QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR POWER SECTOR

Contents

What are Occupational Standards(OS)?

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

Introduction

Qualifications Pack- Consumer Energy Meter Technician

SECTOR: Power

SUB-SECTOR: Distribution

OCCUPATION: Lineman

REFERENCE ID: PSS/ Q 0107

ALIGNED TO: NCO-2004/NIL

Consumer Energy Meter Technician installs, removes or changes electric single and three phase consumer energy meters used in residential, commercial and industrial units to record energy consumption at LV voltage.

Brief Job Description: An individual assigned with the role of an consumer energy meter technician performs basic installation, read and understand single phase and three phase meter in line with energy providers' standards and policies. This position requires minimum work supervision as the job duties are mostly performed at the work site. The job responsibilities may also include attending to customers' breakdown complaints and requests, repairing and servicing of faulty equipment, checking wiring system, etc.

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 and poles of various heights. The candidate should be able to read, hear and understand instructions and warnings.

Job Details

Qualifications Pack Code	**PSS/ Q 0107**		
Job Role	**Consumer Energy Meter Technician**		
Credits (NSQF)	**TBD**	**Version number**	**1.0**
Sector	**Power**	**Drafted on**	**26/03/2015**
Sub-sector	**Distribution**	**Last reviewed on**	**26/03/2015**
Occupation	**Lineman**	**Next review date**	**26/03/2017**
NSQC Clearence on	**10/07/2015**		

Job Role	**Consumer Energy Meter Technician**
Role Description	Installs, removes and changes Low voltage, single phase or three phase consumer energy meter, and supportive equipment at work site in accordance with energy providers' guidelines.
NSQF level	3
Minimum Educational Qualifications	8th (10th and ITI certificate preferred)
Maximum Educational Qualifications	NA
Training (Suggested but not mandatory)	Electrical - 6 months or an ITI certificate in Electrical
Minimum Job Entry Age	20 Years
Experience	1 year as technical helper/apprenticeship
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. PSS/ N 0114 (Manually remove, change and install Low voltage, single and three phase meters) 2. PSS/ N 2001 (Use basic health and safety practices as the workplace) 3. PSS/ N 1336 (Work effectively with others) **Optional:** Not Applicable
Performance Criteria	As described in the relevant OS units

Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Sub-functions	Sub-functions are sub-activities essential achieving the objectives of the function.
Job role	Job role defines unique set of functions that together form a unique employment opportunity in an organization.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve consistently while carrying out a function at the workplace. Occupational Standards as set of competencies is applicable both in Indian and overreaching global contexts.
Performance Criteria	Performance Criteria defined for a task are statements that together specify the standard of performance while carrying out the task.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in Indian context.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Qualifications Pack(QP)	Qualifications Pack comprises set of OS, together with the educational, training and other criteria that are required to perform a job role satisfactorily at workplace. A Qualifications Pack is assigned a unique qualification pack code for clear identification.
Knowledge and Understanding	Knowledge and Understanding are statements which together as a set specify the technical, generic, professional and organization specific knowledge that an individual needs to possess in order to perform and meet the required standards consistently.
Organizational Context	Organizational Context includes the way the organization is structured and how it operates. It includes elements of operational knowledge contents defined in relation to functioning of an organization that a skilled professional need to possess specific to its precise areas of responsibility.

Technical Knowledge	Technical Knowledge is the specific domain knowledge needed to accomplish the task in combination with other competencies. It is usually coined with specifically designated roles and responsibilities.
Core Skills/Generic Skills	Core Skills or Generic Skills as set are group of skills. It is key to working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include mainly communication related skills that are applicable to most job roles.
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.

Acronyms

Keywords /Terms	Description
T&D	Transmission and Distribution
REC	Rural Electrification Corporation
AB Cables	Aerial Bunched Cables
HT	High Tension
LT	Low Tension
HV	High Voltage
LV	Low Voltage
BDV	Breakdown Voltage
ULF	Ultra Low Frequency
VLF	Very Low Frequency
OPGW	Optical Groundwire
KV	Kilovolt
KWH	Kilo Watt Hour
KVA	Kilo Volt Ampere
PF	Power Factor
BIS	Bureau of Indian Standards

