

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR POWER SECTOR

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- Power System Technician (Transmission)

SECTOR: Power

SUB-SECTOR: Transmission

OCCUPATION: Lineman

REFERENCE ID: PSS/Q0105

ALIGNED TO: NCO-2004/7245.10

Power System Technician (Transmission) operates, maintains and repairs overhead and underground power transmission systems mostly under the supervision of a Senior Technician.

Brief Job Description: The incumbent in the job will maintain sub-station, poles, towers and other related hardware in transmission systems. They install, maintain and repair overhead and underground powerlines and cables, and other associated equipment such as insulators, conductors, lightning arrestors, switches, metering systems, transformers and lighting systems.

Personal Attributes: Physically and mentally able to safely perform essential functions of the job. This will also include differently abled people who can perform the job with or without reasonable accommodations (modified practices.) The candidate should be able to climb ladders, scaffolds, poles and towers of various heights. Also able to crawl and work in confined spaces such as attics, manholes and crawlspaces. The candidate should be able to read, hear and understand instructions and warnings.



Job Details	Qualifications Pack Code		PSS/Q0105	
	Job Role		Power System Technician (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	Power System Technician (Transmission)
Role Description	Power System Technician operates maintains and repairs overhead and underground power transmission systems.
NSQF level	4
Minimum Educational Qualifications	10 th Pass
Maximum Educational Qualifications	NA
Training (Suggested but not mandatory)	Electrical - 6 months
Experience	2 years as technical helper/apprenticeship
Applicable National Occupational Standards (NOS)	<p>Compulsory:</p> <ol style="list-style-type: none"> PSS/N0112 Carry out Repair and maintenance of power transmission lines and components PSS/N2001 Use basic health and safety practices as the workplace PSS/N1336 Work effectively with others <p>Optional: Not Applicable</p>
Performance Criteria	As described in the relevant OS units



Keywords /Terms	Description
Definitions	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.
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 Ground wire
KV	Kilovolt

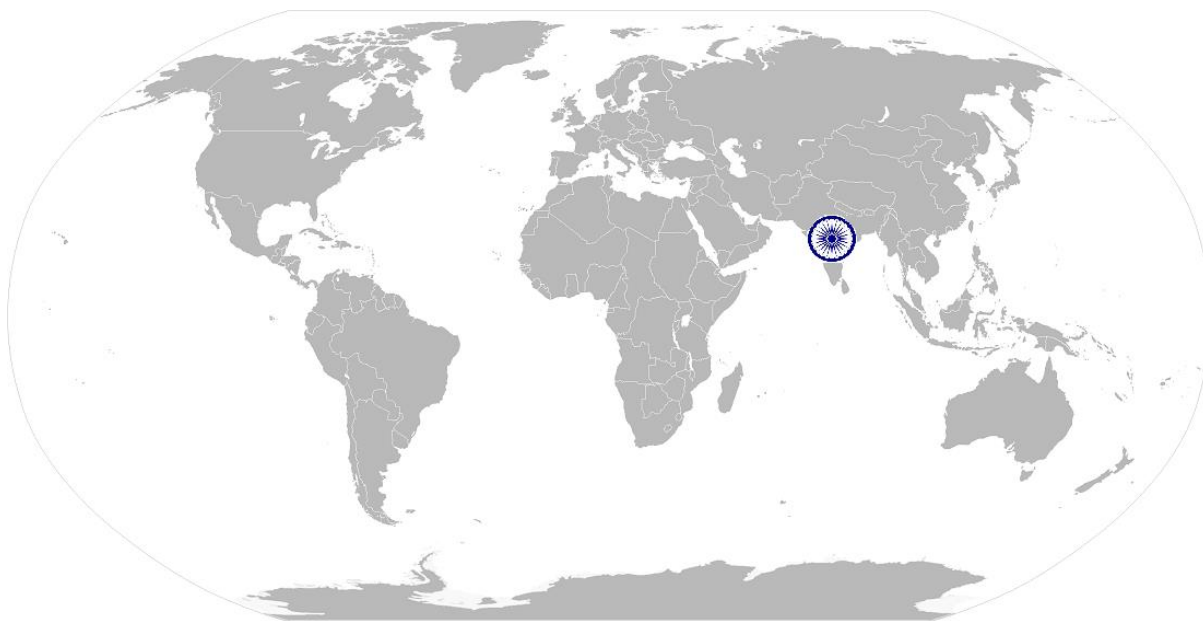
Acronyms



PSS/N0112

Carry out repair and maintenance of Sub-stations, Power Transmission Lines and components

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.



