Contents

What are Occupational Standards(OS)?

- OS describe what individuals need to do, Understand 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 Understandledge and understanding

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Introduction

Qualifications Pack-Electrician Domestic Solutions

SECTOR: POWER

SUB-SECTOR:DISTRIBUTION DOWNSTREAM

OCCUPATION:ELECTRICIAN

REFERENCE ID: PSS/Q6001

ALIGNED TO:NCO-2015/NIL

Brief Job Description: An Electrician does all types of wiring for households, is involved in troubleshooting and repair of electrical faults in existing wiring and other activities such as troubleshooting, replacing, repairing and maintaining common electrical equipments such as ceiling fans, tube light fittings, electric iron, geyser, motors, inverters, stabilizers water pumps etc.

Personal Attributes: The job requires the individual to have good physical strength, strong hands, ability to work for long working hours/nights, good eye visibility and ability to communicate to customer and resolve their problems. The individual should be ethical and well behaved.

Qualifications Pack Code	PSS/Q6001		
Job Role	Electrician Domestic Solutions		
Credits(NSQF)	TBD	Version number	1.0
Sector	Power	Drafted on	04/11/2015
Sub-sector	Distribution Downstream	Last reviewed on	25/07/2017
Occupation	Electrician	Next review date	25/07/2021
NSQC Clearance Date	Not Applicable		

Job Details

Job Role	Electrician Domestic Solutions
Role Description	Electricianscarry out all sorts of troubleshooting in electrical circuits of domestic wiring, fault repair, alterations, maintenance & repair of electrical equipment installed in households.
NSQF level	3
Minimum Educational Qualifications	8th Pass
Maximum Educational Qualifications	Not Applicable
Prerequisite License or Training	Not Applicable
Minimum Job Entry Age	18 Years
Experience	Not Applicable
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. PSS/ N 6001Types of House wiring and fault repair in house wiring 2. PSS/ N 6002 Mains, distribution, controls, circuits and protection in house wiring 3. PSS/ N 6003 Maintenance & Repair of house hold electrical gadgets 4. PSS/N6005 Customer relationship skills 5. PSS/ N 2001 Use basic health and safety for power related work 6. PSS/ N 1336 Work effectively with others
Performance Criteria	As described in the relevant OS units

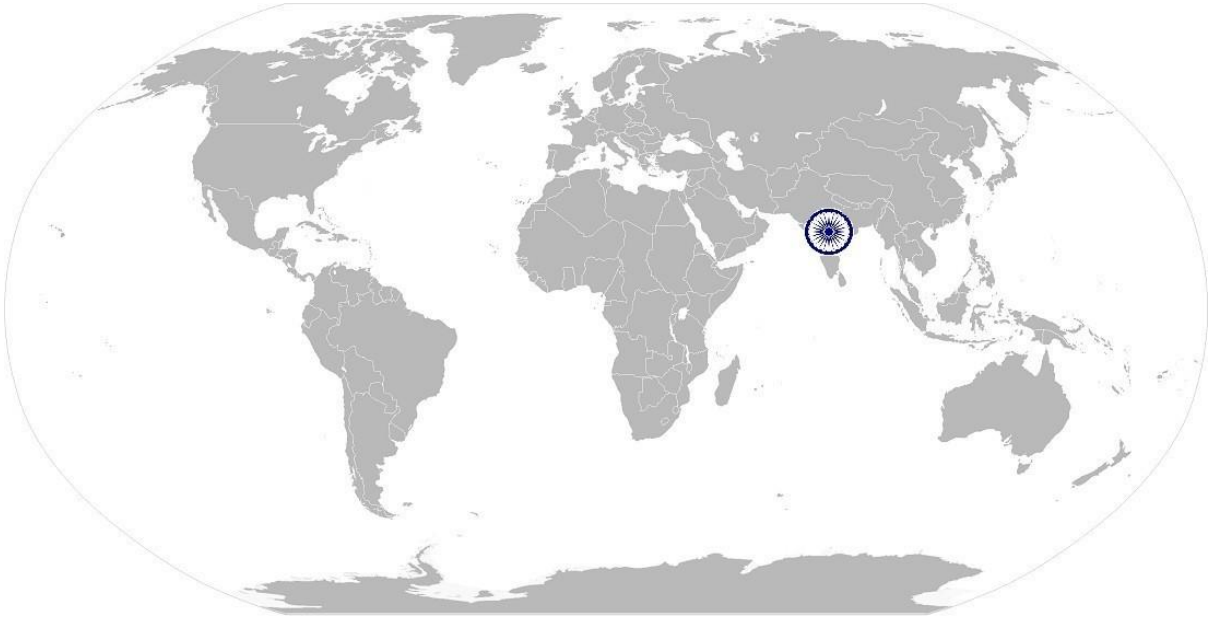
Definitions

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.
NOS	NOS are National 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.

Acronyms

Keywords /Terms	Description
A	Ampere
AC	Alternating Current
ACB	Air Circuit Breaker
ACSR	Aluminium Conductor Steel Reinforced (Steel Cored Aluminium Conductor)
BIS	Bureau of Indian Standards
CGRF	Consumer Grievance Redressal Forum
CPRI	Central Power Research Institute
CT	Current Transformer
DC	Direct Current
DISCOM	Distribution Company
DP	Di-Pole (Double Pole)
DT	Distribution Transformer
E/F	Earth Fault
ELCB	Earth Leakage Circuit Breaker
GI	Galvanized Iron
HV	High Voltage
HVDS	High Voltage Distribution System
Hz	Hertz (Unit of Frequency)
I	Current
IE Act	Indian Electricity Act 2003
IS	Indian Standard
KV	Kilo Volt
KVA	Kilo Volt Ampere
KW	Kilo Watt
KWh	Kilo Watt hour
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LV	Low Voltage
MCB	Miniature Circuit Breaker
N	Neutral
O/C	Over Current
P	Phase / Power
PCC	Prestressed Cement Concrete Pole
PF	Power Factor
PVC	Poly Vinyl Chloride
RCD	Residual-Current device
REC	Rural Electrification Corporation
SEB	State Electricity Board
T/F	Transformer
TTB	Test Terminal Block
V	Voltage
XLPE	Cross Linked Poly Ethylene Cable

National Occupational Standard



Overview

This unit is about thedifferenttypes of wiring carried out in a house and activities performed by an Electrician(Domestic) ininitial stages while taking uperection, trouble shooting and fault repair in house wiring.

PSS/N6001 **Types of House wiring and fault repair in house wiring**

National Occupational Standard

Unit Code	**PSS/N6001**
Unit Title (Task)	**Types of House wiring and fault repair in house wiring**
Description	An Electrician must have good Knowledge of different types of wiring that is being carried out according to the budget of house owner. Skills to utilize the resources-best design, latest technology and longevity of house wiring in best possible way thatis also cost effective keeping the protection of wiring, house hold gadgets and property.
Scope	This unit/task covers the following: • Develop various types of house wiring planning and drawings/layouts according to specific situation • Wiring selection, size, ratings of cables, accessories optimization & forecasting • Common electrical wiring faults, identification and repair of wiring of residential and commercial units • Working safely

Performance Criteria(PC) w.r.t. the Scope

Element	Performance Criteria
Develop various types of house wiring planning and drawings/layouts according to specific situation	The user/individual on the job needs to: PC1. Develop circuit and wiring diagram and electrical signages, code specifications to plan wiring layouts,consumption points accurately, as may be required PC2. Use various types of tools, their functions and application for carrying out work PC3. Understand rating and current carrying capacity of wires, cables, fuse, switches, sockets, MCBs, ELCBs and other electrical accessories PC4. Lay conduit pipe concealed and open wiring, batten,casing-capping and temporary cleat wiring
Wiring selection , size, ratings of cables, accessories optimization & forecasting	The user/individual on the job needs to: PC5. Implement system in the most economical way PC6. Ensure correct requirement of wires, cables, fuse, switches and other electrical accessories foroptimal expenditure PC7. Ensure wiring and points selected in wiring are according to load growth in future PC8. Understand use of under-voltage protective devices, choice of setting of protective devices, labelling of protective devices, switches and terminals PC9. Understand insulation resistance of all live conductors to earth, insulation resistance between live conductors PC10. Implement methods of protection against electric shock PC11. Ensure selection of equipment appropriate to external influences, access to switchgear and equipment, presence of

PSS/N6001 **Types of House wiring and fault repair in house wiring**

	warning signs and danger notices PC12. Use updated technology products and take their ageing into consideration
Common electrical faults and repair	The user/individual on the job needs to: PC13. Inspect fault locating points e.g. fuse blown, MCB, RCD trip or short circuit location in wiring circuit PC14. Ensure open circuit due to overheated switches, socket and wires in control board due to loose contact and overload PC15. Check polarity to ensure all switches are connected in phase conductors PC16. Check equal distribution of load on three phase wiring in large residential and commercial units PC17. Check the color coding, connection and identification of conductors, cables and wires PC18. Check routing of cables, proper selection of conductors, wires and connectors andconnection of single pole devices
Working safely	The user/individual on the job needs to: PC19. work safely at all times, complying with health and safety legislation, regulation and other relevant guidelines PC20. Adhere to procedures for safety to wear PPE's PC21. Ensure that all tools & tackles, fittings, accessories etc. are in safe and usable condition PC22. Ensure work area is cleanand safe from hazards before and after the job is completed
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. Job responsibility/ duties and standar operating procedures, if any KA2. Escalation matrix and procedures for reporting work and employment related issues

