Power Transmission Substation, Lines and Components

	KB33. Importance of leaving the work area and equipment in a safe and clean condition on completion of the repair and maintenance activities KB34. importance of reporting problems in a timely manner KB35. methods and parameters to check quality of line components against required quality standards KB36. calibration schedule of all equipment used in inspection, repair and maintenance activities KB37. standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm KB38. personal protective equipment (PPE) and clothing that must be worn during the inspection, repair and maintenance activity and from where can it be obtained
Skills (S)	
C. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. communicate effectively in writing SA2. able to write the information communicated by the in-charge of work SA3. write properly about the technical problems and other conditions of site SA4. note down of testing repair observations, critical points SA5. able to write about the condition of equipment SA6. prepare and fill up all technical forms and data as per guidelines and format.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA7. reading, understanding of written sentences and paragraphs SA8. able to read Metric System for all measurements SA9. Interpret the process required for performing of work SA10. read, interpret and understand the rules and methods SA11. read equipment manuals and understand the equipment operation and process requirement
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA12. effective oral communication SA13. able to communicate effectively with voice modulation, tone of voice and eye contact SA14. use good body language for good oral communication SA15. discuss task lists, schedules and activities with the junior engineer SA16. effectively communicate with the team/group members SA17. listen the information given by the junior engineer SA18. able to communicate clearly with the team and other staff
D. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. judgment and decision making must be appropriate SB2. identifying complex problems and review related information to develop and evaluate

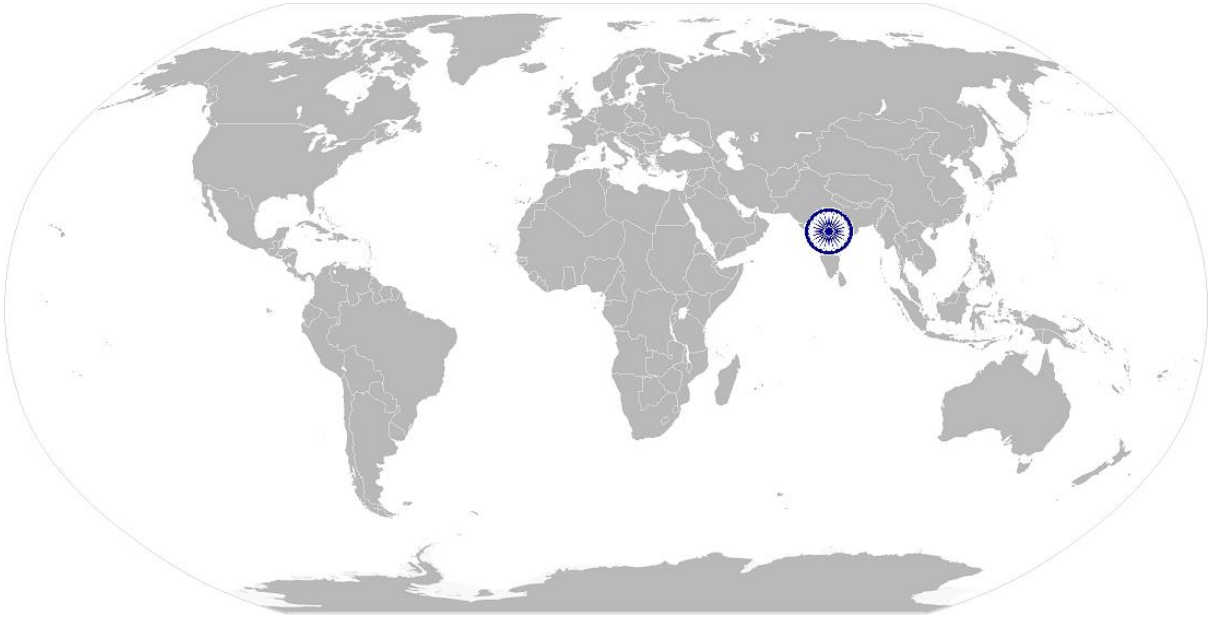
PSS/N0113 Inspection of Power Transmission Substation, Lines and Components

	SB3. follow organization rule based decision making process SB4. take decision with systematic course of actions and/or response
	Plan and Organize
	The user/individual on the job needs to know and understand: SB5. planning and organization of tasks to meet deadlines
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB6. build customer relationships and use customer centric approach.
	Problem Solving
	The user/individual on the job needs to know and understand: SB7. identify problems and review related information to develop and evaluate options and implement solutions SB8. prioritize and plan for solving problem SB9. take help from the junior engineer to solve the problems SB10. monitor problem solving to take corrective action with individuals and organizations SB11. analyse problems and changes in conditions, operations, and the environment to solve problems
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB12. analyze the problem seen in the equipment SB13. collect the information and technical data and define process for doing testing and maintenance
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB14. critically evaluate operation parameters in relation to product features intended SB15. develop holistic and comprehensive profile of products based on segregated discrete process stages

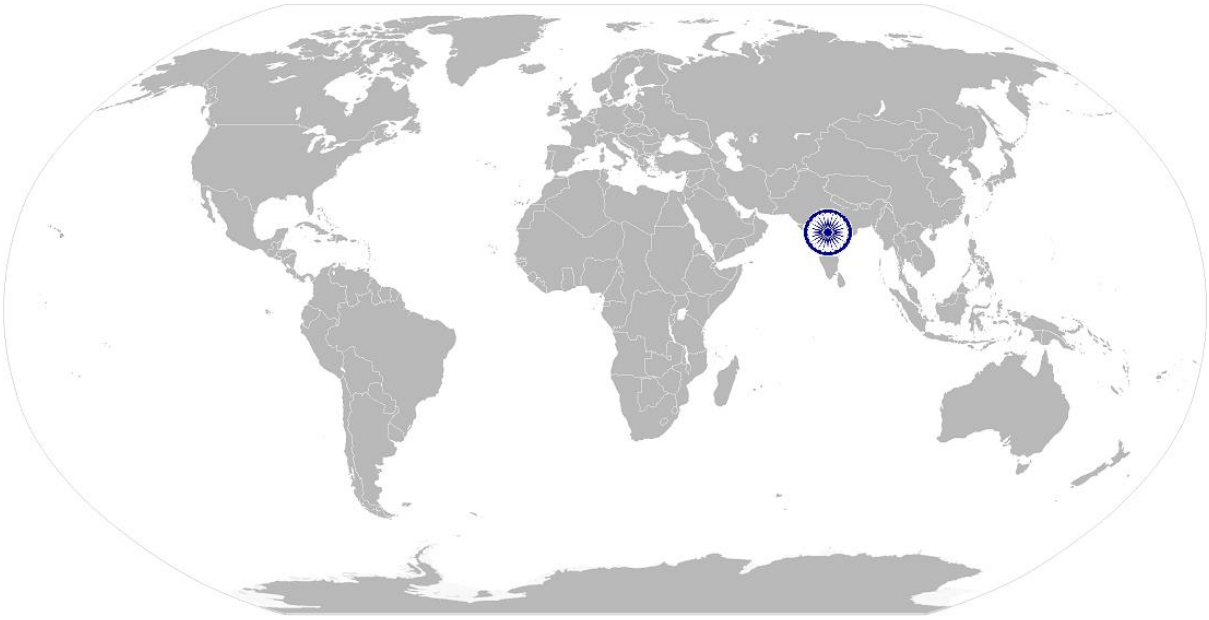
PSS/N0113 **Inspection of Power Transmission Substation, Lines and Components**

NOS Version Control

NOS Code	PSSS/N0113		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/01/2016
Industry Sub-sector	Transmission	Last reviewed on	19/07/2016
Occupation	Lineman	Next review date	18/07/2018



National Occupational Standard



Overview

This unit covers the competencies required for repair and maintenance of Sub-Stations, Power Transmission Lines. It also covers the respective health and safety competencies required to perform such operations.