NOS
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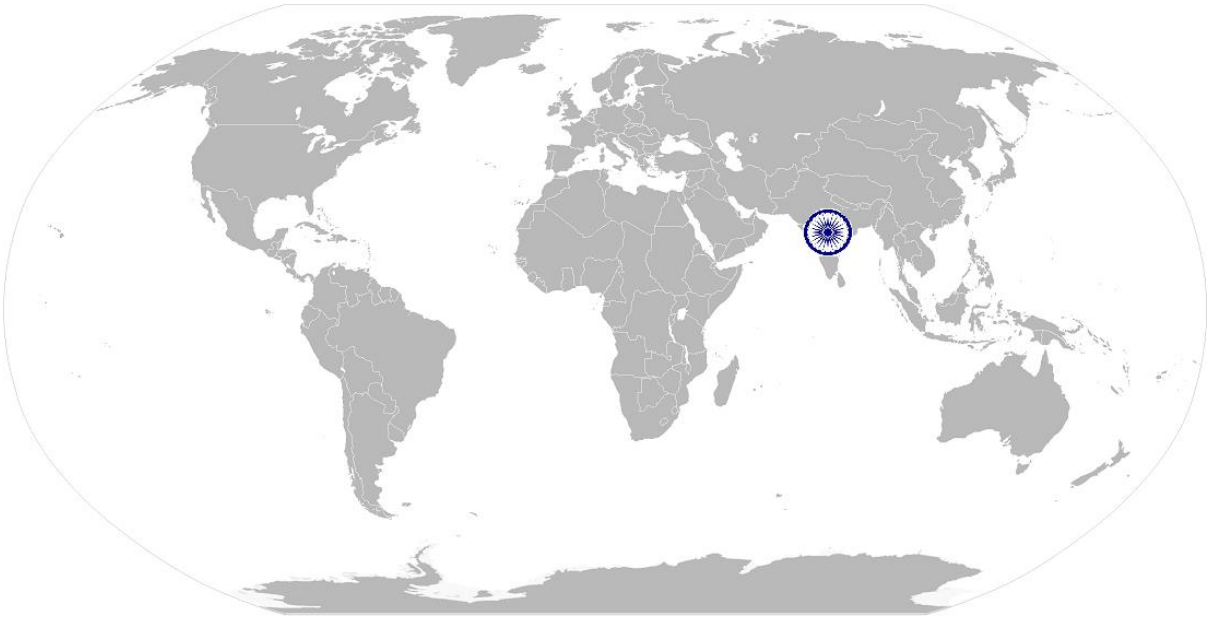
National Occupational Standard



Overview

This unit provides the performance criteria, knowledge and skills required for installing, removing or changing, testing and maintaining Low Voltage(LV) consumer energy meters (single phase or three phase) and meter supportive equipment that are used to record energy consumption in residential, commercial or industrial units.

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PSS/ N 0114 Manually remove, change and install Low Voltage, single and three phase meters

Unit Code	**PSS/ N 0114**
Unit Title (Task)	**Manually remove, change and install Low Voltage, single and three phase meters**
Description	An electric meter technician is responsible for installing, removing or changing, testing and maintaining Low Voltage(LV) consumer energy meters (single phase or three phase) and meter supportive equipment that are used to record energy consumption in residential, commercial or industrial units. The incumbent records, maintains and verifies metered data correctly upon successful completion of the process in line with relevant regulations and organizational standards. The candidate is expected to work on his/her own responsibility at the work site and record the proceedings of the work upon completion of the work in line with organizational standards and policies. He/she must follow safety guidelines and regulations relevant to the power sector while carrying out the work.
Scope	This unit/task covers the following: • Working Safely • Preparing work area for installation • Installing a single or three phase meter appropriately • Removing and replacing a single or a three phase meter • Meter recording procedures post installation

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Working Safely	The user/individual on the job should be able to: PC1. obtain job specification or work order from responsible authority PC2. select and use appropriate personal protective equipment (PPE) suitable to the work as per occupational health and safety guidelines **Personal protective equipment**: hard working caps, protective glasses, rubber gloves, fall arrest and restraint, safety footwear, fire-resistant clothing, etc. PC3. select and use appropriate tools and equipment in accordance with the tasks **Tools and equipment**: e.g. insulated hand tools; drills; hacksaw; hand tools; testing equipment; insulation testers; crimping tools; wires and cables of various colours and sizes; heat shrink sleeving and flexible conduit; terminals and connectors; electrical tape; etc. PC4. confirm that the selected tools and equipment are safe and ready for use
Preparing work area for installation	The user/individual on the job should be able to: PC5. verify the distance between the poles or cables is correct PC6. check the underground and/or overhead cables are laid correctly as per work order PC7. plan and locate the area inside or outside the customer's premise after assessing possible risks PC8. check that the identified area is accessible to carry out installation, meter testing, commissioning, reading, recording and maintenance