PSS/N0112 Carry out repair and maintenance of Sub-stations, Power Transmission Lines and components

National Occupational Standard	Unit Code	PSS/N0112
	Unit Title (Task)	Carry out 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.
	Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • 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	<p>The user/individual on the job needs to:</p> <p>PC1. identify various types of circuits and its components correctly</p> <p>PC2. identify accurately and acquire correct tools, equipment and instruments required for various aspects of repair and maintenance of Transmission lines and components</p> <p>PC3. access and survey area in accordance with established procedures</p> <p>PC4. identify hazards of trimming trees such as limits of approach, public safety and step and touch potential</p> <p>PC5. conduct site inspection for emergency cases following established procedures</p> <p>PC6. climb tower while observing and following all specified safety procedures and using PPE</p> <p>PC7. identify various types of circuits accurately identify and acquire correct tools, equipment and instruments required for Transmission line assessment and inspection</p> <p>PC8. identify and acquire correct tools, equipment and instruments required for Transmission line assessment and inspection</p> <p>PC9. ensure the tools and equipment is well maintained, calibrated and approved for use</p> <p>PC10. use Transmission line tools, equipment and hardware in line with job requirements for maintenance operations</p> <p>PC11. prepare and maintain the work area as per procedure or operation specification</p> <p>PC12. obtain work permit (shut down) confirmation to proceed to work from appropriate personnel in accordance with standard procedure</p> <p>PC13. switch off, isolate, discharge and earth (side) line cables</p>	



PSS/N0112 Carry out repair and maintenance of Sub-stations, Power Transmission Lines and components

Repair and maintenance of Power Transmission lines	<p>The user/individual on the job needs to:</p> <p>PC14. perform off-line overhead line maintenance procedure according to job specifications and requirements</p> <p>PC15. perform off-line underground line maintenance procedure according to job specifications and requirements</p> <p>PC16. ensure pole dismantling and re-setting procedure is carried out as per standard procedure, where required</p> <p>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</p> <p>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</p> <p>PC19. document switching procedures with all relevant details clearly and accurately</p> <p>PC20. repair conductor by splicing, jointing, using armor rods, line guards, vibration dampers</p> <p>PC21. check work carried out by team members and ensure it is as per standard requirement and any feedback is used and provided in a timely, polite and supportive manner</p> <p>PC22. report trouble and required actions such as repairs or replacements, and estimated repair time to system authority</p>
Carry out replacement activities as required	<p>The user/individual on the job needs to:</p> <p>PC23. replace pole as per standard procedure where required</p> <p>PC24. carry out guy and anchor replacement on various structure types (wood, steel, various lines voltages)</p> <p>PC25. carry out conductor repair (patch and splice) on single conductor, bundled conductor of various sizes and line voltages</p> <p>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</p> <p>PC27. replace other line components due to damage or unsuitability as per standard procedure, where required</p> <p>PC28. replace underground cables, as per standard procedures where required</p>
Post-repair and maintenance activities	<p>The user/individual on the job needs to:</p> <p>PC29. restore system to normal operating status by using switching procedures</p> <p>PC30. deal promptly and effectively with problems within control, and seek help and guidance from the relevant people for problems that cannot be resolved</p> <p>PC31. leave the work area in a safe and tidy condition on completion of the repair and maintenance activities</p> <p>PC32. refer unresolved job related problems to appropriate personnel for support</p>



PSS/N0112 Carry out repair and maintenance of Sub-stations, Power Transmission Lines and components