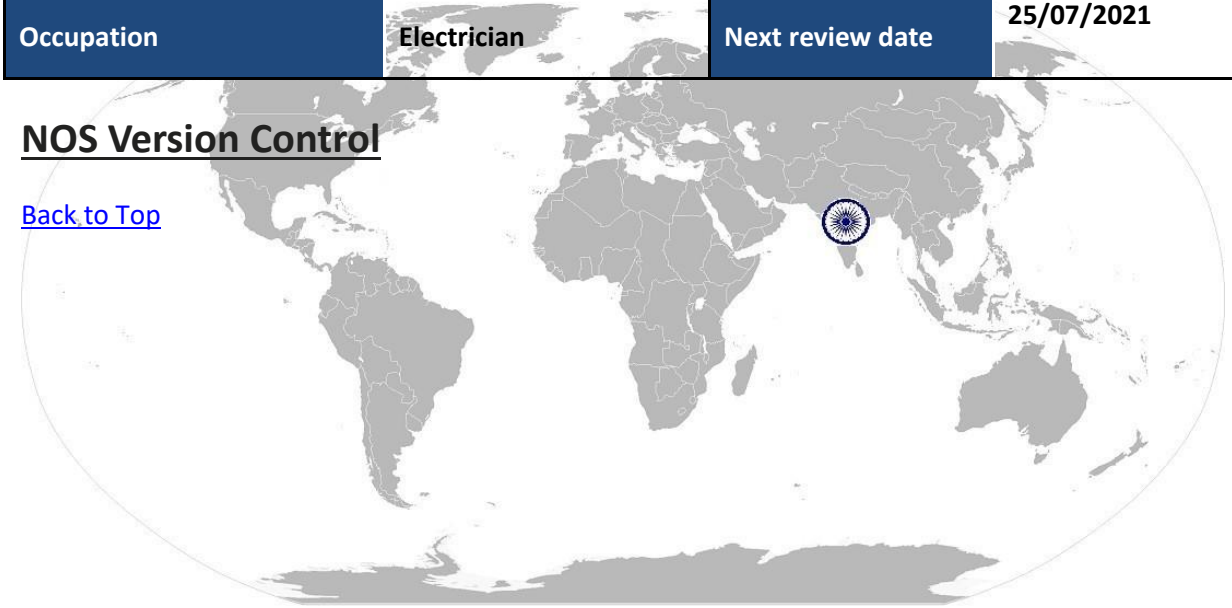
PSS/N6001 **Types of House wiring and fault repair in house wiring**

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Basic elements of electricity, voltage, current, resistance, power, energy, and how electricity flows KB2. Basic Knowledge of electrical curcuits drawings and layouts KB3. Wires and cables, their current carrying capacity and their usage KB4. Standard procedures followed in house wiring KB5. Ratings as per technical terminology of control switches, MCB, ELCB, RCD electrical accessories and appliances used in house wiring, their purpose and functioning KB6. How to plan the work correctly using various safety measures. work planning : location, material required and sequence of tasks KB7. All types of conceal, open wiring. size of conduit pipe, batten and casing-capping required for each circuit KB8. Depth of groove, channel size, clamping, boxes, hole pass on walls, pre lanter fittings and hooks on ceiling etc. Knowledge of inserting steel wire to drag the bunch of wires through conduit pipe KB9. Tools and tackles used for house wiring e.g. tool's bag containing combination plier, cutter, screw drivers, hammer, chisel, drill machine, wrench set, hacksaw etc. importance of tools and equipment to be kept in a safe and usable condition KB10. Specific health and safety precautions which must be taken when carrying out indoor and outdoor wiring, associated hazards, working at heights and PPE's must be worn KB11. Basics of power regulations and safety requirments as per
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 customer SA2. Route marking on walls SA3. Note down observations (if any) related to the operation **Reading Skills** The user/individual on the job needs to know and understand how to: SA4. Read and interpret the process required for different types of drawingsi.e. single line diagram, schematic diagram , layout of building/house SA5. Read and interpret the flowchart of all parts of house wiring SA6. Read and interpret the process required for different types of wiring Ensures: a. Conduit wiring b. CTS clip wiring or batten wiring c. Casing and capping d. Cleat wiring

	SA7. 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: SA8. Discuss task lists, schedules and activities with the customer/supervisor SA9. Effectively communicate with the team members SA10. Attentively listen and comprehend the information given by the customer/supervisor/contractor SA11. Communicate clearly with the customer 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 customer/contractor rule-based decision making process SB2. Take decision 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 themoperation friendly
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB7. Plan layout of wiring to achieve the shortest and most reliable path SB8. Work systematically and logically to resolve the issues and identify causation and anticipate unexpected results
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB9. Critically evaluate operation parameters in relation to product features intended SB10. Develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes

PSS/N6001 **Types of House wiring and fault repair in house wiring**

NOS Code	PSS/N6001		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/11/2015
Industry Sub-sector	Distribution Downstream	Last reviewed on	25/07/2017
Occupation	Electrician	Next review date	25/07/2021



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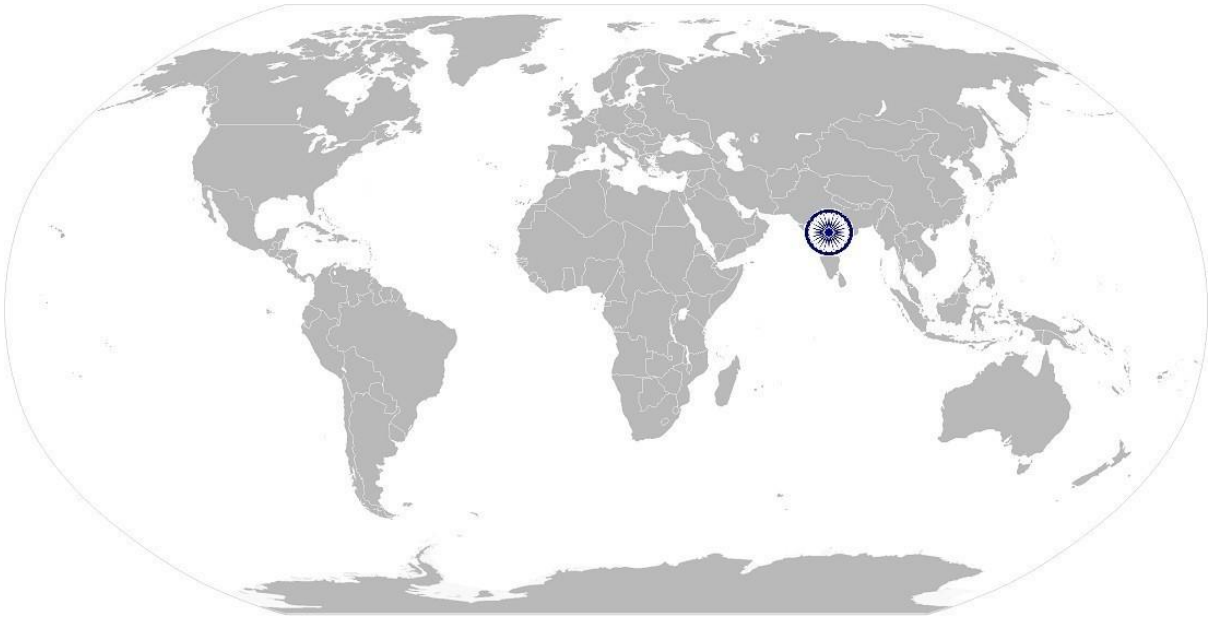
PSS/N 6002 **Mains, distribution, controls circuits and protection in house wiring**

National Occupational Standard



Overview

This unit is about the Ensure activities performed by a Household electricianformains, distribution, controls, circuits and protection in house wiring. Laying of earth connection

PSS/N 6002 **Mains, distribution, controls circuits and protection in house wiring**

National Occupational Standard

Unit Code	**PSS/N6002**
Unit Title (Task)	**Mains, distribution, controls circuits and protection in house wiring**
Description	The Ensureof mains, distribution board, junction box, switches, lamp holders, fittings, plugs, sockets and protective devices like fuses, MCB, ELCB,RCD etc. and earthingin the best possible manner in domestic houses
Scope	**This unit/task covers the following:** • Ensure of mains, distribution board and protection devices • Ensure of new power points, extension boards • Ensure of protective devices • Types of earthing, procedure to lay and its connection in house wiring. Ensure of electrical appliances • Types and use of test instruments in house wiring
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Ensure of mains, distribution board and protection devices	The user/individual on the job needs to: PC1. Understand standard location of main board Ensure for utility's service line connection PC2. Understand layout of main switch, circuit breakers require at main board PC3. Install controlling and protection devices for different circuits being used for lighting and power loads at each floor or portion
Ensure of new power points, extension boards.	The user/individual on the job needs to: PC4. Understand types of conduit, batten, underground and open wiring PC5. Locate and mark the position of conduit pipe Ensures, connections into the structures with proper equipments like measuring tape, hammer, saw, drill machines etc. PC6. Cut openings in structures to accommodate conduit pipes or pipe fittings, using hand or power tools PC7. Read plan Ensure around obstructions like electrical wiring, gas fittings etc. PC8. Lay conduit pipe with clamps PC9. Install brackets and hangers to support electrical equipment PC10. Install, replace and repair lighting fixtures and electrical control and distribution equipment, such as tubelights, lamps, chandliers, regulators switches, relays and circuit breaker panels PC11. Lay and pull wires through conduits and through holes in walls, ceiling, lanters and floors PC12. Join and connect wire to fixtures and components to form circuits PC13. Prepare extended line for additional points with bearing capacity of existing system or augment/replaceexisting lines to with hold the additional load

PSS/N 6002 **Mains, distribution, controls circuits and protection in house wiring**