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	PC9. ensure the energy meter is correct, examined and tested, and meets all the parameters and specifications set by the Bureau of Indian Standards (BIS) **Consumer meters**: Low Voltage(LV) meters; single phase meter (two wires system) and three phase meter (four wires system) **Parameters**: specification of meters, immunity to external factors, sealing points and functional requirements, etc. **Meter specification**: Standard Reference Voltage, Voltage Range, Standard Frequency, Standard Basic Current, Accuracy Class, Starting Current and Maximum Current, Power Factor Range, Power Frequency Withstand Voltage, Impulse Voltage Withstand Test for 1.2/50 micro sec, Power Consumption check tampering, breaking or removing PC10. follow safe working practices in accordance with instructions given in the organizational standards and regulations to prevent injury to self and others while carrying out work PC11. inspect the facility's wiring system and recognize any possible risks to be isolated such as faulty circuit, loose ends, naked wires, etc. PC12. check the consumer's wiring system for any common phase or looping of phase of two or more consumers PC13. inform all affected parties of the intended work plan in advance prior to disconnecting power supply line
Installing a single or three phase meter	PC14. install the energy meter and required supportive equipment using appropriate insulated tools and devices as per organizational procedures **Supportive equipment**: e.g. meter box, junction box, distribution bus bar, etc. PC15. equip the energy meter with various anti-tampering features as per regulations and organizational procedures PC16. establish immunity against various types of external factors in accordance with relevant regulations **External factors**: magnetic induction, vibration, electrostatic discharge, switching transients, surge voltages, oblique suspension and harmonics PC17. ensure the energy meter displays one of more of the following parameters depending upon the tariff requirement for different categories of consumers **Measuring parameters**: cumulative reactive energy, average power factor, time of energy use, apparent power, maximum demand, phase voltage and line currents PC18. check that any replaced or repaired equipment are working properly and customer's problems are duly resolved efficiently PC19. check the energy meter for earth leakage indication as per relevant regulations **Regulations**: Central Electricity Authority Regulations, 2006 PC20. test and calibrate the energy meter using appropriate testing devices in line with organizational quality standards and regulations PC21. identify and escalate unresolved problems to appropriate authority for rectifications
Removing and replacing a single or a three phase meter	The user/individual on the job should be able to: PC22. establish the reason for changing the energy meter from responsible source in order to plan out the work **Reasons**: discrepancies (stoppage of meter, erratic consumption output,

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	broken seal, burning or damage of meter), service disconnection PC23. identify the meter type, required tools and devices and the recommended removal procedures PC24. replace the same with a duly tested energy meter as per instructions given in organizational guidelines and regulations PC25. test to confirm that the replaced energy meter conforms to required work specifications
Meter recording procedures post installation	The user/individual on the job should be able to: PC26. record the metered data and maintain all the information related to the consumer's energy meter PC27. verify the accuracy of the metered data PC28. maintain consumer meters' account history, installation date and testing details, calibration and replacement of meters in line with organizational standards and policies PC29. check that tools and devices used are disassembled and stored safely as per instructions PC30. dispose waste materials such as wires, tapes, plastic caps, etc. in line with safety and environmental procedures PC31. leave the work area is in safe conditions and clear of any hazardous substances
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. relevant health and safety requirements applicable in the work place KA3. importance of working in clean and safe environment KA4. own job role and responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities KA5. reporting structure, inter-dependent functions, lines and procedures in the work area KA6. relevant people and their responsibilities within the work area KA7. escalation matrix and procedures for reporting work and employment related issues KA8. documentation and related procedures applicable in the context of employment and work KA9. importance and purpose of documentation in context of employment and work
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. importance of using personal protective equipment (PPE) against possible electrical hazards as described in the organizational health and safety guidelines and relevant regulations **Electrical hazards**: open circuits, short circuits, damaged insulation, frayed wires, connector damage, terminal damage, diagnosis trouble codes (DTC) being set, etc. KB2. various actions to be taken and protocols to be followed in emergency situation and accidents

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	KB3. installation, operation and maintenance procedures of energy meter as listed under the Central Electricity Regulations, 2006 KB4. importance of following safe working practices and relevant environmental policies KB5. various techniques used to manually lift or carry tools and electrical equipment KB6. how to obtain job specifications or work order from responsible authority KB7. how to plan the work correctly using various safety control measures **Work planning**: location, materials required and sequence of tasks, etc. **Control measures**: signs and barriers, demarcation of work area, control and removal of hazards and contamination protection KB8. list of required tools and equipment and their uses in the work KB9. various types of consumer energy meters and their uses **Types of meters**: single phase meter, three phase meter, CT meter and HT meters KB10. different components of a consumer energy meter and their functions KB11. difference between LV and HT meters and their respective uses in the power sector KB12. compliance with energy meter standards set by apex regulators **Regulators**: Bureau of Indian Standards (BIS), British Standards (BS), International Electro-technical Commission (IEC) Standards, etc. KB13. how to select suitable location for installing an energy meter KB14. application of basic principles of electricity in energy meters KB15. electrical units used to measure energy outputs, for example KVA, KWH, etc. KB16. importance of checking manufacturer's sealing points prior to installation **Sealing points**: meter body or cover, meter terminal cover, meter test terminal block, meter cabinet KB17. consumer's cooperation and responsibility to safeguard energy meters against tampering and damages KB18. relevant terms, signs, symbols and other graphical representations and their respective interpretations KB19. how to record metered data, maintain information database and verify accuracy of compiled data KB20. energy meters testing procedures and devices used KB21. standard features of a correct energy meter as defined by regulating body e.g. specification of meters, immunity to external factors, sealing points and functional requirements KB22. required meter specifications as per Indian Standards KB23. how to place various anti-tampering features in an energy meter KB24. correct waste disposal methods against safety and environmental issues KB25. maintain correct body posture and sharp mind at work, and be physically fit KB26. recognize and report inaccurate work instructions and documentation to designated personnel KB27. maintain working relations with customers as per organizational standards and policies **Customer service standards**: e.g. listen to customer, communicate effectively, resolve problems, inform and acknowledge, introduce self and

