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

Contact Us:

Power Sector Skill Council

2nd Floor, CBIP Building, Malcha Marg, Chanakyapuri, New Delhi -

E-mail: pssc@cbip.org

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**

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
Maximum Educational Qualifications	NA
Training (Suggested but not mandatory)	Electrical - 6 months
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 at the workplace) 3. CSC/ N 1336 (Work effectively with others) **Optional:** N.A.
Performance Criteria	As described in the relevant OS units

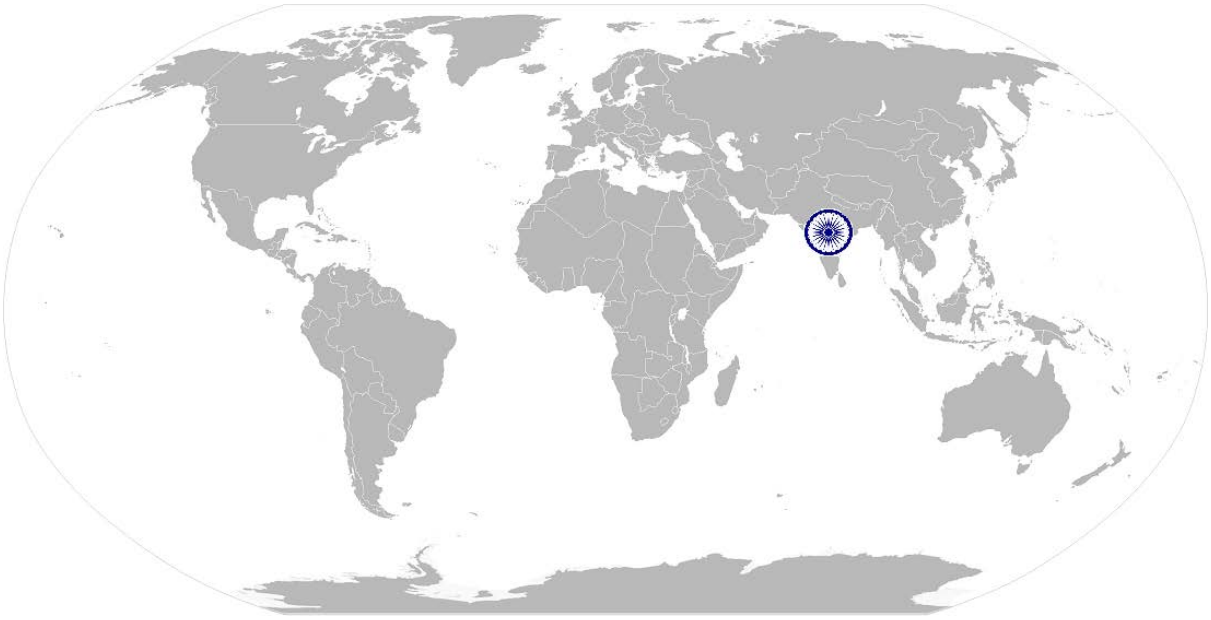
Definitions

Keywords /Terms	Description
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.
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 NOS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Organisational Context	Organisational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.
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.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Unit Code	Unit Code is a unique identifier for a NOS unit, which can be denoted with an 'N'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.

Acronyms

Keywords /Terms	Description
T&D	Transmission and Distribution
REC	Rural Electricfication Corporation
AB Cables	Aerial Bunched Cables
HT	Hight 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

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.

National Occupational Standard

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 PC9. ensure the energy meter is correct, examined and tested, and meets all the

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	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, broken seal, burning or damage of meter), service disconnection PC23. identify the meter type, required tools and devices and the recommended

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

	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 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

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	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 company appropriately, etc.
Skills (S) [Optional]	
A. Core Skills/	**Communication Skills**