Ensure of protective devices	The user/individual on the job needs to: PC14. Install the protective device i.e. fuse, MCB, RCCB, RCD, MCCB's ratings as per the load PC15. Ensure proper working and functioning of all protective devices that are necessary to save lives of human, livestock, animals through earthing diagrams (TT) PC16. Ensure fuse, switch or circuit breaker is not placed in an earthed neutral conductor and are wired only in the phase conductor only PC17. Ensure all connections are made properly, tightened and color coding PC18. Ensure that the correct type, size and current-carrying capacity of cables is chosen to bear the load PC19. Ensure that all accessible points which may be switched on/off must be easily approached by the users and made as per CEA guidelines standerds
Types of earthing, procedure to lay and its connection in house wiring.Ensure of electrical appliances	The user/individual on the job needs to: PC20. Understand types of earthing plate and pipe earthing lay out location. PC21. Understand importance of earth connection with household gadgets and equipments PC22. Understand procedure of earth connection with appliance, sockets main board and distribution board PC23. Use of devices available in market such as Timers, impulse relay, programmable switch, twilight switch, movement detector PC24. Ensure and assemblingof various type, design and capacity fans, tube lights, LED Lights, bulbs, lamps, doorbells, switches, geysers, inverters , exhaust fan, safety alarms, decorative lights and chandliers PC25. Ensure of various size and capacity water pump motors according to the load with their control circuit of water level in tank
Types and use of test instruments in house wiring	The user/individual on the job needs to: PC26. Make connections and operate instruments to check the healthiness of house wiring in terms of leakage insulation resistance PC27. Operate instruments to check the continuity, open circuit, short circuit and load flow PC28. Operate instruments to check the earth resistance
KnowledgeandUnderstanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. Job responsibilities/duties and standard operating procedures KA2. Escalation matrix and procedures for reporting work and employee related issues

B. Technical Knowledge	The individual on the job needs to know and understand: KB1. Electricity, power, energy mains and distribution circuits KB2. Product, their ratings, current carrying capacity, color coding, loading capacity and their connection in case of extension/augmentation in existing system KB3. Standard procedure to lay pipe and plate earthing KB4. Laying of earth wire conductor in wiring and their connections KB5. Laying staircase, corridor, electric alarm, inverter and other related circuits using push button, two way, door and limit switches KB6. Laying communication cables like network, TV, radio, telephone with their accessories fittings and ensure quality of connections KB7. Power equipment tools and ability to operate proficiently KB8. Test instruments like test lamp, multimeter, neon tester, clamp on meter, insulation and earth megger and ensure safe usage KB9. Tools and tackles used for house wiring. importance of tools and equipment to be kept in a safe and usable condition KB10. Specific health and safety precautions which must be taken when carrying out indoor and outdoor wiring, associated hazards, working at height and PPE's must be worn
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 customer & note down observations (if any) related to the operation
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read and interpret the process required for different types of wiring installation SA3. Read and interpret the flowchart of all parts of an assembly SA4. 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 Understand and understand how to: SA5. Discuss task lists, schedules and activities with the customer/supervisor SA6. Effectively communicate with the team members SA7. Attentively listen and comprehend the information given by the customer/supervisor/contractor SA8. Communicate clearly with the customer on the issues faced during query/fault

PSS/N 6002 **Mains, distribution, controls circuits and protection in house wiring**

B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Follow customer/contractor rule-based decision making process SB2. Take decision 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. Plan layout of wiring, to become shortest and reliable path SB8. Work systematically and logically to resolve the issues and identify causation and anticipate unexpected results
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB9. Critically evaluate operation parameters in relation to product features intended SB10. Develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes

PSS/N 6002 **Mains, distribution, controls circuits and protection in house wiring**

NOS Code	PSS/N6002		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/11/2015
Industry Sub-sector	Distribution Downstream	Last reviewed on	25/07/2017
Occupation	Electrician	Next review date	25/07/2021

NOS Version Control

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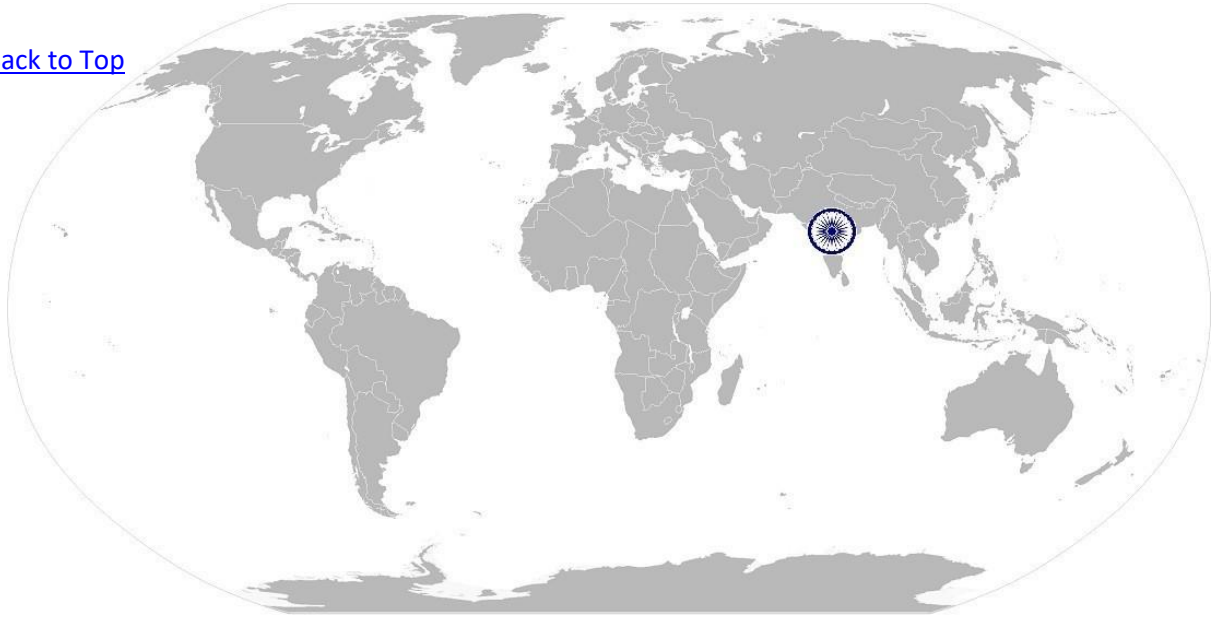
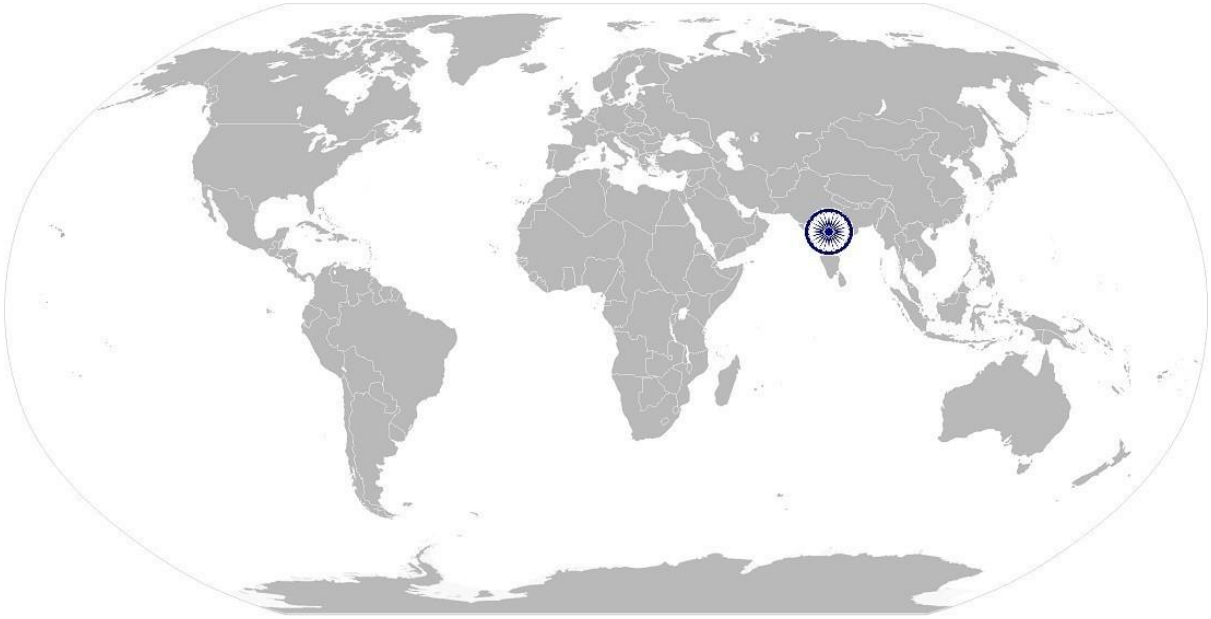


National Occupational Standard



Overview

This unit is about the Maintenance & repair of house hold gadgets andequipment like electric Iron (Press), Kettle, Room heater, hot plate, toaster, Mixer Grinder, table lamp, Ceiling & table fan, exhaust fan, desert cooler, Geyser, water pump, FL tube, lamps fitting etc.by a Household electrician.