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PSS/N0112 Repair and maintenance of Sub-stations, Power Transmission Lines and components

National Occupational Standard

Unit Code	**PSS/N0112**
Unit Title (Task)	**Repair and maintenance of Sub-stations, Power Transmission Lines and components**
Description	This unit covers the competencies required by technicians for repair and maintenance for Sub-stations, Power Transmission Lines and components. This includes handling of tools and equipment for installation and maintenance and carrying out necessary repair and maintenance tasks in a safe, efficient and effective manner. This will also include preventive and corrective maintenance of overhead and underground lines and cables. The candidate will be expected to perform independently with little to no supervision.
Scope	**This unit/task covers the following:** • prepare for repair and maintenance of Power Transmission lines • repair and maintenance of Power Transmission lines • carrying out maintenance for Power Transmission lines • post repair and maintenance activities

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Prepare for repair and maintenance of Power Transmission lines	The user/individual on the job needs to know and understand: PC1. identify various types of circuits and its components correctly PC2. identify accurately and acquire correct tools, equipment and instruments required for various aspects of repair and maintenance of Transmission lines and components PC3. access and survey area in accordance with established procedures PC4. identify hazards of trimming trees such as limits of approach, public safety and step and touch potential PC5. conduct site inspection for emergency cases following established procedures PC6. climb tower while observing and following all specified safety procedures and using PPE PC7. identify various types of circuits accurately identify and acquire correct tools, equipment and instruments required for Transmission line assessment and inspection PC8. identify and acquire correct tools, equipment and instruments required for Transmission line assessment and inspection PC9. ensure the tools and equipment is well maintained, calibrated and approved for use PC10. use Transmission line tools, equipment and hardware in line with job requirements for maintenance operations PC11. prepare and maintain the work area as per procedure or operation specification PC12. obtain work permit (shut down) confirmation to proceed to work from appropriate personnel in accordance with standard procedure PC13. switch off, isolate, discharge and earth (side) line cables

PSS/N0112 Repair and maintenance of Sub-stations, Power Transmission Lines and components

Repair and maintenance of Power Transmission lines	The user/individual on the job needs to know and understand: PC14. perform off-line overhead line maintenance procedure according to job specifications and requirements PC15. perform off-line underground line maintenance procedure according to job specifications and requirements PC16. ensure pole dismantling and re-setting procedure is carried out as per standard procedure, where required PC17. install components on transmission lines including gang operated air brake switches for transmission lines, controlled breakers, ground switches, capacitor stations, insulator pressure washing, submarine and underground transmission cable, grid interconnections PC18. select and use test equipment such as tong testers, clip-on meter, multi-meters, fault indicators meggers and voltmeters to verify fault and integrity PC19. document switching procedures with all relevant details clearly and accurately PC20. repair conductor by splicing, jointing, using armor rods, line guards, vibration dampers PC21. check work carried out by team members and ensure it is as per standard requirement and any feedback is useful and provided in a timely, polite and supportive manner PC22. report trouble and required actions such as repairs or replacements, and estimated repair time to system authority
Carry out replacement activities as required	The user / individual on the job should be able to: PC23. replace pole as per standard procedure where required PC24. carry out guy and anchor replacement on various structure types (wood, steel, various lines voltages) PC25. carry out conductor repair (patch and splice) on single conductor, bundled conductor of various sizes and line voltages PC26. replace components such as transformers, CT, CVT, LA, breakers, towers, conductors, disconnects, timber or x-arm, conductors, poles, switches, elbows and terminations and insulators safely and as per company procedure PC27. replace other line components due to damage or unsuitability as per standard procedure, where required PC28. replace underground cables, as per standard procedures where required
Post-repair and maintenance activities	The user / individual on the job should be able to: PC29. restore system to normal operating status by using switching procedures PC30. deal promptly and effectively with problems within control, and seek help and guidance from the relevant people for problems that cannot be resolved PC31. leave the work area in a safe and tidy condition on completion of the repair and maintenance activities PC32. refer unresolved job related problems to appropriate personnel for support PC33. monitor the problem and keep the supervisor informed about progress or any

PSS/N0112 Repair and maintenance of Sub-stations, Power Transmission Lines and components

	delays in resolving the problem
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. relevant legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. relevant health and safety requirements applicable in the work place KA3. own job role and responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities KA4. reporting structure, inter-dependent functions, lines and procedures in the work area KA5. how to engage with specialists for support in order to resolve incidents and service requests KA6. importance of working in clean and safe environment practices and procedures KA7. relevant people and their responsibilities within the work area KA8. escalation matrix and procedures for reporting work and employment related issues
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. principles of electricity KB2. principles and practices of electrical safety KB3. common electricity terminology and correct interpretation of the same Terminology KB4. specific terminology used in Transmission Line work KB5. elements of the power system elements: e.g. generation, transmission, transmission metering, etc. KB6. different types of material and accessories used in power T&D Materials and accessories KB7. tools and equipment used in testing, repair and maintenance KB8. importance of carrying out regular and periodic inspection KB9. circumstances which may require ad-hoc inspections KB10. specific health and safety precautions which must be taken when carrying out Sub-station and Transmission lines inspection work KB11. corona effect and its impact for health and safety KB12. various types of circuits Types: e.g. C.T., P.T., A.C., D.C., Control, Indication & Annunciation Circuits KB13. line diagrams, maps and circuitry various types of circuits KB14. key faults in substation, Transmission lines and components KB15. fault indicators such as burns, tests, broken wires, damaged insulation, etc. KB16. overhead Transmission system apparatus such as regulators and reclosers KB17. overhead Transmission system standards KB18. access points such as vaults, open trenches and manholes KB19. underground Transmission system apparatus such as transformers, switching cubicles and junction boxes

PSS/N0112 Repair and maintenance of Sub-stations, Power Transmission Lines and components

	KB20. cable locating and fault detecting equipment KB21. co-existing underground utilities KB22. types and sizes of conductors and cables KB23. different types of insulators KB24. classification of conductor and insulator damage including fretting, abrasion, fatigue breaks, tensile breaks KB25. importance of ensuring that tools and equipment are suitable, well maintained, calibrated and operating effectively KB26. importance of following good housekeeping and fire prevention procedures KB27. material preparation methods and techniques to be undertaken, prior to using for testing and inspection activities KB28. preparation of equipment for testing and repair activities KB29. hazards and risks of working at heights especially with respect to wind velocity and vibration KB30. components of Transmission lines KB31. procedures for handling Transmission line components with imperfections/ defects that cannot be removed/repaired and how can they be minimized KB32. problems and conditions which render electrical poles or towers in need of maintenance or replacement KB33. Importance of leaving the work area and equipment in a safe and clean condition on completion of the repair and maintenance activities KB34. importance of reporting problems in a timely manner KB35. methods and parameters to check quality of line components against required quality standards KB36. calibration schedule of all equipment used in inspection, repair and maintenance activities KB37. standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm KB38. personal protective equipment (PPE) and clothing that must be worn during the inspection, repair and maintenance activity and from where can it be obtained
Skills (S)	
C. Core Skills/ Generic Skills	**Writing Skills**
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	Reading Skills
	The user/individual on the job needs to know and understand how to: SA7. reading, understanding of written sentences and paragraphs SA8. able to read Metric System for all measurements SA9. Interpret the process required for performing of work

PSS/N0112 Repair and maintenance of Sub-stations, Power Transmission Lines and components