	PC33. monitor the problem and keep the supervisor informed about progress or any delays in resolving the problem
Knowledge and Understanding (K)	
A. Organizational Context	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> 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	<p>The individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> KB1. principles of electricity KB2. common electricity terminology and correct interpretation of the same KB3. elements of the power system elements: e.g. generation, transmission, transmission metering, etc. KB4. different types of material and accessories used in power T&D KB5. Materials and accessories: e.g. Supports (Towers-Steel, Cement , Wooden), Conductors (Sizes, current carrying capacity), Conductor Accessories, Binding Tape, Binding Wire, P.G. Clamp, T Clamp etc. , Insulators (Pin, Disc, shackle, Guy etc.), LT switchgears, Cross Arms, Stay sets, GO Switches etc. type of cross arms, etc. KB6. tools and equipment used in testing, repair and maintenance Tools: e.g. Plier, Screwdriver, Wrench set, Hammer, Drilling machine, Hacksaw / cutting tools, Measuring tape, Pulleys (Force Pulley with sling), Tommy bar, Crimping machine, Round / flat file, Earth rod (discharge rod), leakage current monitoring kit KB7. specific health and safety precautions which must be taken when carrying out Transmission lines repair and maintenance work especially live line or equipment KB8. various types of circuits Types: e.g. C.T., P.T., A.C., D.C., Control, Indication & Annunciation Circuits KB9. line diagrams, maps and circuitry KB10. troubleshooting and repair methods for various components of transmission lines KB11. fault indicators for various components of the transmission lines



PSS/N0112 Carry out repair and maintenance of Sub-stations, Power Transmission Lines and components

	<p>KB12. overhead Transmission system apparatus such as regulators and reclosers</p> <p>KB13. overhead Transmission system standards</p> <p>KB14. access points such as vaults, open trenches and manholes</p> <p>KB15. underground Transmission system apparatus such as transformers, switching cables and junction boxes</p> <p>KB16. cable locating and fault detecting equipment</p> <p>KB17. co-existing underground utilities</p> <p>KB18. types and sizes of conductors and cables</p> <p>KB19. causes of conductor damage</p> <p>KB20. classification of conductor and insulator damage including fretting, abrasion, fatigue breaks, tensile breaks</p> <p>KB21. need for an authorized permit on 11 KV and above voltage line, if the line is under own authority, then take self-permit</p> <p>KB22. hazards associated with carrying out power line maintenance and how they can be minimized</p> <p>KB23. importance of ensuring that tools and equipment are suitable, well maintained, calibrated and operating effectively</p> <p>KB24. importance of following good housekeeping and fire prevention procedures</p> <p>KB25. importance of following job instructions and defined maintenance procedures</p> <p>KB26. material preparation methods and techniques to be undertaken, prior to using for testing and maintenance activities</p> <p>KB27. preparation of equipment for testing and repair activities</p> <p>KB28. components of Transmission lines</p> <p>KB29. procedures for handling Transmission line components with imperfections/defects that cannot be removed/repared and how can they be minimized</p> <p>KB30. problems and conditions which render electrical poles or towers in need of maintenance or replacement</p> <p>KB31. importance of leaving the work area and equipment in a safe and clean condition on completion of the repair and maintenance activities</p> <p>KB32. importance of reporting problems in a timely manner</p> <p>KB33. methods and parameters to check quality of line components against required quality standards Methods: e.g. visual inspection, binoculars, measuring tape, use of instruments</p> <p>KB34. calibration schedule of all equipment used in inspection, repair and maintenance activities</p> <p>KB35. principles and practices of electrical safety</p> <p>KB36. standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm</p> <p>KB37. safety concerns and precautions for working at significant height and with high wind velocities</p> <p>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</p>
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PSS/N0112 Carry out repair and maintenance of Sub-stations, Power Transmission Lines and components

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 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



PSS/N0112 Carry out repair and maintenance of Sub-stations, Power Transmission Lines and components

	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

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/N2001

Use basic health and safety practices for power related work

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.