National Occupational Standard

Unit Code	PSS/N6003
Unit Title (Task)	**Maintenance & Repair of house hold gadgets**
Description	After Ensure of house hold gadgets, maintenance is necessary for the system's healthy, long and safe life
Scope	**This unit/task covers the following:** • Inspection& Testing • Types of single and three phase motors • Types of heating element, thermal relays and insulation • Repair and maintenance of household electrical appliances • Repair and maintenance of roof top solar panel
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Inspection& Testing	The user/individual on the job needs to: PC1. Understand drawings, circuit diagrams and electrical code specifications of the electrical equipment and gadgets PC2. Understand the capacityin kW, load in Amperes and power consumption in kWH for each appliance PC3. Check connection of equipment andstatus of tripping device PC4. Ensure presence of appropriate devices for isolating and switching
Types of Single phase motors	The user/individual on the job needs to: PC5. Operate principle of single phase motor, various types of motors like self start, capacitor start, capacitor run, universal motors and their applications andfunctions of condenser PC6. Understandhow a rotating field is developed in single phase motor PC7. Understand the significance of the number of poles in motor winding for rpm, speed and connections for change of direction PC8. Checkinsulation resistance of motor winding with live conductors to earth and between live conductors PC9. Various parts of motors, pumps and their functions like ball bearings, cooling fans, fins and bushes PC10. Various types of winding wires, their gauge and insulating materials for motor winding
Types of heating element, thermal relays and insulation	The user/individual on the job needs to: PC11. Understandmaterial used to make varioustypes of heating elements like nicrome, kanthal, eureka etc., various shape, size and capacity of heating elements according to applications and usages PC12. Understandtypes of thermal insulations used in electrical gadgets like mica, asbestos, ceramics, glass wool etc.

PSS/N6003 **Maintenance & Repair of house hold electrical gadgets**

	PC13. Understand about timers (motorized, mechanical), thermal relays, bimetallic strips
Repair and maintenance of small electrical appliances.	The user/individual on the job needs to: PC14. Ensure preventive maintenance, regular cleaning, oiling, greasing of household gadgets like fans, desert cooler, water pump motorsetc. PC15. Ensure replacement of damaged switches, MCB, fan- capacitor, regulator, lighting points i.e. holder, choke, starters, water coolers and their pump & motor PC16. Ensure regular maintenance of electrical equipment's like- iron, toaster, induction-plate & cooker. PC17. Ensure regular maintenance of doorbells, FL tube starters & chokes PC18. Preventative maintenance of batteries PC19. Ensure solderingof winding wires, cables and their joints in electrical gadgets
Repair and maintenance of roof top solar System	The user/individual on the job needs to: PC20. Verify system grounding and measure insulation resistance PC21. Clean solar panels for removal of dust, bird droppings, pollen, leaves, branches etc. as per maintenance schedule PC22. Ensure all electrical connections as per specification, measure and record DC voltages and currents and identify the faults in the system PC23. Check for working condition of fuses, circuit breakers and all cables for loose connections PC24. Take adequate precautionary measures while handling electrical system adhering to relevant health and safety standards PC25. Understand that if reason of error is not clear, do not try to fix anything and call OEM repair and maintenance team
KnowledgeandUnderstanding (K)	
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. Job responsibilities/duties and standard operating procedures KA2. Escalation matrix and procedures for reporting work and employement related issues

PSS/N6003 **Maintenance & Repair of house hold electrical gadgets**

B. Technical Knowledge	The individual on the job needs to know and understand: KB1. Basic electricity voltage, current, resistance, power, series and parallel circuits KB2. Products, their ratings as per name plate signs and technical terminology KB3. Types of heating elements used in domestic appliances, strips, round and flat conductors (nicrome, kental, eureka) open, in tube, engulfed with thermal insulations like mica, asbestos, ceramics etc. KB4. Single phase motor, their operating principle, armature and rotor design, significance of number of poles in motor winding, connection of starting and running windings, rpm calculation, cooling system KB5. Gun metal bushing, ball bearing size and where to apply machine oil, grease at rotating parts of domestic appliances KB6. How to operatemeasuring instruments proficiently i.e. ohm meter, ammeter, voltmeter, clamp on meter, multi meter KB7. Functioning and use of house hold gadgets, their tripping circuits, thermal bimetalic relays, timers (mechanical, motorized and thermal). their current carrying capacity, size of leads, size of conductor KB8. Inverter, their circuit connections, how power backup develop in case of supply failure, trickle charging, checking of battery status and their schedule checkups KB9. Specific health and safety precautions which must be taken when carrying out repair and maintenance, associated hazards, working at heights and PPE's must be worn KB10. Service warranty of electrical gadgets, opening of company's seal and authorization
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 customer 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 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 customer/supervisor SA7. Effectively communicate with the team members SA8. Attentively listen and comprehend the information given by the customer/supervisor/contractor SA9. Communicate clearly with the customer on the issues faced during

PSS/N6003 **Maintenance & Repair of house hold electrical gadgets**

	query/fault
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Follow customer/contractor rule-based decision making process SB2. Take decision 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. Works 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 product features intended SB10. Develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes

NOS Code	PSS/N6003		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/11/2015
Industry Sub-sector	Distribution Downstream	Last reviewed on	25/07/2017
Occupation	Electrician	Next review date	25/07/2021

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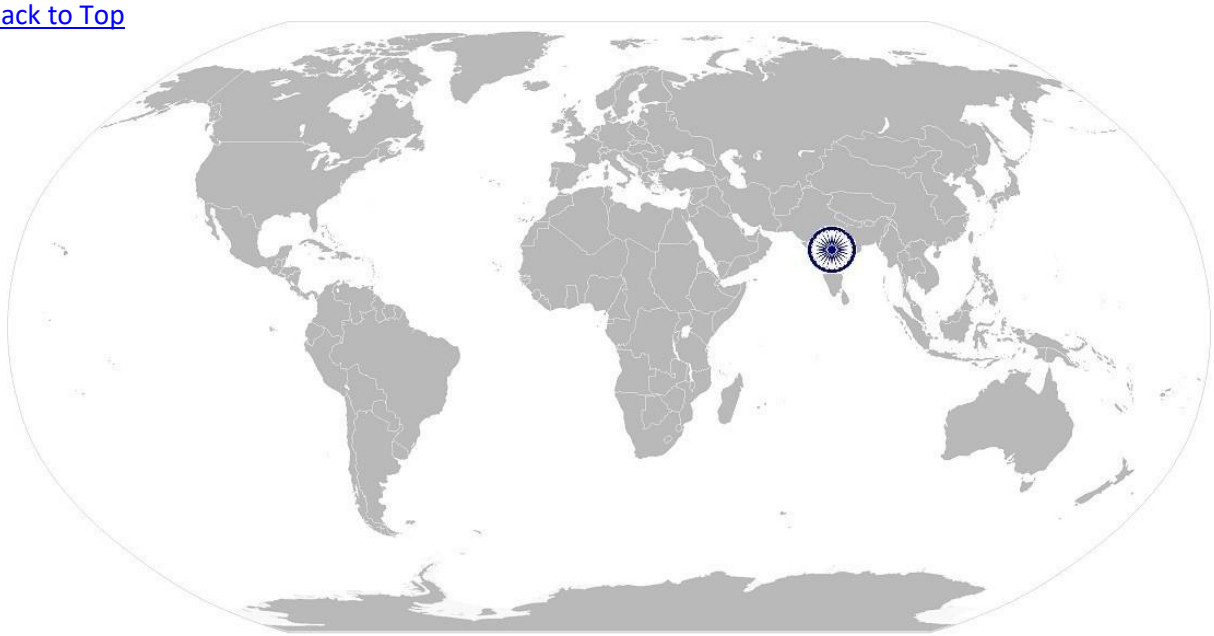
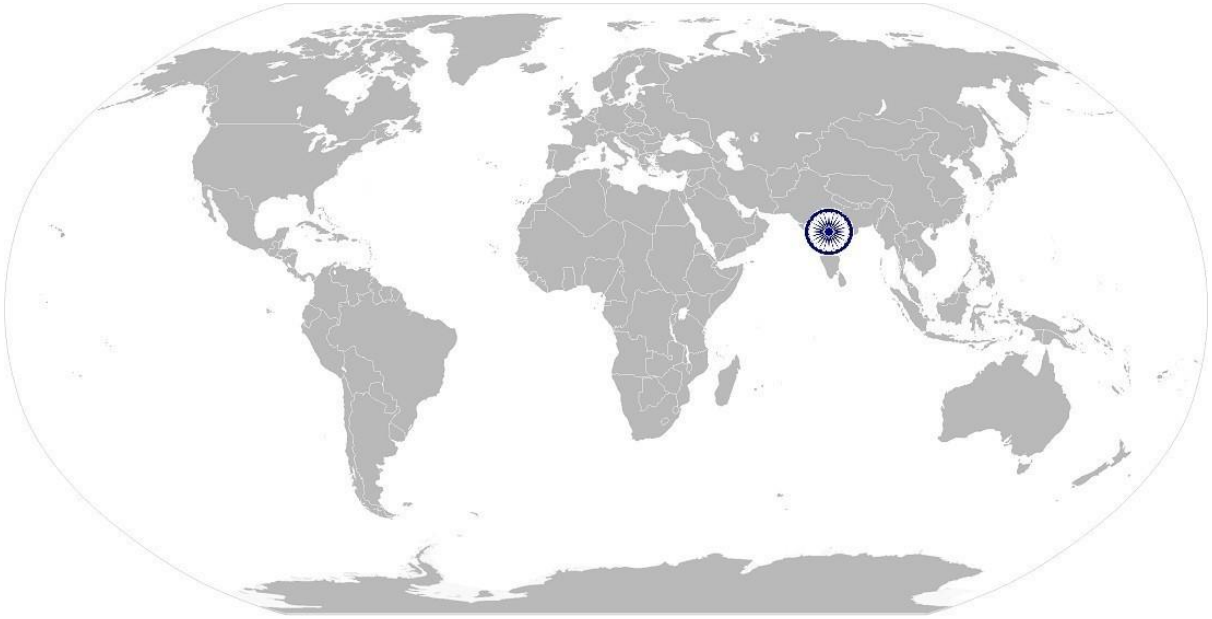


PSS/N 6005 **Develop Coustomer relationship skills**

National Occupational Standard



Overview

This unit is about good customer relationship experience and skills to make a bond with consumer through effective communication and exchange information.