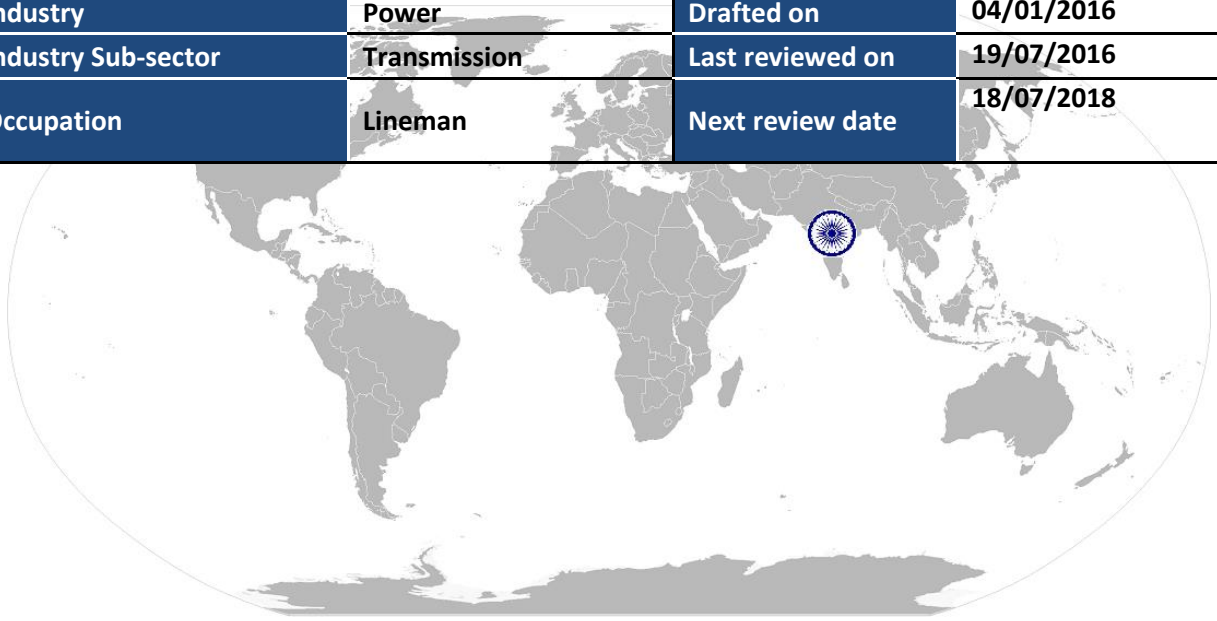
	SA10. read, interpret and understand the rules and methods SA11. read equipment manuals and understand the equipment operation and process requirement
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA12. effective oral communication SA13. able to communicate effectively with voice modulation, tone of voice and eye contact SA14. use good body language for good oral communication SA15. discuss task lists, schedules and activities with the junior engineer SA16. effectively communicate with the team/group members SA17. listen the information given by the junior engineer SA18. able to communicate clearly with the team and other staff
D. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. judgment and decision making must be appropriate SB2. identifying complex problems and review related information to develop and evaluate SB3. follow organization rule based decision making process SB4. take decision with systematic course of actions and/or response
	Plan and Organize
	The user/individual on the job needs to know and understand: SB5. planning and organization of tasks to meet deadlines
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB6. build customer relationships and use customer centric approach.
	Problem Solving
	The user/individual on the job needs to know and understand: SB7. identify problems and review related information to develop and evaluate options and implement solutions SB8. prioritize and plan for solving problem SB9. take help from the junior engineer to solve the problems SB10. monitor problem solving to take corrective action with individuals and organizations SB11. analyse problems and changes in conditions, operations, and the environment to solve problems
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB12. analyze the problem seen in the equipment SB13. collect the information and technical data and define process for doing testing and maintenance
	Critical Thinking

PSS/N0112 Repair and maintenance of Sub-stations, Power Transmission Lines and components

	The user/individual on the job needs to know and understand how to: SB14. critically evaluate operation parameters in relation to product features intended SB15. develop holistic and comprehensive profile of products based on segregated discrete process stages

NOS Version Control

NOS Code	PSSS/N0112		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/01/2016
Industry Sub-sector	Transmission	Last reviewed on	19/07/2016
Occupation	Lineman	Next review date	18/07/2018



NOS

National Occupational Standards

PSS/N0110 Supervise work and crew in power distribution installation and maintenance work

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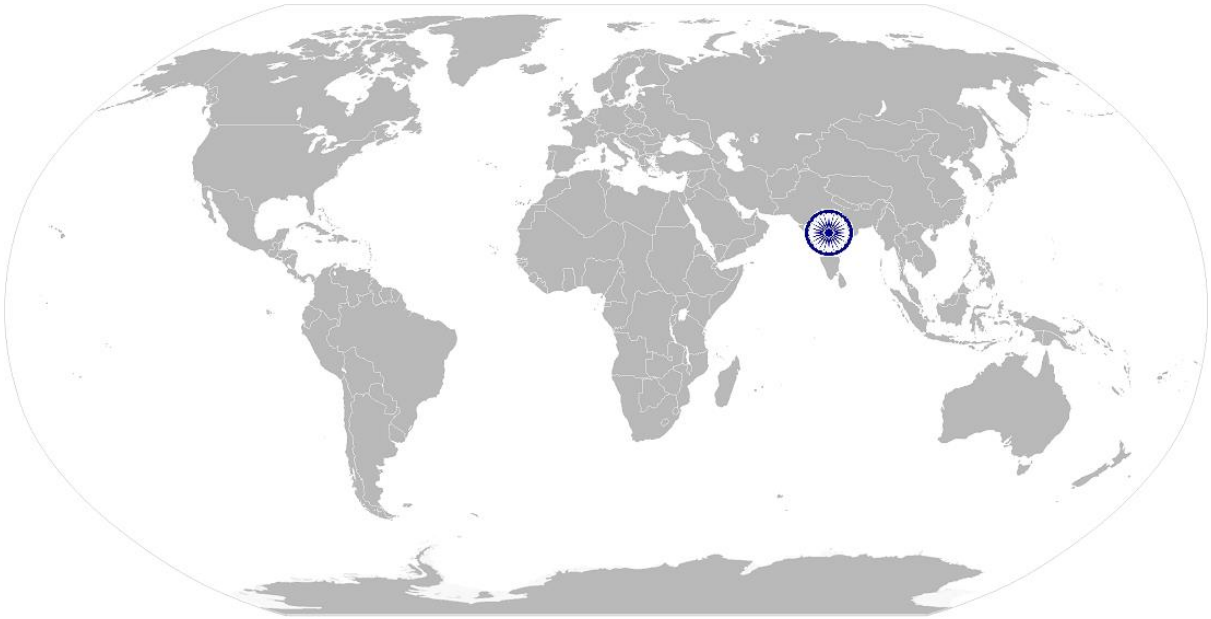
National Occupational Standard



Overview

This unit covers the competencies required supervisors in Power Distribution installation and maintenance work. It also covers the respective health and safety competencies required to perform such operations.

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National Occupational Standards

N·S·D·C National Skill Development Corporation

PSS/N0110 Supervise work and crew in power distribution installation and maintenance work

National Occupational Standard

Unit Code	**PSS/N0110**
Unit Title (Task)	**Supervise work and crew in power distribution installation and maintenance work**
Description	This unit covers the competencies required by senior linemen for supervision of crew including linemen and technical helpers for carrying out work for installation, maintenance and repair of Power Distribution Substation, Lines and Components. The candidate will be expected to perform independently with little to no supervision.
Scope	**This unit/task covers the following:** • supervising the team at work • accident, incident or grievance handling
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Supervising the team at work	The user/individual on the job needs to know and understand: PC1. explain to team members requirements of the job or task plan and clarify for shared understanding PC2. inspect work being carried out by team members to ensure work is being carried out safely and as per required and approved procedures PC3. inspect preparation, process and output of work to assess suitability as per job specifications and compliance to organisational and other rules and regulations PC4. ensure time on the job is utilised properly to achieve optimum productivity and efficiency PC5. assist team members to develop their own knowledge, skills and abilities by providing timely and accurate guidance, feedback and responsibilities PC6. address low performance through training, informal and formal guidance, support from other supervisors, management and HR department PC7. record details of performance and other records required by organisation and departmental authorities, details accurately and clearly in required ledgers, forms and formats as per required and approved procedures
Accident, incident or grievance handling	The user/individual on the job needs to know and understand: PC8. address grievances and complaints promptly and as per organizational guidelines PC9. report incident and accidents as per organisational procedure in a timely fashion with necessary detail PC10. deal promptly and effectively with problems within control, and seek help and guidance from the relevant people for problems that cannot be resolved PC11. refer unresolved job related problems to appropriate personnel for support PC12. monitor the problem and keep the supervisor informed about progress or any delays in resolving the problem
Knowledge and Understanding (K)	