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	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • 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	<p>The user/individual on the job needs to:</p> <p>PC1. use protective clothing/equipment for specific tasks and work conditions.</p> <p>PC2. state the name and location of people responsible for health and safety in the workplace</p> <p>PC3. state the names and location of documents that refer to health and safety in the workplace</p> <p>PC4. identify job-site hazardous work and state possible causes of risk or accident in the workplace</p> <p>PC5. follow electrical safe working procedures such as Tag out/Lock out and display PTW (Permit To Work),</p> <p>PC6. follow warning signs (danger, out of service, etc.) while working with electrical systems</p> <p>PC7. use standard safe working practices when working at heights, confined areas and trenches</p> <p>PC8. test any electrical equipment and system using insulated testing devices before touching them</p> <p>PC9. ensure positive isolation of electrical equipment & system as per given standards</p> <p>PC10. recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed</p> <p>PC11. carry out safe working practices while dealing with hazards to ensure the safety of self and others</p> <p>PC12. state methods of accident prevention in the work environment of the job role</p> <p>PC13. state location of general health and safety equipment in the workplace</p> <p>PC14. inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder</p> <p>PC15. lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa</p> <p>PC16. inspect Grid station and its equipment routinely for any signs of oil and water leakage</p> <p>PC17. store flammable materials and machine lubricating oil safely and correctly</p> <p>PC18. check that the emission and pollution control devices are working properly in</p>