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	company appropriately, etc.
Skills (S) [Optional]	
A. 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. fill up appropriate forms, activity logs/attendance sheets, as per organizational format in English and/or local language
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA4. read and interpret information correctly from various job specification documents, manuals, health and safety instructions, memos, etc. applicable to the job in English and/or local language
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA5. effective oral communication SA6. able to communicate effectively with voice modulation, tone of voice and eye contact SA7. use good body language for good oral communication SA8. convey and share technical information clearly using appropriate language SA9. check and clarify task-related information SA10. liaise with appropriate authorities using correct protocol SA11. communicate with people in respectful form and manner in line with organizational protocol
B. 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. plan, prioritize and sequence work operations as per job requirements SB6. organize and analyze information relevant to work SB7. basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB8. build customer relationships and use customer centric approach.

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	Problem Solving
	The user/individual on the job needs to know and understand how to: SB9. identify problems with work planning, procedures, output and behavior and their implications SB10. prioritize and plan for problem solving SB11. communicate problems appropriately to others SB12. identify sources of information and support for problem solving SB13. seek assistance and support from other sources to solve problems SB14. identify effective resolution techniques SB15. select and apply resolution techniques SB16. seek evidence for problem resolution
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB17. analyze the problem seen in the equipment SB18. collect the information and technical data and define processes
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB19. critically evaluate operation parameters in relation to product features intended

NOS Version Control

NOS Code	**PSS/ N 0114**		
Credits (NSQF)	**TBD**	**Version number**	**1.0**
Sector	**Power**	**Drafted on**	**26/03/2015**
Sub-sector	**Distribution**	**Last reviewed on**	**26/03/2015**
Occupation	**Lineman**	**Next review date**	**26/03/2017**

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

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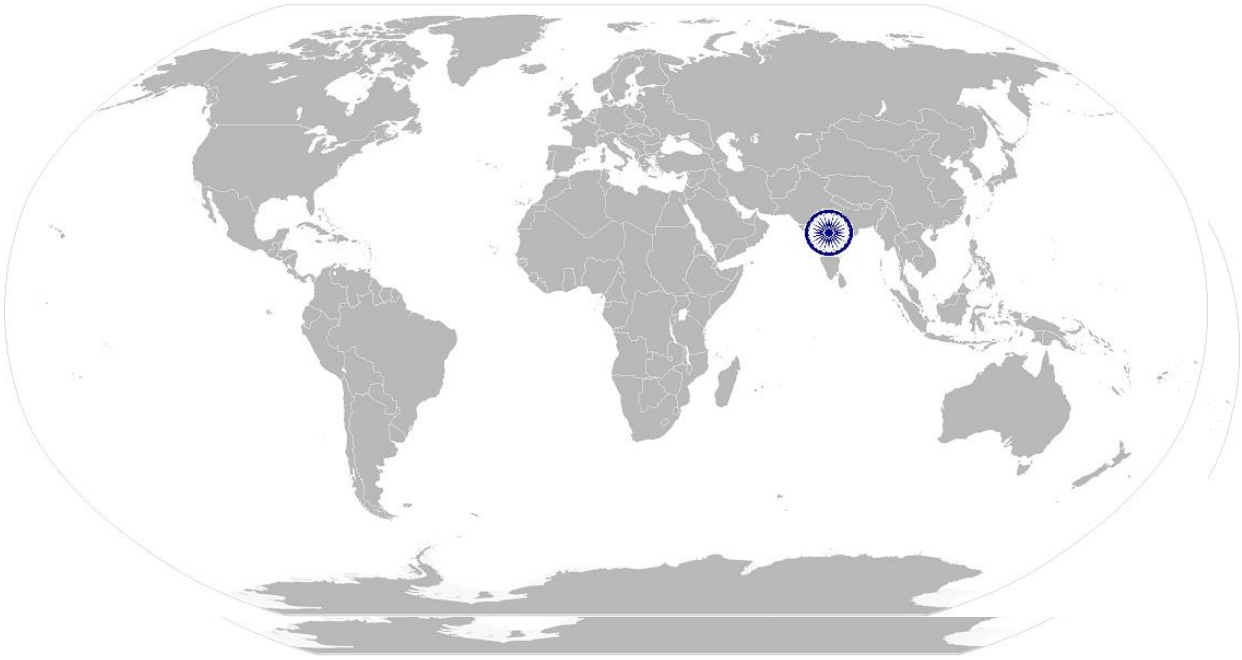
National Occupational Standard



Overview

This unit covers health, safety and security for power related work. This includes procedures and practices that candidates need to follow to help maintain a healthy, safe and secure work environment in a power plant, power station/substation or on the field while working on power equipment.