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A. Organizational Context	The user/individual on the job needs to know and understand: KA1. relevant legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. relevant health and safety requirements applicable in the work place KA3. own job role and responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities KA4. reporting structure, inter-dependent functions, lines and procedures in the work area KA5. how to engage with specialists for support in order to resolve incidents and service requests KA6. importance of working in clean and safe environment practices and procedures KA7. relevant people and their responsibilities within the work area KA8. escalation matrix and procedures for reporting work and employment related issues
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. importance of keeping and leaving the work area and equipment in a safe and clean condition on completion of the repair and maintenance activities KB2. importance of reporting problems in a timely manner KB3. methods and parameters to check quality of performance against required quality standards KB4. reporting requirements in relation to team and personnel KB5. concept of productivity KB6. components of performance development such as skills, knowledge, values, etc. KB7. importance of recording evidence of performance and incidents KB8. importance of providing feedback and communicating with team regularly KB9. procedures for making, receiving and handling complaints and grievances
Skills (S)	
C. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. communicate effectively in writing SA2. able to write the information communicated by the in-charge of work SA3. write properly about the technical problems and other conditions of site SA4. note down of testing repair observations, critical points SA5. able to write about the condition of equipment SA6. prepare and fill up all technical forms and data as per guidelines and format.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA7. reading, understanding of written sentences and paragraphs SA8. able to read Metric System for all measurements SA9. Interpret the process required for performing of work SA10. read, interpret and understand the rules and methods

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	SA11. read equipment manuals and understand the equipment operation and process requirement
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA12. effective oral communication SA13. able to communicate effectively with voice modulation, tone of voice and eye contact SA14. use good body language for good oral communication SA15. discuss task lists, schedules and activities with the junior engineer SA16. effectively communicate with the team/group members SA17. listen the information given by the junior engineer SA18. able to communicate clearly with the team and other staff
D. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. judgment and decision making must be appropriate SB2. identifying complex problems and review related information to develop and evaluate SB3. follow organization rule based decision making process SB4. take decision with systematic course of actions and/or response
	Plan and Organize
	The user/individual on the job needs to know and understand: SB5. planning and organization of tasks to meet deadlines
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB6. build customer relationships and use customer centric approach.
	Problem Solving
	The user/individual on the job needs to know and understand: SB7. identify problems and review related information to develop and evaluate options and implement solutions SB8. prioritize and plan for solving problem SB9. take help from the junior engineer to solve the problems SB10. monitor problem solving to take corrective action with individuals and organizations SB11. analyse problems and changes in conditions, operations, and the environment to solve problems
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB12. analyze the problem seen in the equipment SB13. collect the information and technical data and define process for doing testing and maintenance
	Critical Thinking

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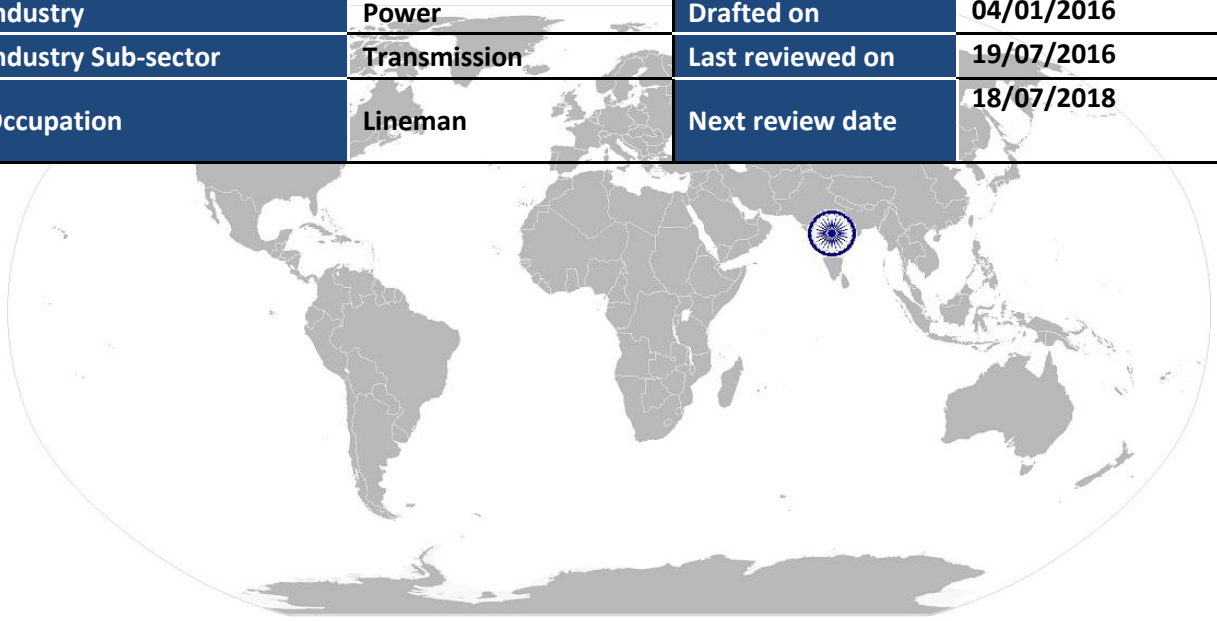
	The user/individual on the job needs to know and understand how to: SB14. critically evaluate operation parameters in relation to product features intended SB15. develop holistic and comprehensive profile of products based on segregated discrete process stages

NOS Version Control

NOS Code	PSSS/N0110		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/01/2016
Industry Sub-sector	Transmission	Last reviewed on	19/07/2016
Occupation	Lineman	Next review date	18/07/2018



NOS

National Occupational Standards

PSS/N2001 Use basic health and safety practices for power related work

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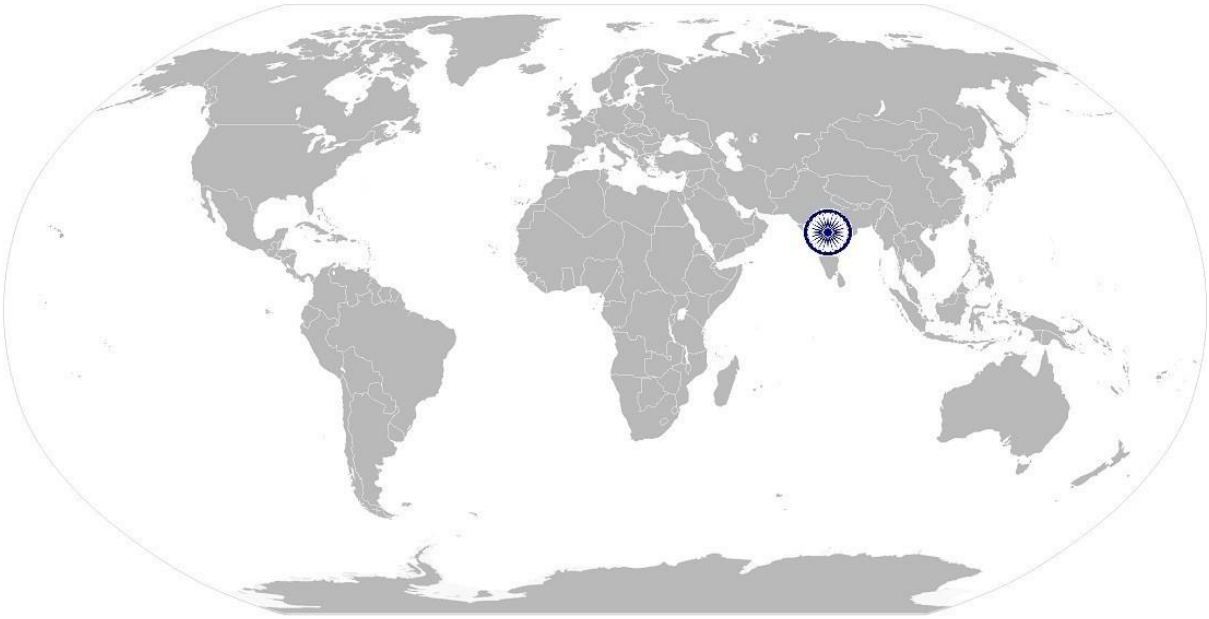
National Occupational Standard



Overview

This unit covers health, safety and security for power related work. This includes procedures and practices that candidates need to follow to help maintain a healthy, safe and secure work environment.