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

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

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

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



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	

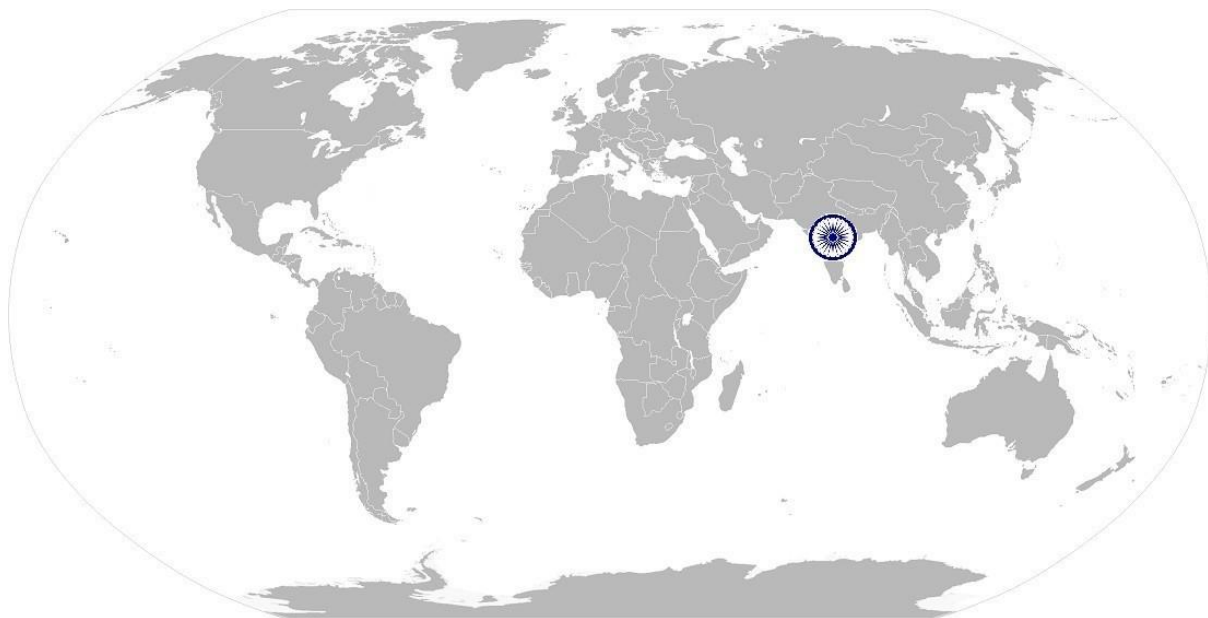


PSS/N2001 Use basic health and safety practices for power related work

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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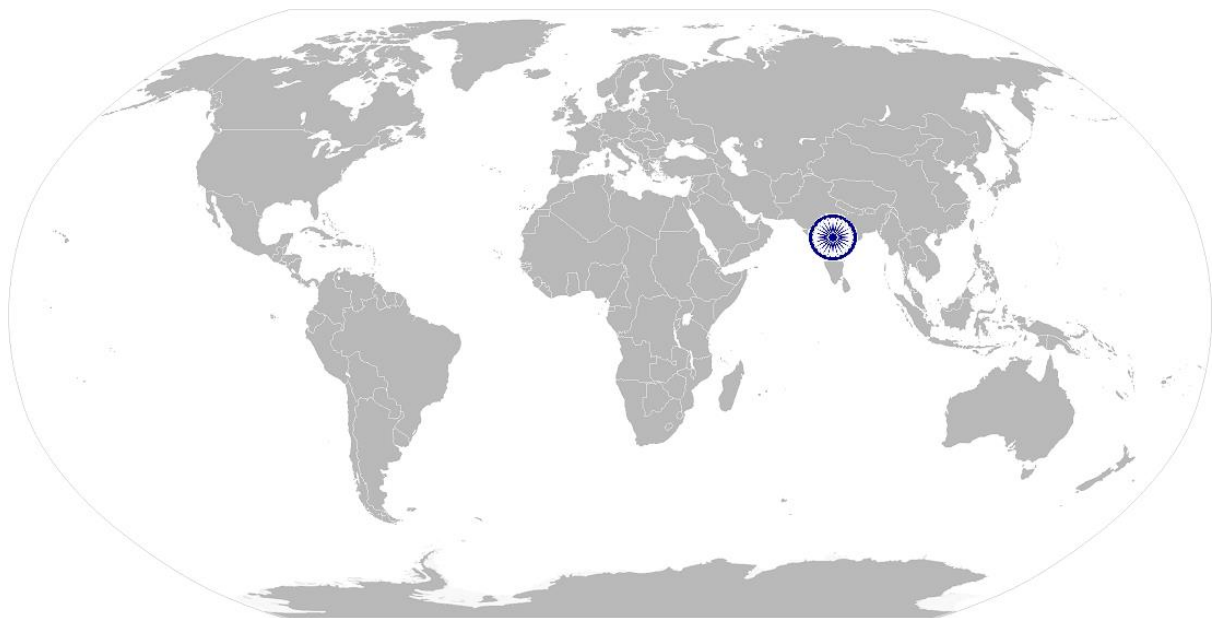
NOS
National Occupational Standards



PSS/N1336

Work effectively with others

National Occupational Standard



Overview

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



PSS/N1336

Work effectively with others

National Occupational Standard	Unit Code	PSS/N1336
	Unit Title (Task)	Work effectively with others
	Description	<p>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.</p> <p>These cover areas such as communication etiquette, discipline, listening, handling conflict and grievances.</p>
	Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> working with others
	Performance Criteria(PC) w.r.t. the Scope	
	Element	Performance Criteria
	Working with others	<p>The user/individual on the job should be able to:</p> <p>PC1. accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required</p> <p>PC2. accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt</p> <p>PC3. give information to others clearly, at a pace and in a manner that helps them to understand</p> <p>PC4. display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible</p> <p>PC5. consult with and assist others to maximize effectiveness and efficiency in carrying out tasks</p> <p>PC6. display appropriate communication etiquette while working .</p> <p>PC7. display active listening skills while interacting with others at work</p> <p>PC8. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism</p> <p>PC9. demonstrate responsible and disciplined behavior at the workplace</p> <p>PC10. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict</p>
	Knowledge and Understanding (K)	
	A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. legislation, standards, policies, and procedures followed in the organisation relevant to own employment and performance conditions</p> <p>KA2. reporting structure, inter-dependent functions, lines and procedures in the work area</p> <p>KA3. relevant people and their responsibilities within the work area</p> <p>KA4. escalation matrix and procedures for reporting work and employment related issues</p>