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National Occupational Standard

Unit Code	**PSS/Nxxxx**
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 in a power plant, power station/substation or on the field while working on 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 know and understand: 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 name and location of people responsible for health and safety in the workplace PC3. state the names and location of documents that refer to health and safety in the workplace PC4. identify job-site hazardous work and state possible causes of risk or accident in the workplace **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

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	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
	PC5. follow electrical safe working procedures such as Tag out/Lock out, PTW (Permit To Work),
	PC6. follow warning signs (danger, out of service, etc.) while working with electrical systems
	PC7. use standard safe working practices when working at heights, confined areas and trenches
	PC8. test any electrical equipment and system using insulated testing devices before touching them
	PC9. ensure positive isolation of electrical equipment & system as per given standards
	PC10. recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed **Parameters**: temperature, pressure, flow& current
	PC11. 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. including safety harness, fall arrestors, guardrails, proper work positioning, do not jump or overload, etc.; take due measures for safety while working in confined spaces or trenches, etc.
	PC12. state methods of accident prevention in the work environment of the job role **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
	PC13. state location of general health and safety equipment in the workplace **General health and safety equipment**: fire extinguishers; first aid equipment; safety instruments and clothing; safety installations(e.g. fire exits, exhaust fans)
	PC14. inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder **Faults**: corrosion of metal components, deterioration, splits and cracks timber components, imbalance, loose rungs, missing/ unfixed nuts or bolts, etc. **Set up**: firm/level base, clip/lash down, leaning at the correct angle, appropriate load as per capacity, etc.
	PC15. lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa

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	PC16. inspect power plant and its equipment routinely for any signs of oil, water and/or steam leakage PC17. store flammable materials and machine lubricating oil safely and correctly PC18. check that the emission and pollution control devices are working properly in line with environmental policy standards PC19. apply good housekeeping practices at all times**Good housekeeping practices**: clean/tidy work areas, removal/disposal of waste products, protect surfaces PC20. identify common hazard signs displayed in various areas **Various areas**: on chemical containers; equipment; packages; inside buildings; in open areas and public spaces, etc. PC21. retrieve and/or point out documents that refer to health and safety in the workplace **Documents**: fire notices, accident reports, safety instructions for equipment and procedures, company notices and documents, legal documents (e.g. government notices) PC22. inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly
Fire safety	The user/individual on the job needs to know and understand: PC23. use the various appropriate fire extinguishers on different types of fires correctly PC24. 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. PC25. demonstrate rescue techniques applied during fire hazard PC26. demonstrate good housekeeping in order to prevent fire hazards PC27. demonstrate the correct use of a fire extinguisher.

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Emergencies, rescue and first-aid procedures	The user/individual on the job needs to know and understand: PC28. demonstrate how to free a person from electrocution PC29. administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc. PC30. demonstrate basic techniques of bandaging PC31. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments PC32. perform and organize loss minimization or rescue activity during an accident in real or simulated environments PC33. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases PC34. demonstrate the artificial respiration and the CPR Process PC35. participate in emergency procedures Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work PC36. complete a written accident/incident report or dictate a report to another person, and send report to person responsible Incident Report includes details of: name, date/time of incident, date/time of report, location, environment conditions, persons involved, sequence of events, injuries sustained, damage sustained, actions taken, witnesses, supervisor/manager notified PC37. demonstrate correct method to move injured people and others during an emergency
KnowledgeandUnderstanding (K)	
Organizational Context	The user/individual on the job needs to know and understand: KA1. names (and job titles if applicable), and where to find, all the people responsible for health and safety in a workplace. KA2. names and location of documents that refer to health and safety in the workplace.

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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. where to find all the general health and safety equipment in the workplace KB9. various dangers associated with the use of electrical equipment KB10. positive isolation of electrical equipment and system KB11. safe handling and disposal of hazardous power plant wastes KB12. use of emission and pollution control devices and measures taken to control pollution KB13. various safety procedures and equipment used to work at heights, trenches and confined places KB14. safe working practices specific to working with electrical equipment & system e.g. lock out/ tag out, PTW, etc. KB15. preventative and remedial actions to be taken in the case of exposure to toxic materials Exposure: ingested, contact with skin, inhaled Preventative action: ventilation, masks, protective clothing/ equipment); Remedial action: immediate first aid, report to supervisor Toxic materials: solvents, flux, lead KB16. importance of using protective clothing/equipment and other insulated work gear while handling electrical system and equipment KB17. precautionary activities taken to prevent fire accident KB18. various causes of fire Causes of fires: heating of metal; spontaneous ignition; sparking; electrical heating; loose fires (smoking, welding, etc.); chemical fires; etc. KB19. techniques of using the different fire extinguishers KB20. different methods of extinguishing fire KB21. different materials used for extinguishing fire Materials: sand, water, foam, CO2, dry powder KB22. emergency rescue techniques applied during a fire hazard KB23. various types of safety signs and what they mean KB24. appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries