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PSS/N2001 Use basic health and safety practices for power related work

National Occupational Standard

Unit Code	**PSS/N2001**
Unit Title (Task)	**Use basic health and safety practices for power related work**
Description	This unit covers health, safety and security for power related work. This includes procedures and practices that candidates need to follow to help maintain a healthy, safe and secure work environment. It covers responsibilities towards self, others, assets and the environment. .
Scope	**This unit/task covers the following:** • health and safety • fire safety • emergencies, rescue and first-aid procedures
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Health and safety	The user/individual on the job needs to: PC1. use protective clothing/equipment for specific tasks and work conditions. PC2. state the name and location of people responsible for health and safety in the workplace PC3. state the names and location of documents that refer to health and safety in the workplace PC4. identify job-site hazardous work and state possible causes of risk or accident in the workplace PC5. follow electrical safe working procedures such as Tag out/Lock out and display PTW (Permit To Work), PC6. follow warning signs (danger, out of service, etc.) while working with electrical systems PC7. use standard safe working practices when working at heights, confined areas and trenches PC8. test any electrical equipment and system using insulated testing devices before touching them PC9. ensure positive isolation of electrical equipment & system as per given standards PC10. recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed PC11. carry out safe working practices while dealing with hazards to ensure the safety of self and others PC12. state methods of accident prevention in the work environment of the job role PC13. state location of general health and safety equipment in the workplace PC14. inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder PC15. lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa PC16. inspect Grid station and its equipment routinely for any signs of oil and water leakage PC17. store flammable materials and machine lubricating oil safely and correctly PC18. check that the emission and pollution control devices are working properly in

PSS/N2001 Use basic health and safety practices for power related work

	line with environmental policy standards PC19. apply good housekeeping practices at all times PC20. identify common hazard signs displayed in various areas PC21. retrieve and/or point out documents that refer to health and safety in the workplace PC22. inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly
Fire safety	The user/individual on the job needs to: PC23. use the various appropriate fire extinguishers on different types of fires correctly PC24. distinguish types of fire PC25. demonstrate rescue techniques applied during fire hazard PC26. demonstrate good housekeeping in order to prevent fire hazards PC27. demonstrate the correct use of a fire extinguisher
Emergencies, rescue and first-aid procedures	The user/individual on the job needs to: PC28. demonstrate how to free a person from electrocution PC29. administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc. PC30. demonstrate basic techniques of bandaging PC31. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments PC32. perform and organize loss minimization or rescue activity during an accident in real or simulated environments PC33. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases PC34. demonstrate the artificial respiration and the CPR Process PC35. participate in emergency procedures Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work PC36. complete a written accident/incident report or dictate a report to another person, and send report to person responsible PC37. demonstrate correct method to move injured people and others during an emergency
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. names (and job titles if applicable), and where to find, all the people responsible for health and safety in a workplace. KA2. names and location of documents that refer to health and safety in the workplace.

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B. Technical Knowledge	The individual on the job needs to know and understand: KB1. meaning of "hazards" and "risks" KB2. health and safety hazards commonly present in the work environment and related precautions KB3. possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible KB4. possible causes of risk and accident KB5. methods of accident prevention KB6. safe working practices when working with tools and machines KB7. safe working practices while working at various hazardous sites KB8. where to find all the general health and safety equipment in the workplace KB9. various dangers associated with the use of electrical equipment KB10. positive isolation of electrical equipment and system KB11. safe handling and disposal of hazardous power plant wastes KB12. use of emission and pollution control devices and measures taken to control pollution KB13. various safety procedures and equipment used to work at heights, trenches and confined places KB14. safe working practices specific to working with electrical equipment & system e.g. lock out/ tag out, PTW, etc. KB15. preventative and remedial actions to be taken in the case of exposure to toxic materials KB16. importance of using protective clothing/equipment and other insulated work gear while handling electrical system and equipment KB17. precautionary activities taken to prevent fire accident KB18. various causes of fire KB19. techniques of using the different fire extinguishers KB20. different methods of extinguishing fire KB21. different materials used for extinguishing fire KB22. emergency rescue techniques applied during a fire hazard KB23. various types of safety signs and what they mean KB24. appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries
Skills (S)	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. note the information communicated by the officer incharge SA2. note down observations (if any) related to the operation/maintenance.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. read and interpret the process required for different types of manuals for maintenance. SA4. read and interpret the flowchart of all parts of an assembly. SA5. read manuals and documents to understand the product-details & how they

PSS/N2001 Use basic health and safety practices for power related work

	can be used.
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists, schedules and activities with the colleague/supervisor. SA7. effectively communicate with the team members. SA8. attentively listen and comprehend the information given by the colleague/supervisor/contractor. SA9. communicate clearly with the colleague on the issues faced during query/fault.
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. follow colleague/contractor rule-based decision making process. SB2. take decisions with systematic course of actions and/or response.
	Plan and Organize
	The user/individual on the job needs to know and understand: SB3. planning and organization of tasks to meet deadlines.
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB4. build customer relationships and use customer centric approach.
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB5. seek and comprehend operation related inputs for clarification SB6. find ways of modifying difficult operating stages to make it operation friendly
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB7. work systematically and logically to resolve the issues and identify causation and anticipate unexpected results. SB8. quick approach and solution towards faults repairing.
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB9. critically evaluate operation parameters in relation to system normality SB10. develop a holistic and comprehensive profile of grid station on segregated discrete process stages of blank forming processes

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NOS Version Control

NOS Code	PSS/N2001		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/06/2016
Industry Sub-sector	Generation, Transmission & Distribution	Last reviewed on	19/07/2016
Occupation	Technician	Next review date	19/07/2018

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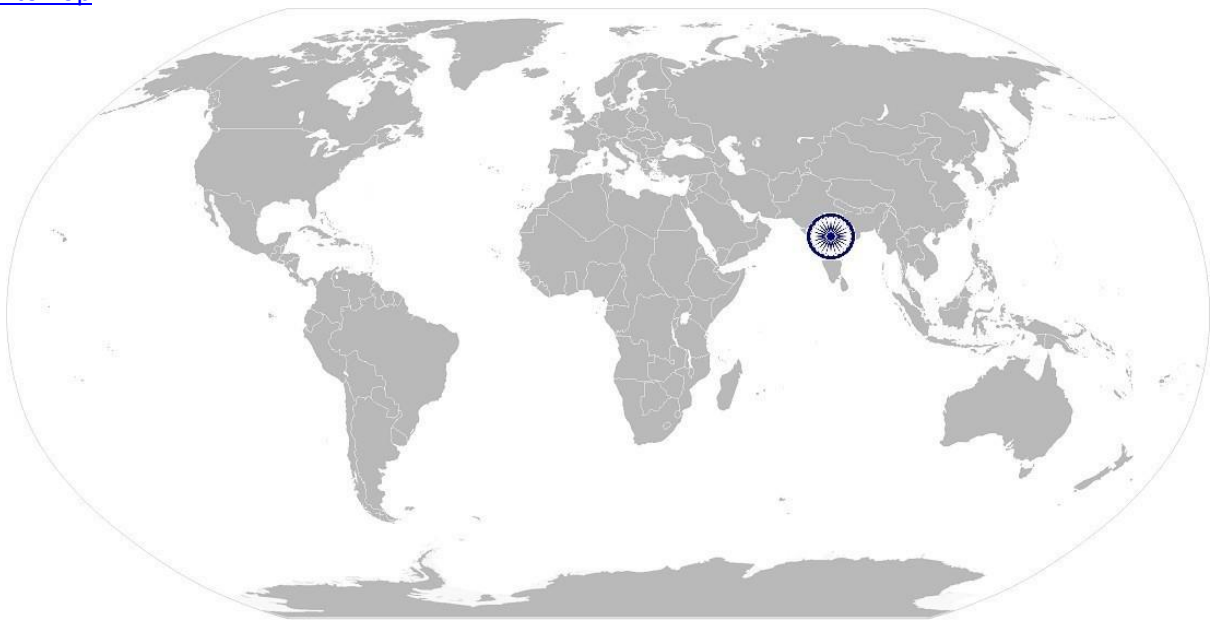