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Generic Skills	The user/ individual on the job needs to know and understand how to: SA1. 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 SA2. convey and share technical information clearly using appropriate language SA3. check and clarify task-related information SA4. liaise with appropriate authorities using correct protocol SA5. communicate with people in respectful form and manner in line with organizational protocol SA6. fill logs, forms and formats in local or English language for administrative purpose, quality related information, service related information, etc. whenever needed. SA7. fill up appropriate technical forms, process charts, activity logs as per organizational format in English and/or local language SA8. interpret pictorial or graphical representations and written signs or instructions on electrical units SA9. understand safety symbols on equipment and measurement units used SA10. read the job specification provided in English language
	Numerical and computational skills
	SA11. undertake numerical operations, and calculations/ formulae **Numerical computations:** addition(with decimal digits and with carrying), subtraction(with decimal digits and with borrowing), multiplication(with decimal digits), division(with decimal digit), fractions and decimals, percentages and proportions, simple ratios and averages SA12. identify and draw various basic, compound and solid shapes as per dimensions given **Basic shapes:** square, rectangle, triangle, circle **Compound shapes:** involving squares, rectangles, triangles, circles, semi-circles, quadrants of a circle **Solid shapes:** cube, rectangular prism, cylinder SA13. demonstrate measurement and calculation of Angle, Perimeter, Area of a common geometrical shape and can co-relate with job area requirements SA14. use appropriate measuring techniques and units of measurement SA15. use British and metric system of measurement and make conversions between them SA16. describe the difference between Celsius & Fahrenheit Scale and relationship between them SA17. use appropriate units and number systems to express degree of accuracy **Units and number systems representing degree of accuracy:** decimals places, significant figures, fractions as a decimal quantity SA18. interpret and express tolerance in terms of limits on dimensions SA19. calculation of the value of angles in a triangle using trigonometry **Angles in a triangle**: right-angled, isosceles, equilateral
	Learning
	The user/individual on the job needs to know and understand how to: SA20. participate in on-the-job and other learning, training and development

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	interventions and assessments SA21. clarify task related information with appropriate personnel or technical adviser SA22. seek to improve and modify own work practices SA23. maintain current knowledge of application standards, legislation, codes of practice and product/process developments
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. follow organizational guidelines in situations involving high level of risk at work SB2. use the quality parameters to take decisions on any variations of work at site from job specification issued SB3. when faced with difficult decisions seek clarification from the supervisor and understand the parameters used by the supervisor to arrive at the decision
	Problem Solving
	SB1. identify problems with work planning, procedures, output and behavior and their implications SB2. prioritize and plan for problem solving SB3. communicate problems appropriately to others SB4. identify sources of information and support for problem solving SB5. seek assistance and support from other sources to solve problems SB6. identify effective resolution techniques SB7. select and apply resolution techniques SB8. seek evidence for problem resolution
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB9. plan, prioritize and sequence work operations as per job requirements SB10. organize and analyze information relevant to work SB11. basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time
	Initiative and Enterprise
	The user/individual on the job needs to know and understand how to: SB12. undertake and express new ideas and initiatives to others SB13. modify work plan to overcome unforeseen difficulties or developments that occur as work progresses SB14. participate in improvement procedures including process, quality and internal/external customer/supplier relationships SB15. one's competencies in new and different situations and contexts to achieve more
	Self-Management
	The user/individual on the job needs to know and understand how to: SB16. exercise restraint while expressing dissent and during conflict situations SB17. avoid and manage distractions to be disciplined at work