PSS/ N 0114 Manually remove, change and install Low Voltage, single and three phase meters

Skills (S)	
C. 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.
D. 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

PSS/ N 0114 Manually remove, change and install Low Voltage, single and three phase meters

	intended SB10. develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes

NOS Version Control

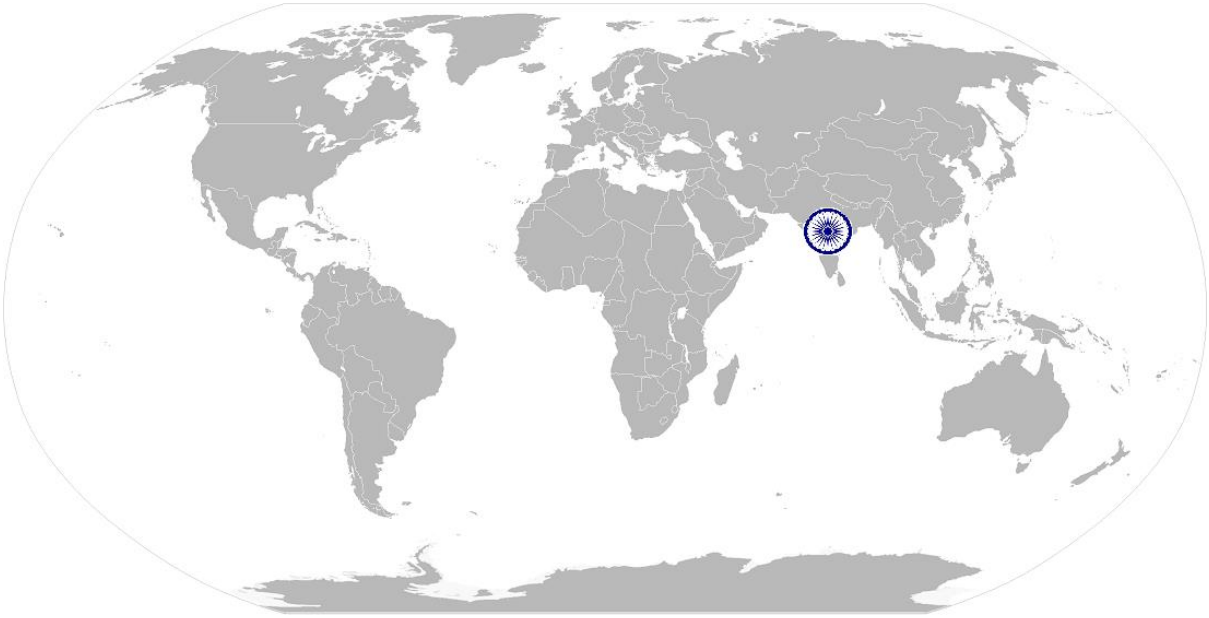
NOS Code	PSSS/N0114		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	04/11/2015
Industry Sub-sector	Transmission	Last reviewed on	27/11/2015
Occupation	Technician	Next review date	27/11/2017

NOS

National Occupational Standards

PSS/ N 1336 **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

NOS
National Occupational Standards

N·S·D·C National Skill Development Corporation

PSS/ N 1336 **Work effectively with others**

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)	
B. Organizational Context (Knowledge of the company / organization and	The user/individual on the job needs to know and understand: KA10. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA11. reporting structure, inter-dependent functions, lines and procedures in the work area

PSS/ N 1336 **Work effectively with others**

its processes)	KA12. relevant people and their responsibilities within the work area KA13. 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: KB28. various categories of people that one is required to communicate and co-ordinate with in the organization KB29. importance of effective communication in the workplace KB30. importance of teamwork in organizational and individual success KB31. various components of effective communication KB32. key elements of active listening KB33. value and importance of active listening and assertive communication KB34. barriers to effective communication KB35. importance of tone and pitch in effective communication KB36. importance of avoiding casual expletives and unpleasant terms while communicating professional circles KB37. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer KB38. importance of ethics for professional success KB39. importance of discipline for professional success KB40. what constitutes disciplined behavior for a working professional KB41. common reasons for interpersonal conflict KB42. importance of developing effective working relationships for professional success KB43. expressing and addressing grievances appropriately and effectively KB44. importance and ways of managing interpersonal conflict effectively
Skills (S) (Optional)	
B. Core Skills/ Generic Skills	**Writing Skills**
	NA
	Reading Skills
	NA
	Oral Communication (Listening and Speaking skills)
	NA
C. Professional Skills	**Decision Making**
	NA
	Plan and Organize
	NA
	Customer Centricity
	NA
	Problem Solving
	NA

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National Occupational Standards

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PSS/ N 1336 **Work effectively with others**