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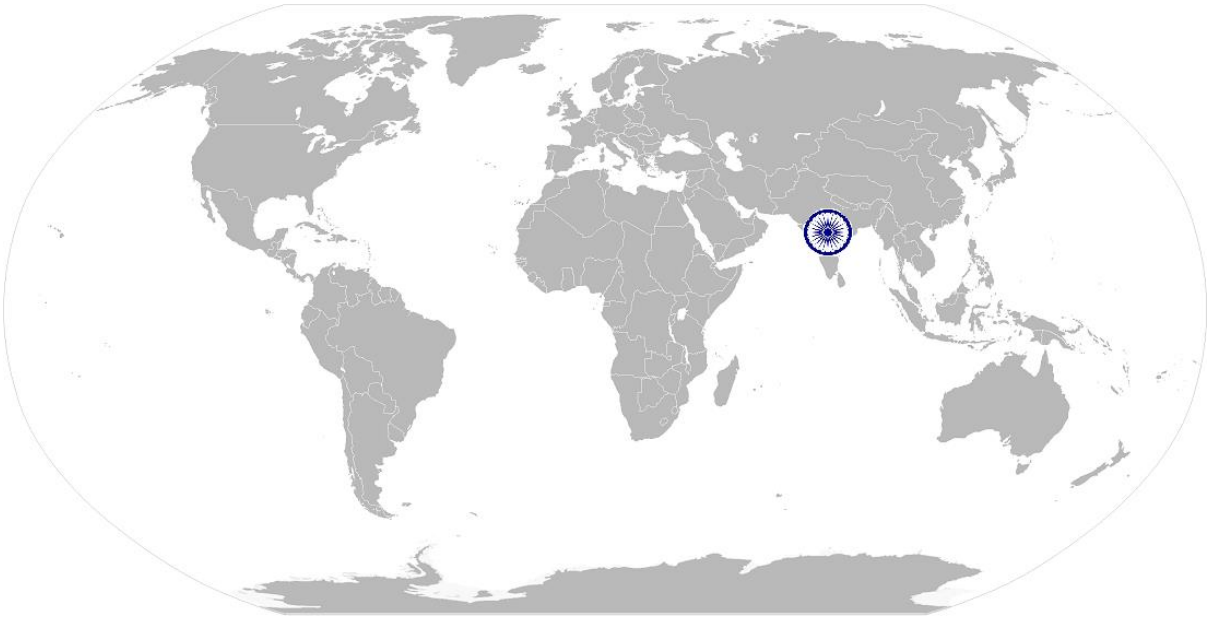

Overview

This unit covers basic practices that improve effectiveness of working with others in an organizational set-up

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PSS/N1336 **Work effectively with others**

National Occupational Standard

Unit Code	**PSS/N1336**
Unit Title (Task)	**Work effectively with others**
Description	This unit covers basic etiquette and competencies that a candidate is required to possess and demonstrate in their behavior and interactions with others at the workplace. These cover areas such as communication etiquette, discipline, listening, handling conflict and grievances.
Scope	This unit/task covers the following: • working with others

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Working with others	The user/individual on the job should be able to: PC1. accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required PC2. accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt PC3. give information to others clearly, at a pace and in a manner that helps them to understand PC4. display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible PC5. consult with and assist others to maximize effectiveness and efficiency in carrying out tasks PC6. display appropriate communication etiquette while working PC7. display active listening skills while interacting with others at work PC8. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism PC9. demonstrate responsible and disciplined behavior at the workplace PC10. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict

Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. legislation, standards, policies, and procedures followed in the organisation relevant to own employment and performance conditions KA2. reporting structure, inter-dependent functions, lines and procedures in the work area KA3. relevant people and their responsibilities within the work area KA4. escalation matrix and procedures for reporting work and employment related issues

PSS/N1336 **Work effectively with others**

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. various categories of people that one is required to communicate and co-ordinate with in the organization KB2. importance of effective communication in the workplace KB3. importance of teamwork in organizational and individual success KB4. various components of effective communication KB5. key elements of active listening KB6. value and importance of active listening and assertive communication KB7. barriers to effective communication KB8. importance of tone and pitch in effective communication KB9. importance of avoiding casual expletives and unpleasant terms while communicating professional circles KB10. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer KB11. importance of ethics for professional success KB12. importance of discipline for professional success KB13. what constitutes disciplined behavior for a working professional KB14. common reasons for interpersonal conflict KB15. importance of developing effective working relationships for professional success KB16. how to express and address grievances appropriately and effectively KB17. importance and ways of managing interpersonal conflict effectively
Skills (S) (Optional)	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. note the information communicated by the officer incharge SA2. note down observations (if any) related to the operation/maintenance.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA3. read and interpret the process required for different types of manuals SA4. read and interpret the flowchart of all parts of an assembly. SA5. read manuals and documents to understand the product-details & how they can be used.
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists, schedules and activities with the colleague/supervisor. SA7. effectively communicate with the team members. SA8. attentively listen and comprehend the information given by the colleague/supervisor/contractor. SA9. communicate clearly with the colleague on the issues faced during query/fault.
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB11. follow colleague/contractor rule-based decision making process.

PSS/N1336 **Work effectively with others**

	SB12. take decisions with systematic course of actions and/or response.
	Plan and Organize
	The user/individual on the job needs to know and understand: SB13. planning and organization of tasks to meet deadlines.
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB14. build customer relationships and use customer centric approach.
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB15. seek and comprehend operation related inputs for clarification find ways of modifying difficult operating stages to make it operation friendly
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB16. work systematically and logically to resolve the issues and identify causation and anticipate unexpected results. Quick approach and solution towards faults repairing.
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB17. critically evaluate operation parameters in relation to system normality develop a holistic and comprehensive profile of grid station on segregated discrete process stages of blank forming processes

NOS Version Control

NOS Code	PSS/N1336		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/06/2016
Industry Sub-sector	Generation, Transmission & Distribution	Last reviewed on	19/07/2016
Occupation	Technician	Next review date	19/07/2018

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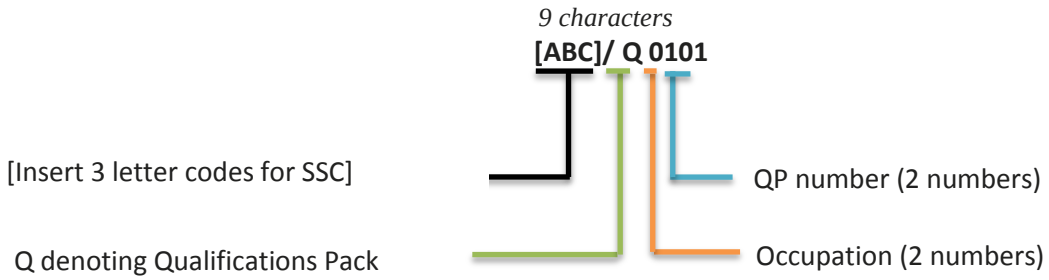
Annexure