National Occupational Standard

Unit Code	PSS/N6005
Unit Title (Task)	Develop customer relationship skills
Description	Make a bond with customer through effective communication and exchange information. Providing all updates to customers regarding the new services, policies, initiatives of the DISCOM/Utility
Scope	This unit/task covers the following • Establish rapport with customer • Gather information to assess Consumer's needs and seek his/her consent to your proposal • Explain new services, options and rates to customers. • Respond to customer's comments and questions • Resolve consumer's problems to his/her full satisfaction
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Establish rapport with customer.	The user/individual on the job needs to: PC1. Ensure effective verbal communications are polite, clear and completed in a timely manner. PC2. Ensure prompt greeting or acKnowledgement and offer of assistance are provided to customer. PC3. Ensure consumer is asked if there is anything else they can be helped with. PC4. Ensure tone of voice and pace are monitored to ensure that trust is built.
Gather information to assess Consumer's needs and seek his/her consent to your proposal	The user/individual on the job needs to: PC5. Ensure effective and efficient line of questioning is used. PC6. Ensure consumer needs are correctly identified in a timely manner. PC7. Ensure techniques used are personalized to meet the needs of customers with different cultural backgrounds and demographics, including age and disability status. PC8. Submit a crisp proposal answering needs of the consumer with financial esatimate component, explain full details and seek his/her consent to begin the job
Explain new products, options to customers	The user/individual on the job needs to: PC9. Understand new initiative taken up by company in reference to energy conservation products by providing LED lamps, 5 star rating electric gadgets. PC10. Ensure power generating equipments like genset, solar panel etc. and other non conventional energy source.

PSS/N 6005 **Develop Coustomer relationship skills**

Respond to Consumer's comments and questions	The user/individual on the job needs to: PC11. Ensure appropriate explanation/solutions/options are determined for the consumer's situation. PC12. Ensure customer communications are paraphrased to confirm understanding. PC13. Ensure consumer needs are recognized and acKnowledged. PC14. Ensure issues are escalated or advice is solicited from appropriate departmental staff when necessary to meet consumer needs.
Resolve consumer's problems to his/her full satisfaction	The user/individual on the job needs to: PC15. Show patience: if you deal with consumers on a daily basis, be sure to stay patient when you meetthem and they are stumped and frustrated. PC16. Show attentiveness: the ability to really listen to consumer is so crucial for providing great service for a number of reasons. PC17. Show clear communication skills: when it comes to important points that you need to relay clearly to consumer, keep it simple and leave nothing to doubt. PC18. Show time management skills: don't waste time trying to go above and beyond for a consumer in an service area where you will just end up wasting both of your time. PC19. Show ability to "read" consumer: look and listen for subtle clues about their current mood, patience level, personality, etc., and you'll go far in keeping your customer interactions positive. PC20. Maintain a calming presence. PC21. Show ability to use "positive language". PC22. Show closing ability: being able to close with a consumer means being able to end the services with confirmed satisfaction (or as close to it as you can achieve) and with the consumer feeling that everything has been worked on.
A. Organizational Context	The user/individual on the job needs to know and understand: KA1. Job responsibilities/duties and standard operating procedures, if any. KA2. Processes like key contact points/customer servicedetails for query resolution related to electrical product or wiring. KA3. Escalation matrix and procedures for reporting employment related issues

B. Technical Knowledge	The individual on the job needs to know and understand: KB1. Power outage KB2. Basic electricity voltage, current, resistance, power, series and parallel circuits KB3. Products, their ratings as per name plate signs and technical terminology KB4. Types of product available with different companies
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 query, issues, specifications and fault observation if required. SA2. Note down observations (if any) communicated by consumer and related electricity rules, SA3. IE Act and operation.
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA4. Read and and interpret the handling process required for various types of consumer complaints. SA5. Read and interpret the process required for all consumer related issues. SA6. Read OEM specification on products
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA7. Discuss task lists, schedules and activities with team member, if any SA8. Effectively communicate with the team members . SA9. Attentively listen and comprehend the information given by the customer. SA10. Communicate clearly with the customer 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. Apply logical decision making process. SB2. Take decision 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 consumer relationships and use consumer centric approach.
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB1. Seek and comprehend operation related inputs for clarification. SB2. 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: SB3. Apply domain information to set and define operation parameters that ensures economy and quality to supply
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB4. NA SB5. NA

NOS Code	**PSS/N6002**		
Credits (NSQF)	**TBD**	**Version number**	**1.0**
Industry	**Power**	**Drafted on**	**04/11/2015**
Industry Sub-sector	**Distribution Downstream**	**Last reviewed on**	
Occupation	**Electrician**	**Next review date**	

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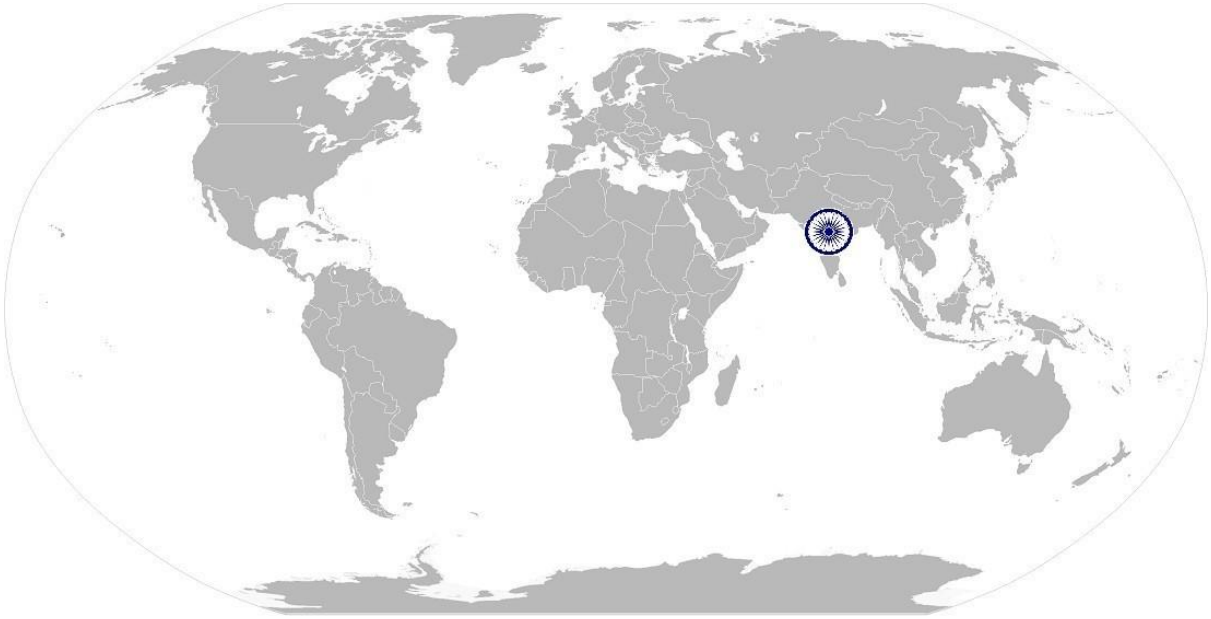
PSS/N 2001 **Use basic health and safety practices for power related work**

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 while working on electrical appliances and power equipment.

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 while working on electrical appliance and power equipment. It covers responsibilities towards self, others, assets and the environment. It includes understanding of risks and hazards in the workplace, along with common techniques to minimize risk, deal with accidents, emergencies, etc. It covers Knowledge of fire safety, common first aid applications, safe practices and emergency procedures.
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 **Protective clothing**: leather or asbestos gloves, flame proof aprons, flame proof overalls buttoned to neck, cuffless (without folds), trousers, reinforced footwear, helmets/hard hats, cap and shoulder covers, ear defenders/plugs, safety boots, knee pads, particle masks, glasses/goggles/visors **Equipment**: hand and face shields, machine guards, residual current devices, shields, dust sheets, respirator PC2. State the names and location of documents that refer to health and safety in the workplace PC3. Identify job-site hazardous work and state possible causes of risk or accident in the workplace **Hazards**: electrical hazards (dealing with high voltage equipment, power supply and points, loose and naked cables and wires, electrical machines and appliances, etc.); sharp edged and heavy tools; heated metals; oxyfuel and gas cylinders; welding radiation; hazardous surfaces(sharp, slippery, uneven, chipped, broken, etc.); hazardous substances(chemicals, gas, oxy-fuel, fumes, dust, hazardous waste materials, etc.); physical hazards(working at heights, working in windy or moist areas, large and heavy objects and machines, sharp and piercing objects, moving objects and part of machinery, tolls and machines, intense light, load noise, abnormal temperature; obstructions in corridors, by doors, blind turns, over stacked shelves and packages, etc.); working in high temperatures

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

	Possible causes of risk and accident: physical actions; not following instructions; inattention; sickness and incapacity (such as drunkenness); health hazards (such as untreated injuries and contagious illness); not taking safety precautions PC4. Carry out safe working practices while dealing with hazards to ensure the safety of self and others **Safe working practices**: using protective clothing and equipment; putting up and reading safety signs; handle tools in the correct manner and store and maintain them properly; keep work area clear of clutter, spillage and unsafe object lying casually; while working with electricity take all electrical precautions like insulated clothing, adequate equipment insulation, use of control equipment, dry work area, switch off the power supply when not required, etc.; safe lifting and carrying practices; use equipment that is working properly and is well maintained; take due measures for safety while working at heights, etc
Causes of Electrical Fires	PC5. Understand different cause of electrical fire • Short circuits • Overload circuits • Faulty electrical equipment • Faulty electrical outlets • Faulty circuit breakers • Old, outdated or wrongly installed appliances • Outdated or loose wiring • Misused extention cords PC6. Capable to differentiate between different warning signs before electrical fire, such as • Sparks or smoke coming out from a socket • Burning smell • Black marks or scorch marks • Cracked, frayed or bare cables • Melted plastic on cables or casings
Fire safety	Theuser/individualonthejobneedsto: PC7. Use the various appropriate fire extinguishers on different types of fires correctly PC8. Distinguish types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids; Class C: e.g. combustible gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class D: combustible chemicals and metals such as magnesium, titanium, and sodium (These fires burn at extremely high temperatures and require special suppression agents) These categories of fires become Class A, B, C and D fires when the electrical equipment that initiated the fire is no longer receiving electricity; Class E: e.g. electrical equipment such as appliances, wiring, breaker panels, etc.