	Analytical Thinking
	NA
	Critical Thinking
	NA

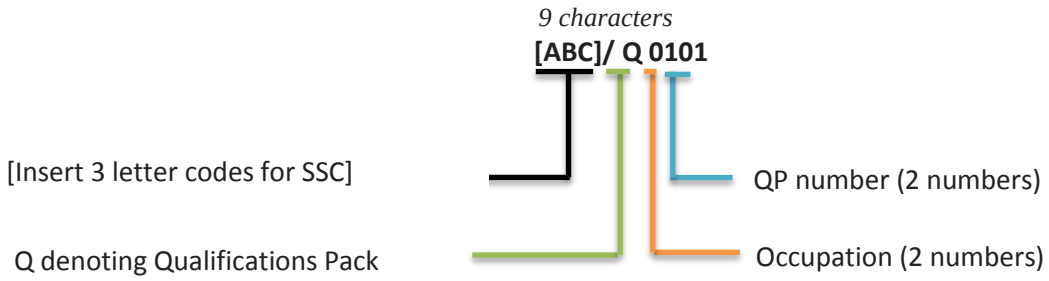
NOS Version Control

NOS Code	**PSSS/N1336**		
Credits (NSQF)	**TBD**	**Version number**	**1.0**
Industry	**Power**	**Drafted on**	**04/11/2015**
Industry Sub-sector	**Transmission**	**Last reviewed on**	**27/11/2015**
Occupation	**Technician**	**Next review date**	**27/11/2017**

Annexure

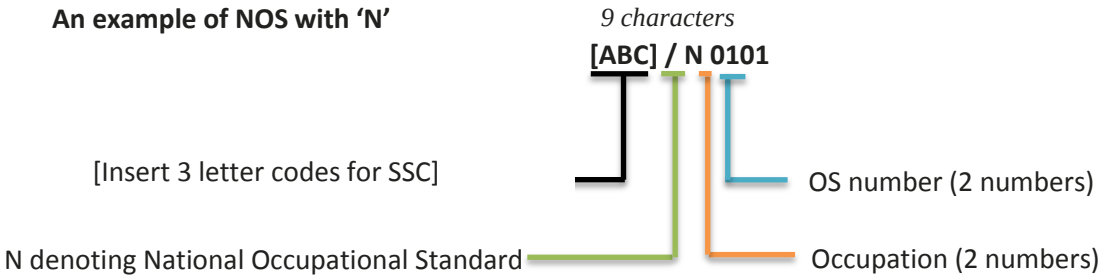
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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

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

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

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Consumer Energy Meter Technician

Qualification Pack PSS/ Q 0107

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	Total Mark (400+100)	Out of	Theory	Skills Practical
PSS/ N 0114: Manually remove, change and install Low Voltage, single and three phase meters	PC1. obtain job specification or work order from responsible authority	**100**	2	0	2
	PC2. select and use appropriate personal protective equipment (PPE) suitable to the work as per occupational health and safety guidelines		3	1	2
	PC3. select and use appropriate tools and equipment in accordance with the tasks		3	1	2
	PC4. confirm that the selected tools and equipment are safe and ready for use		2	0	2
	PC5. verify the distance between the poles or cables is correct		2	0	2
	PC6. check the underground and/or overhead cables are laid correctly as per work order		2	0	2
	PC7. plan and locate the area inside or outside the customer's premise		3	0	3

	after assessing possible risks				
	PC8. check that the identified area is accessible to carry out installation, meter testing, commissioning, reading, recording and maintenance		2	0	2
	PC9. ensure the energy meter is correct, examined and tested, and meets all the parameters and specifications set by the Bureau of Indian Standards (BIS)		4	2	2
	PC10. follow safe working practices in accordance with instructions given in the organizational standards and regulations to prevent injury to self and others while carrying out work		4	1	3
	PC11. inspect the facility's wiring system and recognize any possible risks to be isolated such as faulty circuit, loose ends, naked wires, etc.		3	0	3
	PC12. check the consumer's wiring system for any common phase or looping of phase of two or more consumers		3	0	3
	PC13. inform all affected parties of the intended work plan in advance prior to disconnecting power supply line		2	0	2
	PC14. install the energy meter and required supportive equipment using appropriate insulated tools and devices as per organizational procedures		6	2	4
	PC15. equip the energy meter with various anti-tampering features as per regulations and organizational procedures		6	2	4
	PC16. establish immunity against various types of external factors in accordance with relevant regulations		4	1	3
	PC17. ensure the energy meter displays one of more of the following parameters depending upon the tariff requirement for different categories of consumers		4	1	3
	PC18. check that any replaced or repaired equipment are working		3	0	3