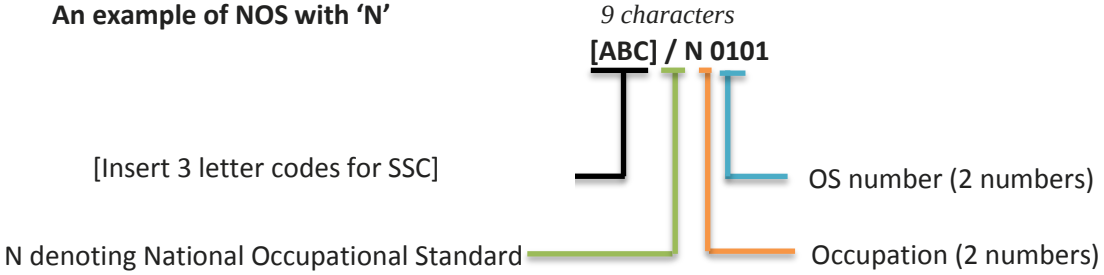
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



The following acronyms/codes have been used in the nomenclature above:

Sub-sector	Range of Occupation numbers
[Insert Name of Sub-sector1, Font: Calibri (Body), size 11, Bold]	[Insert range]
[Insert Name of Sub-sector2, Font: Calibri (Body), size 11, Bold]	[Insert range]
[Insert Name of Sub-sector3, Font: Calibri (Body), size 11, Bold]	[Insert range]
[Insert Name of Sub-sector4, Font: Calibri (Body), size 11, Bold]	[Insert range]
…	…

Sequence	Description	Example
Three letters	Industry name	[ABC, Font: Calibri (Body), size 11]
Slash	/	/
Next letter	Whether **Q**P or **N**OS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Senior Power System Technician (Transmission)

Qualification Pack PSS/Q0106

Sector Skill Council Power

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 center (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 this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
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

		Marks Allocation			
Assessable Outcomes	**Assessment Criteria for Outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
1. PSS/N0113 (Inspection of power transmission substation, lines and components)	PC1. prepare and maintain the work area as per procedure or operation specification	**100**	3	0	3
	PC2. inspect power transformers including general transformer appearance, bushings, free of contamination, no oil leaks, auxiliary cooling system safely and as per required and approved procedures		2	0	2
	PC3. inspect circuit breakers including general breaker appearance, bushings, for contamination, oil leaks, doors locked and working safely and as per required and approved procedures		2	0	2
	PC4. inspect insulators including substation, bus support, suspension, etc. using safe and correct methods		3	1	2
	PC5. inspect any steel superstructures where applicable		3	1	2
	PC6. inspect substation components including circuit switchers, disconnect switches, coupling capacitors,		3	1	2

	capacitors, cable potheads, lightning arresters, metal-clad switchgear, relays, etc. safely, as per required and approved procedures				
PC7.	inspect communication equipment, back-up battery systems, control house, etc. as per required and approved procedures		3	1	2
PC8.	inspect for physical security including locks on switches, enclosures, and gates, fences, gates, and warning signs (including washouts) to identify risks		3	1	2
PC9.	inspect grounds and the grounding system including broken, loose, or exposed wires and exposed ground rods as per required and approved procedures		3	1	2
PC10.	inspect for weeds and bird nests, such growth which may hamper access, deteriorate conditions of equipment and components, increase moisture content and support insect growth		2	1	1
PC11.	carry out specific equipment tests on the equipment based upon frequency of operation such as Transformer gas-in-oil analysis, Oil dielectric tests, Relay tests, Infrared tests, Voltage regulation equipment tests accurately, efficiently and safely		3	1	2
PC12.	carry out predictive maintenance tests of load tap changer motor-control circuitry, and of breaker operator mechanisms accurately and safely		5	1	4
PC13.	carry out battery and battery-charger tests accurately and safely		5	1	4
PC14.	follow and develop plans and schedule inspections of Transmission lines including regular periodic and special routines such as pre-monsoon inspection		5	1	4
PC15.	establish nature and location of faults using data and/or from the supervisor		2	1	1
PC16.	identify various types of circuits and its components accurately		5	1	4
PC17.	identify type of installation and its configuration e.g. steel/aluminium, wooden		2	0	2
PC18.	identify and acquire correct tools, equipment and instruments required for Transmission line assessment and		2	1	1

	inspection				
	PC19. ensure the tools and equipment is well maintained, calibrated and approved for use		2	1	1
	PC20. access and survey area in accordance with established procedures		2	0	2
	PC21. assess components of Transmission line for damage or risk for damage through visual, sensory and instrument methods		2	0	2
	PC22. carry out tower to tower inspection using patrolling as per job requirement, safely and efficiently		3	0	3
	PC23. identify suspension and dead-ending materials/hardware for various voltages and structure types		2	1	1
	PC24. assess and confirm condition of pole or tower structure based on Transmission line standards		2	1	1
	PC25. carry out visual checks to assess conditions of back filling/soil of foundation of tower, chimneys, tower members, galvanizing and paint condition, corrosion on tower parts, anti-climbing fixtures are in place, all signage's and warnings are in place, barb wiring, etc.		2	1	1
	PC26. check guys for damage, distance to primary conductor or equipment, insulator condition accurately		2	1	1
	PC27. check pole or tower top assemblies for damage, safely and as per required and approved procedures		2	1	1
	PC28. check for tower location provided with revetment that the retaining wall is neither broken nor in the danger of falling		2	1	1
	PC29. check earthing of tower through earthing testing, visual inspection		3	0	3
	PC30. use a thermo-vision camera to check jumpers accurately and as per approved procedure		2	1	1
	PC31. perform load checks to identify imbalanced and overloaded circuits accurately and safely		2	1	1
	PC32. check line conductors for damage, slack, tension, sparks and burns, foreign objects, clearance, etc. safely and as per required and approved		2	1	1

	procedures				
	PC33. identify hazards of trimming trees such as limits of approach, public safety and step and touch potential		2	1	1
	PC34. conduct site inspection for emergency cases following established procedures		1	0	1
	PC35. document and record findings clearly, accurately and in required detail using correct forms and formats if any		1	0	1
	PC36. clean and test Transmission line tools according to standard procedures		1	0	1
	PC37. inspect, repair and replace Transmission line tools and equipment, if necessary after use		1	0	1
	PC38. prepare recommendations for corrective and preventive maintenance based on the findings of the inspection		1	0	1
	PC39. restore system to normal operating status by using switching procedures where disconnected		1	0	1
	PC40. record details of inspection accurately and clearly in required ledgers, forms and formats as per required and approved procedures		1	0	1
	PC41. make correct and required recommendations for repair and maintenance where risks, faults or damage recorded		1	0	1
	PC42. deal promptly and effectively with problems within control, and seek help and guidance from the relevant people for problems that cannot be resolved		1	0	1
	PC43. leave the work area in a safe and tidy condition on completion of the inspection and testing activities		1	0	1
	PC44. refer unresolved job related problems to appropriate personnel for support		1	0	1
	PC45. monitor the problem and keep the supervisor informed about progress or any delays in resolving the problem		1	0	1
			100	**22**	**78**
2. PSS/N0112 (Repair and maintenance of power transmission lines and components)	PC1. identify various types of circuits and its components correctly	**100**	3	0	3
	PC2. identify accurately and acquire correct tools, equipment and instruments required for various aspects of repair and maintenance of Transmission lines and components		2	0	2