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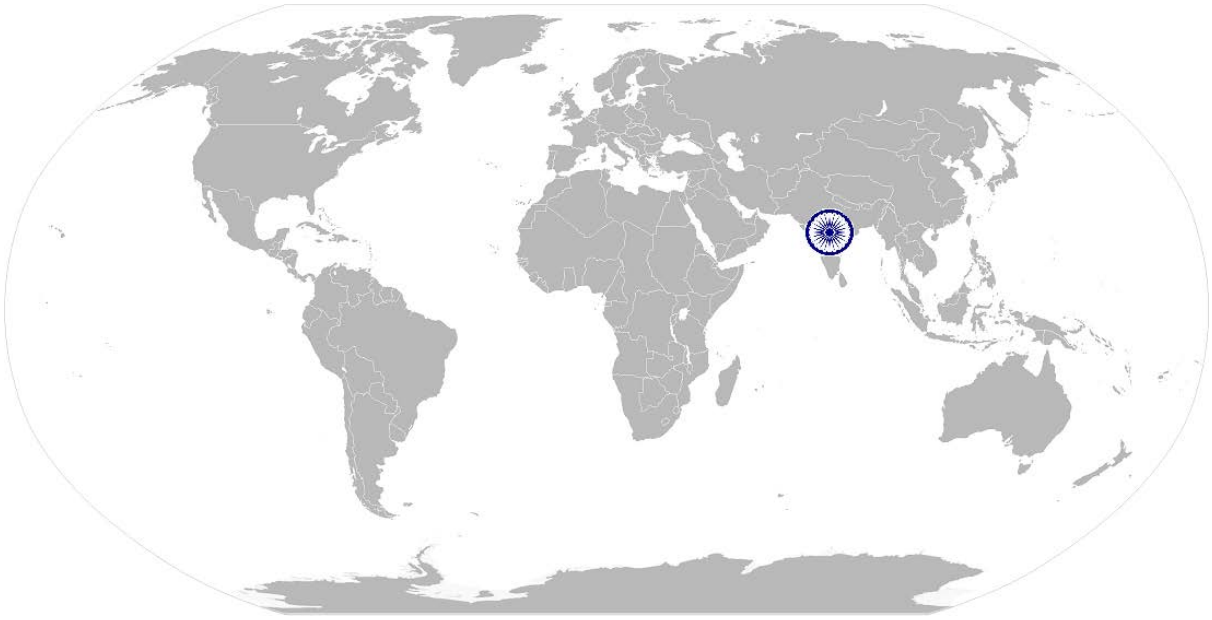
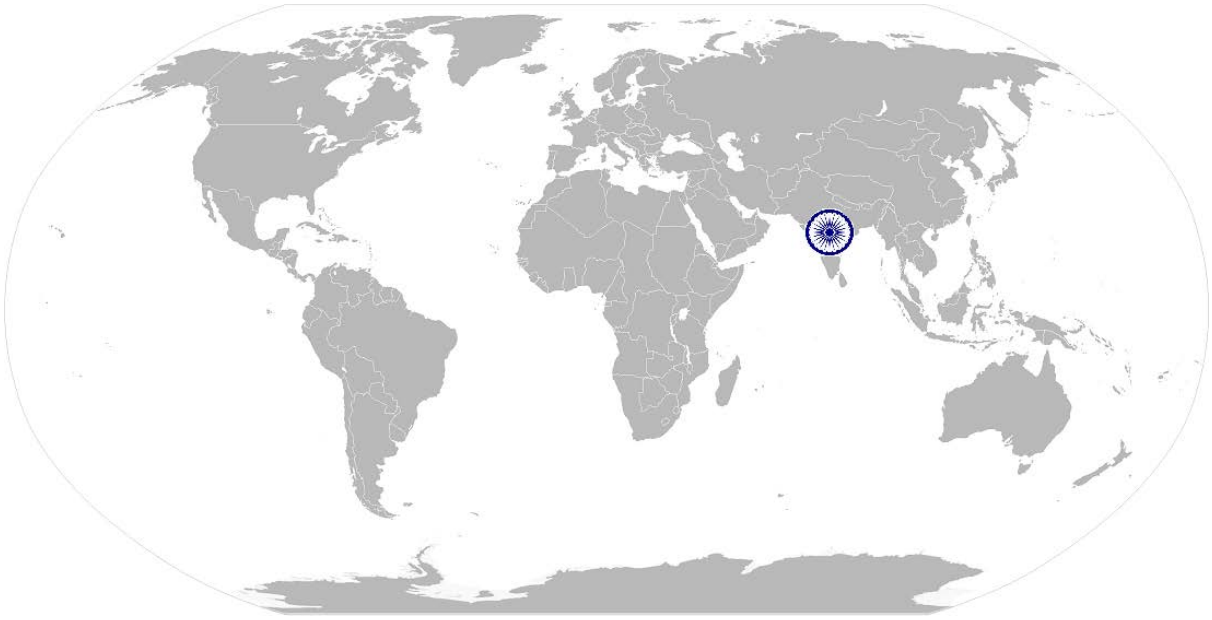
	SB18. manage own time for achieving better results