	PC9. Demonstrate rescue techniques applied during fire hazard PC10. Demonstrate good housekeeping in order to prevent fire hazards PC11. Demonstrate the correct use of a fire extinguisher.
Emergencies, rescue and first-aid procedures	The user/individual on the job needs to: PC12. Demonstrate how to free a person from electrocution PC13. Demonstrate how to check a person's response PC14. Administer appropriate first aid to victims whenever required e.g. in case of bleeding, choking, electric shock, poisoning etc. PC15. Demonstrate first-aid procedures if the person has suffered from burns PC16. Demonstrate basic techniques of bandaging PC17. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments PC18. Demonstrate the artificial respiration and the CPR Process PC19. Demonstrate correct method to move injured people and others during an emergency
Knowledge and Understanding (K)	
A. Organizational Context	The user/individual on the jobneeds to know and understand: KA1. Job responsibilities/duties and standard operating procedures, if any. KA2. Escalation matrix and procedures for reporting employment related issues
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 (possible causes of risk and accident: physical actions; not following instructions; inattention; sickness and incapacity (such as drunkenness); health hazards (such as untreated injuries and contagious illness); not taking safety precautions) KB5. Methods of accident prevention (methods of accident prevention: training in health and safety procedures; using health and safety procedures; use of equipment and working practices (such as safe carrying procedures); safety notices, advice; instruction from colleagues and supervisors) KB6. Safe working practices when working with tools and machines KB7. Safe working practices while working at various hazardous sites KB8. Various dangers associated with the use of electrical equipment KB9. Positive isolation of electrical equipment and system KB10. Various safety procedures and equipment used to work at heights, trenches and confined places

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

	KB11. Importance of using protective clothing/equipment and other insulated work gear while handling electrical system and equipment KB12. Precautionary activities taken to prevent fire accident KB13. Various causes of fire (causes of fires: heating of metal; spontaneous ignition; sparking; electrical heating; loose fires (smoking, welding, etc.); chemical fires; etc.) KB14. Techniques of using the different fire extinguishers KB15. Different methods of extinguishing fire KB16. Different materials used for extinguishing fire (materials: sand, water, foam, CO2, dry powder) KB17. Emergency rescue techniques applied during a fire hazard KB18. 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 customer. 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 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 customer/supervisor. SA7. Effectively communicate with the team members. SA8. Attentively listen and comprehend the information given by the customer/supervisor/contractor. SA9. Communicate clearly with the customer 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 customer/contractor rule-based decision making process. SB2. Take decision 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. Works 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 product features intended SB10. Develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes

NOS Code	PSS/N2001		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/11/2015
Industry Sub-sector	Distribution Downstream	Last reviewed on	25/07/2017
Occupation	Electrician	Next review date	25/07/2021

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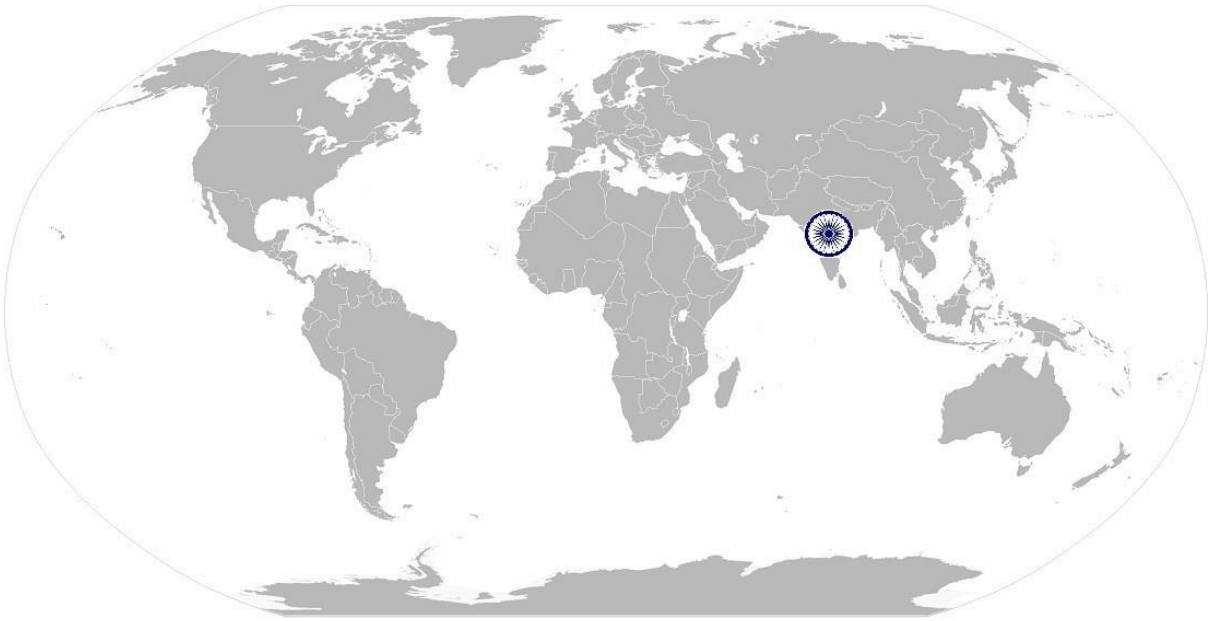
PSS/N 1336 **Work effectively with others**
(Applicable when working with an organization/in a team)

National Occupational Standard



Overview

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

PSS/N 1336 **Work effectively with others**
(Applicable when working with an organization/in a team)

National Occupational Standard

Unit Code	PSS / N 1336
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 **Communication etiquette:** do not use abusive language; use appropriate titles and terms of respect; do not eat or chew while talking (vice versa) etc. 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 behaviors at the workplace **Disciplined behaviors:**e.g. punctuality; completing tasks as per given time and standards; not gossiping and idling time; eliminating waste, honesty, etc. PC10. Escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict
Knowledge and Understanding (K)	

PSS/N 1336 **Work effectively with others**
(Applicable when working with an organization/in a team)

A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. Job responsibilities/ duties and standard operating procedures KA2. Escalation matrix and procedures for reporting work and employment related issues
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. Expressing and addressing grievances appropriately and effectively KB17. Importance and ways of managing interpersonal conflict effectively
Skills (S) [Optional]	

PSS/N 1336 **Work effectively with others**
(Applicable when working with an organization/in a team)

NOS Code	PSS/N1336		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/11/2015
Industry Sub-sector	Downstream Activities	Last reviewed on	25/07/2017
Occupation	Electrician	Next review date	25/07/2021

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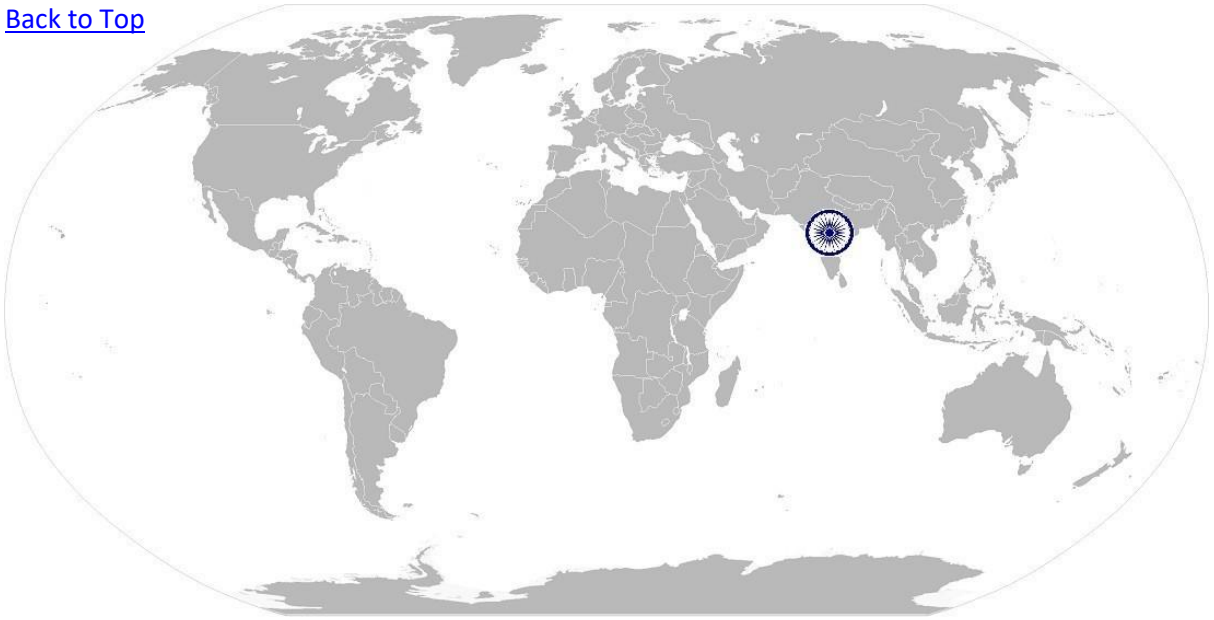
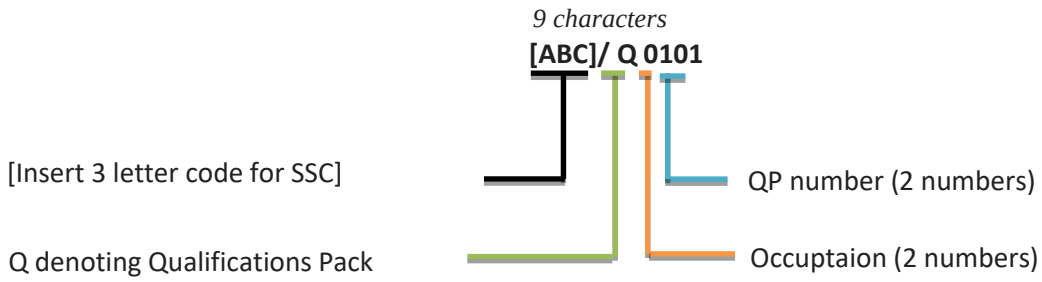