	PC3. access and survey area in accordance with established procedures		2	0	2
	PC4. identify hazards of trimming trees such as limits of approach, public safety and step and touch potential		3	1	2
	PC5. conduct site inspection for emergency cases following established procedures		3	1	2
	PC6. climb tower while observing and following all specified safety procedures and using PPE		3	1	2
	PC7. identify various types of circuits accurately identify and acquire correct tools, equipment and instruments required for Transmission line assessment and inspection		3	1	2
	PC8. identify and acquire correct tools, equipment and instruments required for Transmission line assessment and inspection		3	1	2
	PC9. ensure the tools and equipment is well maintained, calibrated and approved for use		3	1	2
	PC10. use Transmission line tools, equipment and hardware in line with job requirements for maintenance operations		3	1	2
	PC11. prepare and maintain the work area as per procedure or operation specification		3	1	2
	PC12. obtain work permit (shut down) confirmation to proceed to work from appropriate personnel in accordance with standard procedure		5	1	4
	PC13. switch off, isolate, discharge and earth (side) line cables		5	1	4
	PC14. perform off-line overhead line maintenance procedure according to job specifications and requirements		5	1	4
	PC15. perform off-line underground line maintenance procedure according to job specifications and requirements		2	1	1
	PC16. ensure pole dismantling and re-setting procedure is carried out as per standard procedure, where required		5	1	4
	PC17. install components on transmission lines including gang operated air brake switches for transmission lines, controlled breakers, ground switches, capacitor stations, insulator pressure washing, submarine and underground transmission cable, grid		2	0	2

	interconnections				
	PC18. select and use test equipment such as tong testers, clip-on meter, multi-meters, fault indicators meggers and voltmeters to verify fault and integrity		3	1	2
	PC19. document switching procedures with all relevant details clearly and accurately		3	1	2
	PC20. repair conductor by splicing, jointing, using armor rods, line guards, vibration dampers		2	0	2
	PC21. check work carried out by team members and ensure it is as per standard requirement and any feedback is useful and provided in a timely, polite and supportive manner		2	0	2
	PC22. report trouble and required actions such as repairs or replacements, and estimated repair time to system authority		3	0	3
	PC23. replace pole as per standard procedure where required		2	1	1
	PC24. carry out guy and anchor replacement on various structure types (wood, steel, various lines voltages)		3	1	2
	PC25. carry out conductor repair (patch and splice) on single conductor, bundled conductor of various sizes and line voltages		3	1	2
	PC26. replace components such as transformers, CT, CVT, LA, breakers, towers, conductors, disconnects, timber or x-arm, conductors, poles, switches, elbows and terminations and insulators safely and as per company procedure		3	1	2
	PC27. replace other line components due to damage or unsuitability as per standard procedure, where required		3	1	2
	PC28. replace underground cables, as per standard procedures where required		3	1	2
	PC29. restore system to normal operating status by using switching procedures		3	0	3
	PC30. deal promptly and effectively with problems within control, and seek help and guidance from the relevant people for problems that cannot be resolved		3	1	2
	PC31. leave the work area in a safe and tidy condition on completion of the repair and maintenance activities		3	1	2

	PC32. refer unresolved job related problems to appropriate personnel for support		3	1	2
	PC33. monitor the problem and keep the supervisor informed about progress or any delays in resolving the problem		3	1	2
			100	**26**	**74**
3. PSS/N0110 (Supervise work and crew in power distribution installation and maintenance work)	PC1. explain to team members requirements of the job or task plan and clarify for shared understanding	**100**	8	2	6
	PC2. inspect work being carried out by team members to ensure work is being carried out safely and as per required and approved procedures		8	2	6
	PC3. inspect preparation, process and output of work to assess suitability as per job specifications and compliance to organisational and other rules and regulations		8	2	6
	PC4. ensure time on the job is utilised properly to achieve optimum productivity and efficiency		8	2	6
	PC5. assist team members to develop their own knowledge, skills and abilities by providing timely and accurate guidance, feedback and responsibilities		8	2	6
	PC6. address low performance through training, informal and formal guidance, support from other supervisors, management and HR department		8	2	6
	PC7. record details of performance and other records required by organisation and departmental authorities, details accurately and clearly in required ledgers, forms and formats as per required and approved procedures		8	2	6
	PC8. address grievances and complaints promptly and as per organizational guidelines		8	2	6
	PC9. report incident and accidents as per organisational procedure in a timely fashion with necessary detail		8	2	6
	PC10. deal promptly and effectively with problems within control, and seek help and guidance from the relevant people for problems that cannot be resolved		8	2	6
	PC11. refer unresolved job related problems to appropriate personnel for support		10	3	7
	PC12. monitor the problem and keep the supervisor informed about progress or		10	3	7

	any delays in resolving the problem				
	Total		**100**	**26**	**74**
4. PSS/N2001 Use basic health and safety practices for power related work	PC1. use protective clothing/equipment for specific tasks and work conditions.	**100**	3	0	3
	PC2. state the name and location of people responsible for health and safety in the workplace		2	0	2
	PC3. state the names and location of documents that refer to health and safety in the workplace		2	0	2
	PC4. identify job-site hazardous work and state possible causes of risk or accident in the workplace		3	1	2
	PC5. follow electrical safe working procedures such as Tag out/Lock out and display PTW (Permit To Work),		3	1	2
	PC6. follow warning signs (danger, out of service, etc.) while working with electrical systems		3	1	2
	PC7. use standard safe working practices when working at heights, confined areas and trenches		3	1	2
	PC8. test any electrical equipment and system using insulated testing devices before touching them		3	1	2
	PC9. ensure positive isolation of electrical equipment & system as per given standards		3	1	2
	PC10. recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed		3	1	2
	PC11. carry out safe working practices while dealing with hazards to ensure the safety of self and others		3	1	2
	PC12. state methods of accident prevention in the work environment of the job role		2	0	2
	PC13. state location of general health and safety equipment in the workplace		2	0	2
	PC14. inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder		2	0	2
	PC15. lift, carry and transport heavy objects & tools safely using correct procedures from storage to		2	1	1

	workplace and vice versa				
PC16.	inspect Grid station and its equipment routinely for any signs of oil and water leakage		2	0	2
PC17.	store flammable materials and machine lubricating oil safely and correctly		2	0	2
PC18.	check that the emission and pollution control devices are working properly in line with environmental policy standards		3	1	2
PC19.	apply good housekeeping practices at all times		3	1	2
PC20.	identify common hazard signs displayed in various areas		2	0	2
PC21.	retrieve and/or point out documents that refer to health and safety in the workplace		2	0	2
PC22.	inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly		3	0	3
PC23.	use the various appropriate fire extinguishers on different types of fires correctly		2	1	1
PC24.	distinguish types of fire		3	1	2
PC25.	demonstrate rescue techniques applied during fire hazard		3	1	2
PC26.	demonstrate good housekeeping in order to prevent fire hazards		3	1	2
PC27.	demonstrate the correct use of a fire extinguisher		3	1	2
PC28.	demonstrate how to free a person from electrocution		3	1	2
PC29.	administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		3	0	3
PC30.	demonstrate basic techniques of bandaging		3	1	2
PC31.	respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		3	1	2
PC32.	perform and organize loss minimization or rescue activity during an accident in real or		3	1	2

	simulated environments				
	PC33. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases		3	1	2
	PC34. demonstrate the artificial respiration and the CPR Process		3	1	2
	PC35. participate in emergency procedures Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work		3	1	2
	PC36. complete a written accident/incident report or dictate a report to another person, and send report to person responsible		3	1	2
	PC37. demonstrate correct method to move injured people and others during an emergency		3	1	2
			100	**24**	**76**
5. PSS/N1336 Work effectively with others	PC1. accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	**100**	10	3	7
	PC2. accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt		10	3	7
	PC3. give information to others clearly, at a pace and in a manner that helps them to understand		10	3	7
	PC4. display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible		10	3	7
	PC5. consult with and assist others to maximize effectiveness and efficiency in carrying out tasks		10	3	7
	PC6. display appropriate communication etiquette while working		10	3	7
	PC7. display active listening skills while interacting with others at work		10	3	7
	PC8. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		10	3	7

	PC9. demonstrate responsible and disciplined behaviors at the workplace		10	3	7
	PC10. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict		10	3	7
			100	**30**	**70**