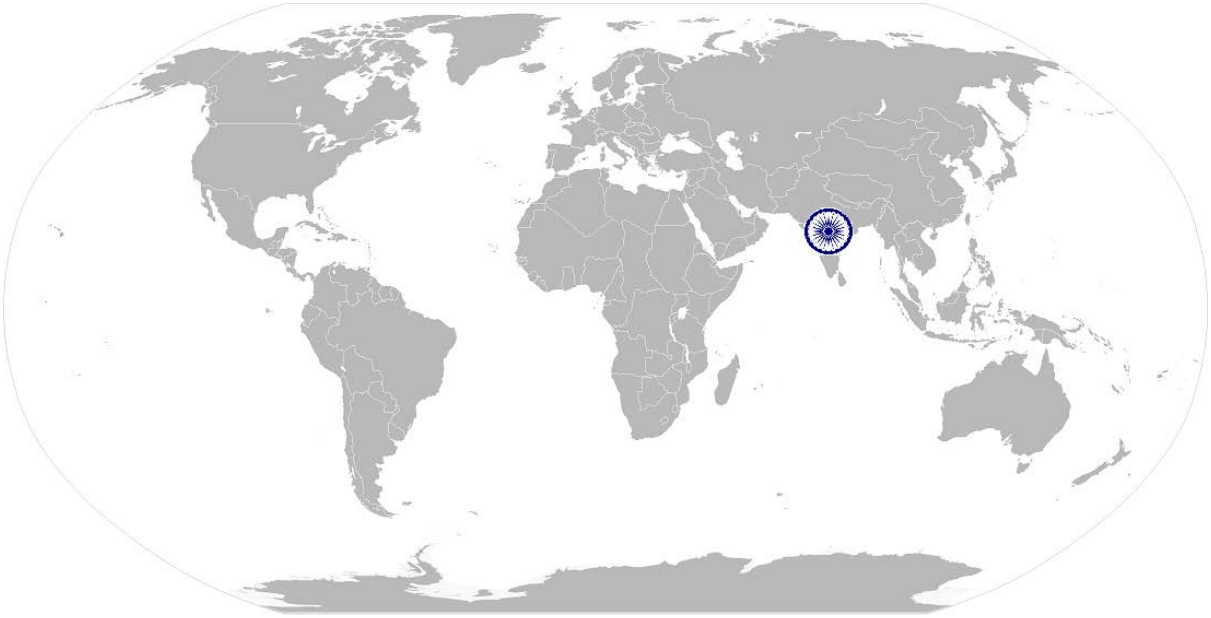
PSS/ N 0114: Manually remove, change and install Low Voltage, single and three phase meters

NOS Version Control

NOS Code	PSS/ N 0114		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	26/03/15
Industry Sub-sector	Distribution	Last reviewed on	26/03/15
		Next review date	26/03/17



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.

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

National Occupational Standard

Unit Code	**PSS / N 2001**
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 should be able 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 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 **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 ladders **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 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 should be able to: PC23. use the various appropriate fire extinguishers on different types of fires correctly **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) Class E: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (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;) PC24. demonstrate rescue techniques applied during fire hazard PC25. demonstrate good housekeeping in order to prevent fire hazards PC26. demonstrate the correct use of a fire extinguisher

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

Emergencies, rescue and first-aid procedures	The user/individual on the job should be able to: PC27. demonstrate how to free a person from electrocution PC28. administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc. PC29. demonstrate basic techniques of bandaging PC30. respond promptly and 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 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 PC33. demonstrate the artificial respiration and the CPR Process PC34. participate in emergency procedures **Emergency procedures**: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work PC35. 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 PC36. demonstrate correct method to move injured people and others during an emergency
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. 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.
B. Technical Knowledge	The user/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