Annexure

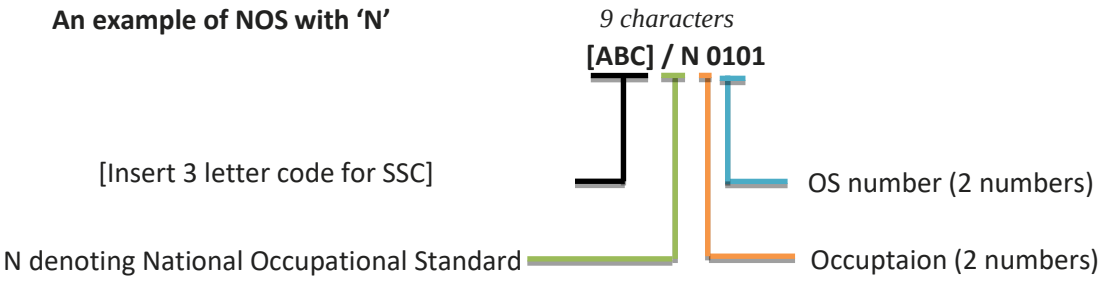
Nomenclature for QP and NOS

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
Generation	1-10
Transmission	70-80
Distribution	20-30
Distribution Downstream	60-70

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 Electrician Domestic Solution

Qualification Pack PSS/Q6001

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. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack , every trainee should score a minimum of 50% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS **Total Marks: 600**				**Marks Allocation**	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
1. PSS/ N 6001 Types of House wiring and fault repair in house wiring	PC1. Develop circuit and wiring diagram and electrical signages, code specifications to plan wiring layouts, consumption points accurately, as may be required		3	2	1
	PC2. Understand and use of various types of tools, their functions and application for carrying out work	**100**	6	4	2
	PC3. Understand rating and current carrying capacity of wires, cables, fuse, switches, sockets, MCBs, ELCBs and other electrical accessories		5	2	3
	PC4. Lay conduit pipe concealed and open wiring, batten, casing-capping and temporary cleat wiring		4	1	3

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC5. Implement system in most economical way		5	2	3
	PC6. Understand correct requirement of wires, cables, fuse, switches and other electrical accessories for optimal expenditure		6	3	3
	PC7. Ensure wiring and points selected in wiring is according to load growth in future		5	2	3
	PC8. Use under-voltage protective devices, choice of setting of protective devices, labelling of protective devices, switches and terminals		6	0	6
	PC9. Ensure insulation resistance of all live conductors to earth, insulation resistance between live conductors.		4	1	3
	PC10. Impliment methods of protection against electric shock		5	0	5
	PC11. selection of equipment appropriate to external influences, access to switchgear and equipment, presence of warning signs and danger notices		5	2	3
	PC12. Understand updated technology products also consider its ageing		4	1	3
	PC13. Inspect fault locating points e.g. fuse blown, MCB, RCD trip or short circuit location in Wiring circuit		4	1	3
	PC14. Check open circuit due to overheated switches, socket and wires in control board due to loose contact and overload		4	1	3
	PC15. Check polarity to ensure all switches are connected in phase conductors		5	0	5

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC16. Check equal distribution of load on three phase wiring in large residential and commercial units		5	2	3
	PC17. Check the color coading, proper selection of conductors, wires and connectors and connections of single pole device		5	3	2
	PC18. Check routing of cables, checking proper selection of conductors, checking connection of single pole device		3	1	2
	PC19. Work safely at all times, complying with health and safety legislation, regulation and other relevant guidelines		3	0	3
	PC20. Adhere to procedures for safety to wear PPE's.		5	1	4
	PC21. Ensure that all tools & tackles, fittings, accessories etc. are in safe and usable condition		4	0	4
	PC22. Ensure work area is clean and safe from hazards before and after the job is completed		4	1	3
			100	**30**	**70**
2. PSS/ N 6002 Mains, distribution, controls, circuits and protection in house wiring	PC1. Understand standard location of main board ensure for utility's service line connection	**100**	**6**	**3**	**3**
	PC2. Understand layout of main switch, circuit breakers require at main board		**5**	**2**	**3**
	PC3. Ensure of controlling and protection devices for different circuits being used for lighting and power loads at each floor or portion		**4**	**2**	**2**

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC4. Check types of conduit, batten, underground and open wiring		**4**	**1**	**3**
	PC5. Locate and mark the position of conduit pipe Ensures, connections into the structures with proper equipment's like measuring tape, hammer, saw, drill machines etc.		**4**	**1**	**3**
	PC6. Cut openings in structures to accommodate conduit pipes or pipe fittings, using hand or power tools		**4**	**0**	**4**
	PC7. Read plan Ensure around obstructions like electrical wiring, gas fittings etc.		**4**	**2**	**2**
	PC8. Laying of conduit pipe with clamps		**1**	**0**	**1**
	PC9. Install brackets and hangers to support electrical equipment		**1**	**0**	**1**
	PC10. Install, replace and repair lighting fixtures and electrical control and distribution equipment, such as switches, relays and circuit breaker panels		**6**	**2**	**4**
	PC11. Lay & pull wire through conduits and through holes in walls and floors		**4**	**0**	**4**
	PC12. Join and connect wire to fixtures and components to form circuits		**6**	**2**	**4**
	PC13. Prepair extended line for additional points with bearing capacity of existing system or augment/replacement of existing lines to with hold the additional load		**5**	**2**	**3**
	PC14. Install the protective device i.e. fuse, MCB, RCCB, MCCB's ratings as per the load		**6**	**2**	**4**

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC15. Ensure proper working and functioning of all protective devices thet are necessary to save lives of human, livestock, animals		**3**	**1**	**2**
	PC16. Ensure fuse, switch or circuit breaker should not be placed in an earthed neutral conductor and are wired only in the phase conductor only		**3**	**0**	**3**
	PC17. Ensure all the connections are made properly, tightened and color coding		**4**	**1**	**3**
	PC18. Ensure that the correct type, size and current-carrying capacity of cables is chosen to bear the load		**3**	**1**	**2**
	PC19. Ensure that the all accessible points which may be switched on/off must be easily approached by the users		**3**	**2**	**1**
	PC20. Understand types of earthing plate and pipe earthing layout location		**4**	**2**	**2**
	PC21. Understand importance of earth connection with household gadgets and equipments		**3**	**2**	**1**
	PC22. Understand procedure of earth connection with appliance, sockets main board and distribution board		**3**	**1**	**2**
	PC23. Use of devices available in market such as trimmers, impulse relay, programmable switch, twilight switch, movement detector		**2**	**0**	**2**
	PC24. Ensure of assembling of various type, design and capacity fans, tube lights, LED lights, bulbs, lamps, doorbells, switches, geysers, inverters, exhaust fan, safety alarams, decorative lights and chandliers		**3**	**1**	**2**

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC25. Ensure of various size and capacity water pump motors according to the load with their control circuit of water level in tank		**3**	**1**	**2**
	PC26. Make connections and operate instruments to check the healthiness of house wiring in terms of leakage insulation resistance		**2**	**0**	**2**
	PC27. Operate instruments to check the continunity, open circuit, short circuit and load flow		**2**	**0**	**2**
	PC28. Operate instruments to check the earth resistance		**2**	**0**	**2**
			100	**31**	**69**
3. PSS/ N 6003 Maintenance & Repair of house hold electrical gadgets	PC1. Read and interpret drawings, circuit diagrams and electrical code specifications of the electrical equipment, gadgets	**100**	**7**	**3**	**4**
	PC2. Read, interpret and understand the capacity in KW, load in Amperes and power consumption in KWH for each appliance		**4**	**3**	**1**
	PC3. Check connection of equipment, checking for status of tripping device		**4**	**2**	**2**
	PC4. Ensure presence of appropriate devices for isolating and switching		**3**	**2**	**1**
	PC5. Understand operating principle of single phase motor, use of condenser		**5**	**4**	**1**
	PC6. Understand how rotating field is developed in single phase and three phase motor		**2**	**2**	**0**
	PC7. Understand the significance of number of poles significance in motor winding for rpm, speed and direction change		**3**	**2**	**1**