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B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. various categories of people that one is required to communicate and co-ordinate with in the organization</p> <p>KB2. importance of effective communication in the workplace</p> <p>KB3. importance of teamwork in organizational and individual success</p> <p>KB4. various components of effective communication</p> <p>KB5. key elements of active listening</p> <p>KB6. value and importance of active listening and assertive communication</p> <p>KB7. barriers to effective communication</p> <p>KB8. importance of tone and pitch in effective communication</p> <p>KB9. importance of avoiding casual expletives and unpleasant terms while communicating professional circles</p> <p>KB10. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer</p> <p>KB11. importance of ethics for professional success</p> <p>KB12. importance of discipline for professional success</p> <p>KB13. what constitutes disciplined behavior for a working professional</p> <p>KB14. common reasons for interpersonal conflict</p> <p>KB15. importance of developing effective working relationships for professional success</p> <p>KB16. how to express and address grievances appropriately and effectively</p> <p>KB17. importance and ways of managing interpersonal conflict effectively</p>
Skills (S) (Optional)	
A. Core Skills/ Generic Skills	<p style="background-color: #e1eef6;">Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. note the information communicated by the officer incharge</p> <p>SA2. note down observations (if any) related to the operation/maintenance</p> <p style="background-color: #e1eef6;">Reading Skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. read and interpret the process required for different types of manuals</p> <p>SA4. read and interpret the flowchart of all parts of an assembly</p> <p>SA5. read manuals and documents to understand the product-details & how they can be used</p> <p style="background-color: #e1eef6;">Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. discuss task lists, schedules and activities with the colleague/supervisor</p> <p>SA7. effectively communicate with the team members</p> <p>SA8. attentively listen and comprehend the information given by the colleague/supervisor/contractor</p> <p>SA9. communicate clearly with the colleague on the issues faced during query/fault</p>
B. Professional Skills	<p style="background-color: #e1eef6;">Decision Making</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB11. follow colleague/contractor rule-based decision making process</p>



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	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	

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

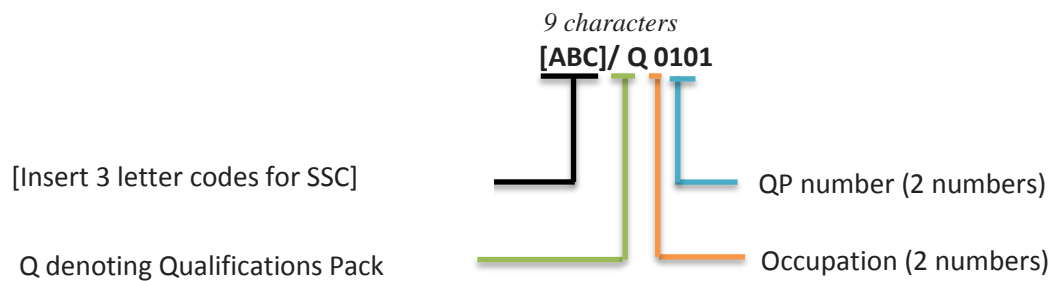
[Back to Top](#)



Annexure

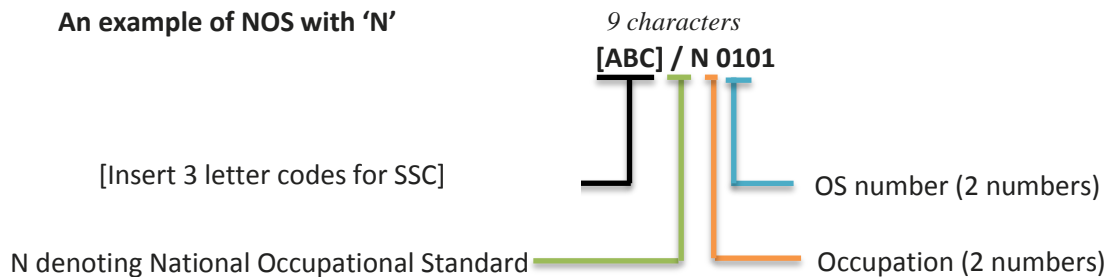
Nomenclature for QP and NOS

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 QP or NOS	N
Next two numbers	Occupation code	01
Next two numbers	OS number	01



CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Power System Technician (Transmission)

Qualification Pack PSS/Q0105

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

Assessable Outcomes	Assessment Criteria for Outcomes	Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
1. PSS/N0112 Carry out 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		3	1	2

	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		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		2	0	2
	PC13. switch off, isolate, discharge and earth (side) line cables		2	0	2
	PC14. perform off-line overhead line maintenance procedure according to job specifications and requirements		2	0	2
	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		2	0	2
	PC17. install components on transmission lines including gang operated air brake switches for transmission lines, controlled		2	0	2



	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		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	31	69
2. 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 workplace and vice versa	2	1	1
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 simulated environments	3	1	2
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



3. 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