	properly and customer's problems are duly resolved efficiently				
	PC19. check the energy meter for earth leakage indication as per relevant regulations		3	1	2
	PC20. test and calibrate the energy meter using appropriate testing devices in line with organizational quality standards and regulations		6	2	4
	PC21. identify and escalate unresolved problems to appropriate authority for rectifications		3	0	3
	PC22. establish the reason for changing the energy meter from responsible source in order to plan the work out		2	0	2
	PC23. identify the meter type, required tools and devices and the recommended removal procedures		5	2	3
	PC24. replace the same with a duly tested energy meter as per instructions given in organizational guidelines and regulations		4	1	3
	PC25. test to confirm that the replaced energy meter conforms to required work specifications		3	1	2
	PC26. record the metered data and maintain all the information related to the consumer's energy meter		2	0	2
	PC27. verify the accuracy of the metered data		3	0	3
	PC28. maintain consumer meters' account history, installation date and testing details, calibration and replacement of meters in line with organizational standards and policies		3	1	2
	PC29. check that tools and devices used are disassembled and stored safely as per instructions		3	1	2
	PC30. dispose waste materials such as wires, tapes, plastic caps, etc. in line with safety and environmental procedures		3	1	2
	PC31. leave the work area is in safe conditions and clear of any hazardous		2	0	2

	substances				
		Total	**100**	**21**	**79**
PSS/ N 2001: 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, 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		2	0	2

	platforms and ladders				
	PC15. lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa		3	1	2
	PC16. inspect power plant and its equipment routinely for any signs of oil, water and/or steam leakage		3	0	3
	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		5	2	3
	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		2	0	2
	PC23. use the various appropriate fire extinguishers on different types of fires correctly		3	1	2
	PC24. demonstrate rescue techniques applied during fire hazard		3	1	2
	PC25. demonstrate good housekeeping in order to prevent fire hazards		3	1	2
	PC26. demonstrate the correct use of a fire extinguisher		3	1	2
	PC27. demonstrate how to free a person from electrocution		3	1	2
	PC28. administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		2	0	2
	PC29. demonstrate basic techniques of bandaging		3	1	2
	PC30. respond promptly and		3	1	2

	appropriately to an accident situation or medical emergency in real or simulated environments				
	PC31. perform and organize loss minimization or rescue activity during an accident in real or simulated environments		3	1	2
	PC32. 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
	PC33. demonstrate the artificial respiration and the CPR Process		3	1	2
	PC34. participate in emergency procedures		3	1	2
	PC35. complete a written accident/incident report or dictate a report to another person, and send report to person responsible		3	1	2
	PC36. demonstrate correct method to move injured people and others during an emergency		3	1	2
		Total	**100**	**25**	**75**
PSS/ N 1336 (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
		Total	**100**	**30**	**70**

SSC	QPCode	Name of the QP	NSQF Level	Equipment Name	Min. no. of Equipment required (per batch of 30 trainees)	Unit Type	Is this a mandatory Equipment at the Training Center (Yes/No)	Dimension/Specification/Description of the Equipment/ ANY OTHER REMARK
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Double Test Lamp	3		Yes	(Two Incandescent Lamps Of 40 Watt Each Connected In Series To Test 415 Volt Phase To Phase)
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Clamp 'On' Tester Or Clip 'On' Meter To Test Line Current	3	set	Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Multi Meter To Test Continuity And Polarity Of Ct'S With The Help Of 1.5 Volt Dc Cell	3		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Accuracy Test With Portable Standard Meter (Accucheck Etc. Optional)	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Drill M/C With Drill Bit For Mounting Energy Meter And Meter Box	3		Yes	

Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Electrician'S Tool Kit Having Combination Plier, Screw Driver 8", 10", Spanner Set, Hammer, Knife, Phase Or Neon Tester, Nose Plier, Hacksaw, Measuring Tape, File Etc.	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Cable Socket Punch Tool	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Helmet	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Gloves	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Safety Belt Or Full Body Harness	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Spectacle Or Mask And Safety Rubber Boot.	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Ladder	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Chain	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Rope	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Discharge Rod	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Safety/Danger Sign Boards	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Cordon Tape	1		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Caution & Do Not Operate Tags	1		Yes	

Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Single Phase Energy Meter (Electronic)	5		Yes	LT Three Phase whole current energy meter (Electronic)of any rating not above 100 A
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Lt Three Phase Whole Current Energy Meter (Electronic)Of Any Rating Not Above 100 A	2			
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Lt Ct Energy Meter Electronic (3P4W, 3X-/5A, 3X240V) Or Of Any Rating Not Above 100/5A	2		Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Lt Ct'S Combination Of 3 Or 4 (As Per Meter) Ofany Rating Not Above 100/5A	2	sets	Yes	
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Service Cable	1	2X10, 2X25, 4X10, 4X25, 4X50 Sq Mm	Yes	2X10, 2X25, 4X10, 4X25, 4X50 Sq Mm
Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Load Like Set Of 100W, 200W Lamps, Heaters, Motors Water Pump Etc.	1		Yes	

Power	PSS/Q 0107	Consumer Energy Meter Technician	3	Hardware Items Like Screws, Fasteners, Clamps Etc For Fixing Meter Boxes And Cables.	1	set	Yes	