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC8. Maesure insulation resistance of motor winding with live conductors to earth and insulation resistance between live conductors		**3**	**1**	**2**
	PC9. Understand various parts of motors, pumps and their function like ball bearings, cooling fans, fins and bushes		**3**	**2**	**1**
	PC10. Understasnd various types of winding wires, their gauge and insulating materials for motor winding		**2**	**2**	**0**
	PC11. Understand materials used to make various types of heating elements like nicrome, kanthal, eureka etc., various shape, size and capacity of heating elements according to applications and usages		**4**	**0**	**4**
	PC12. Understand types of thermal insulations used in electrical gadgets like mica, asbestos, ceramics, glass wool etc.		**4**	**0**	**4**
	PC13. Understand timers (motorized, mechanical), thermal relays, bimetallic strips		**5**	**2**	**3**
	PC14. Ensure preventive maintenance, regular cleaning, oiling, greasing of house hold gadgets like fans, desert cooler, water pump motors etc.		**4**	**0**	**4**
	PC15. Replace damaged switches, MCB, fan- capacitor, regulator, lighting points i.e. holder, choke, starters, water coolers and their pump & motor		**6**	**2**	**4**

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC16. Ensure regular maintenance of electrical equipment's like- iron, toaster, induction-plate & cooker		**8**	**3**	**5**
	PC17. Ensure regular maintenance of doorbells, FL tube starters & chokes		**8**	**3**	**5**
	PC18. Preventative maintenance of batteries		**5**	**2**	**3**
	PC19. Solder winding wires, cables and their joints in electrical gadgets		**5**	**1**	**4**
	PC20. Verify system grounding and measure insulation resistance		**2**	**0**	**2**
	PC21. Clean solar panels for removal of dust, bird droppings, pollen, leaves, branches etc. as per maintenance schedule		**2**	**0**	**2**
	PC22. Ensure all electrical connections as per specification, measure and record DC voltages and currents and identify the faults in the system		**2**	**1**	**1**
	PC23. Check for working condition of fuses, circuit breakers and all cables for loose connections		**2**	**1**	**1**
	PC24. Take adequate precautionary measures while handling electrical system adhering to relevant health and safety standards		**2**	**0**	**2**
	PC25. Understand that if reason of error is not clear, do not try ro fix anything and call OEM repair and maintenance team		**5**	**2**	**3**
			100	**38**	**62**

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
4. **PSS/N6005 Develop coustomer relationship skills**	PC1. Ensure effective verbal communications are polite, clear and completed in a timely manner	**100**	**6**	**2**	4
	PC2. Ensure promot greeting or acKnowledgement and offer of assistance are provided to coustomer		**4**	**0**	**4**
	PC3. Ensure consumer is asked if there is anything else they can be helped with		**4**	**0**	**4**
	PC4. Ensure tone of voice and place are monitored to ensure that trust is built		**6**	2	4
	PC5. Ensure effective and efficient line of questioning is used		**6**	4	**2**
	PC6. Ensure consumer needs are correctly identified in a timely manner		**4**	**2**	**2**
	PC7. Ensure techniques used are personalized to meet the needs of coustomers with different cultural backgrounds and demographics, including age and disability status		**4**	**2**	**2**
	PC8. Submit a crisp proposal answering needs of the consumer with financial esatimate component, explain full details and seek his/her consent to begin the job		**3**	**0**	**3**
	PC9. Understand new initiative taken up by company in reference to energy conservation products by providing LED lamps, 5 star rating electric gadgets		**4**	**1**	**3**

Compulsory NOS **Total Marks: 600**				**Marks Allocation**	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC10. Ensure power generation equipment like genset, solar panels etc. and other non conventional energy source		**4**	**0**	4
	PC11. Ensure appropriate explanation/ solution/ option are determinded for the consumer's situation		**4**	**0**	**4**
	PC12. Ensure customer communications are paraphaesd to confirm understanding		**5**	**3**	2
	PC13. Ensure consumer needs are recognized and acKnowledged		**4**	**0**	4
	PC14. Ensure issues are escalated or advice is solicited from appropriate departmental staff when necessary to meet consumer needs		**3**	2	1
	PC15. Show patience : if you deal with consumeron a daily basis, be sure to stay patient when you meetthem and they are stumped and frustrated		**5**	1	4
	PC16. Show attentiveness : the ability to really listen to consumer is so crucial for providing graet service for a number of reasons		**5**	2	3
	PC17. Show clear communication skills : when it comes to important points that you need to relay cleary to consumers, keep it simple and leave nothing to doubt		**5**	2	3
	PC18. Show time management skills : don't waste time trying to go above and beyond for a consumer in an service area where you will just end of wasting both of your time		**5**	**2**	**3**

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC19. Show ability to "read" consumer : look and listen for subtle clues about their current mood, patience level, personality etc. and you'll go for in keeping your coustomer interaction positive		**5**	**2**	3
	PC20. Maintain a calming presence		**5**	2	**3**
	PC21. Show ability to use "positive language"		**4**	**0**	4
	PC22. Show closing ability : being able to close with a consumer means being able to end the service with confirmed satisfaction (or as close to it as you can achieve) and with the consumer feeling that everything has been worked on		**5**	**1**	**4**
			100	**30**	70
5. PSS/ N 2001 Use basic health and safety practices as the workplace	PC1. Use protective clothing/equipment for specific tasks and work conditions Protective clothing: leather or asbestos gloves, flame proof aprons, flame proof overalls buttoned to neck, cuffless (without folds), trousers, reinforced footwear, helmets/hard hats, cap and shoulder covers, ear defenders/plugs, safety boots, knee pads, particle masks, glasses/goggles/visors Equipment: hand and face shields, machine guards, residual current devices, shields, dust sheets, respirator	**100**	8	3	5
	PC2. State the names and location of documents that refer to health and safety in the workplace		5	1	4

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC3. Identify job-site hazardous work and state possible causes of risk or accident in the workplace Hazards: electrical hazards (dealing with high voltage equipment, power supply and points, loose and naked cables and wires, electrical machines and appliances, etc.); sharp edged and heavy tools; heated metals; oxyfuel and gas cylinders; welding radiation; hazardous surfaces(sharp, slippery, uneven, chipped, broken, etc.); hazardous substances(chemicals, gas, oxy-fuel, fumes, dust, hazardous waste materials, etc.); physical hazards(working at heights, working in windy or moist areas, large and heavy objects and machines, sharp and piercing objects, moving objects and part of machinery, tolls and machines, intense light, load noise, abnormal temperature; obstructions in corridors, by doors, blind turns, over stacked shelves and packages, etc.); working in high temperatures. Possible causes of risk and accident: physical actions; not following instructions; inattention; sickness and incapacity (such as drunkenness); health hazards (such as untreated injuries and contagious illness); not taking safety precautions		6	2	4

Compulsory NOS **Total Marks: 600**				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC4. Carry out safe working practices while dealing with hazards to ensure the safety of self and others Safe working practices: using protective clothing and equipment; putting up and reading safety signs; handle tools in the correct manner and store and maintain them properly; keep work area clear of clutter, spillage and unsafe object lying casually; while working with electricity take all electrical precautions like insulated clothing, adequate equipment insulation, use of control equipment, dry work area, switch off the power supply when not required, etc.; safe lifting and carrying practices; use equipment that is working properly and is well maintained; take due measures for safety while working at heights, etc.		8	3	5
	PC5. Understand different cause of electrical fire • Short circuit • Overload circuits • Faulty electrical equipment • Faulty electrical outlets • Faulty circuit breakers • Old, outdated or wrongly installed appliences		5	2	3

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC6. Capable to differentiate between different warning signs before electrical fire, such as • Sparks or smoke coming out from a socket • Burning smell • Black marks or scorch marks • Cracked, frayed or bare cables • Melted plastic on cables or casing		5	2	3
	PC7. Use the various appropriate fire extinguishers on different types of fires correctly		6	3	3
	PC8. Understand types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids; Class C: e.g. combustible gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class D: combustible chemicals and metals such as magnesium, titanium, and sodium (These fires burn at extremely high temperatures and require special suppression agents) These categories of fires become Class A, B, C and D fires when the electrical equipment that initiated the fire is no longer receiving electricity; Class E: e.g. electrical equipment such as appliances, wiring, breaker panels, etc.		5	2	3
	PC9. Demonstrate rescue techniques applied during fire hazard		5	2	3

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	PC10. Demonstrate good housekeeping in order to prevent fire hazards		5	2	3
	PC11. Demonstrate the correct use of a fire extinguisher.		5	2	3
	PC12. Demonstrate how to free a person from electrocution		4	2	2
	PC13. Demonstrate how to check a person's response		4	1	3
	PC14. Administer appropriate first aid to victims wheneverrequired e.g. in case of bleeding, choking, electric shock, poisoning etc.		5	0	5
	PC15. Demonstrate first-aid procedures if the person has suffered from burns		4	2	2
	PC16. Demonstrate basic techniques of bandaging		6	2	4
	PC17. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		5	2	3
	PC18. Demonstrate the artificial respiration and the CPR Process		5	2	3
	PC19. Demonstrate correct method to move injured people and others during an emergency		4	2	2
			100	**37**	**63**
6. PSS/ N 1336 Work effectively with others (Applicable when working with an organization/in a team)	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

Compulsory NOS Total Marks: 600				Marks Allocation	
Assessment outcomes	**Assessment criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
	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.Communication etiquette: do not use abusive language; use appropriate titles and terms of respect; do not eat or chew while talking (vice versa)etc.		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. Disciplined behaviors: e.g. punctuality; completing tasks as per given time and standards; not gossiping and idling time; eliminating waste, honesty, etc.		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**