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

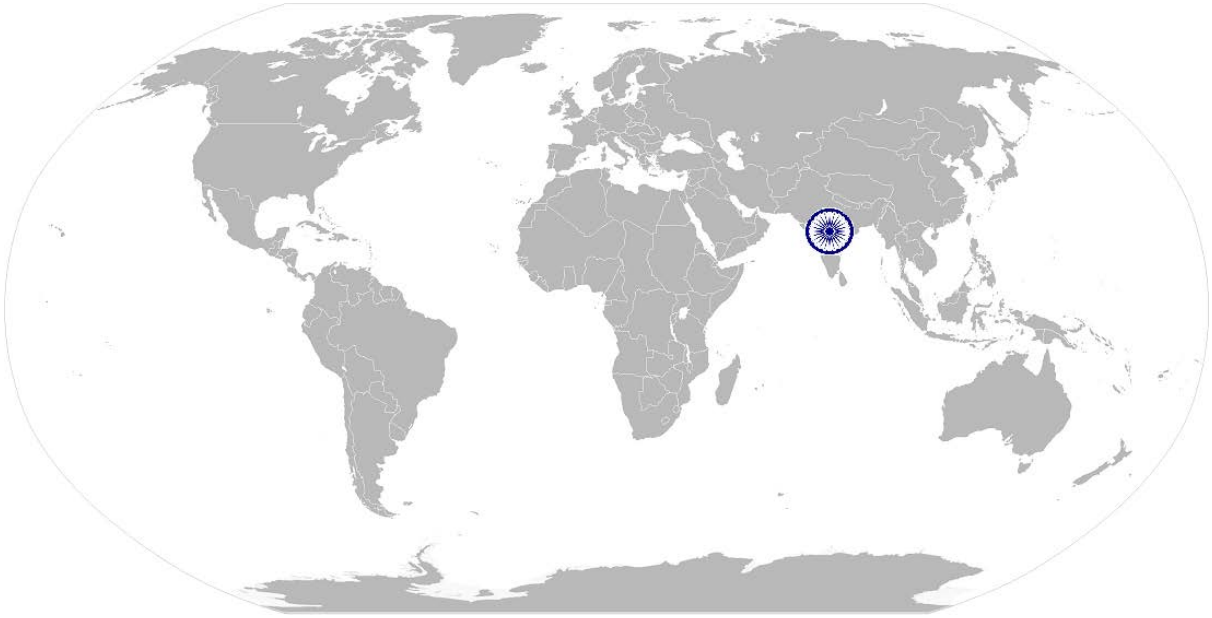
	procedures; using health and safety procedures; use of equipment and working practices (such as safe carrying procedures); safety notices, advice; instruction from colleagues and supervisors KB6. safe working practices when working with tools and machines KB7. safe working practices while working at 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 KB25. content of written accident report KB26. potential injuries and ill health associated with incorrect manual handing KB27. safe lifting, carrying and transporting practices KB28. personal safety, health and dignity issues relating to the movement of a person by others KB29. potential impact to a person who is moved incorrectly
Skills (S) [Optional]	

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

A. Core Skills/ Generic Skills	**Reading and Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. read and comprehend basic content to read labels, charts, signages SA2. read and comprehend basic English to read manuals of operations SA3. read and write an accident/incident report in local language or English
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. question coworkers appropriately in order to clarify instructions and other issues SA5. give clear instructions to coworkers, subordinates others
	Decision Making
	The user/individual on the job needs to know and understand how to: SA6. make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity
	Working with others
	The user/individual on the job needs to know and understand how to: SB2. remain congenial while discussing and debating issues with co-workers SB3. follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice SB4. ask for, provide and receive required assistance where possible to ensure achievement of work related objectives SB5. thank coworkers for any assistance received SB6. offer appropriate respect based on mutuality and respect for fellow worksmanship and authority
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB7. think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB8. identify immediate or temporary solutions to resolve delays SB9. identify sources of support that can be availed of for problem solving for various kind of problems SB10. seek appropriate assistance from other sources to resolve problems SB11. report problems that you cannot resolve to appropriate authority
	Analytical Thinking

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

	The user/individual on the job needs to know and understand how to: SB12. identify cause and effect relations in their area of work SB13. use cause and effect relations to anticipate potential problems and their solution

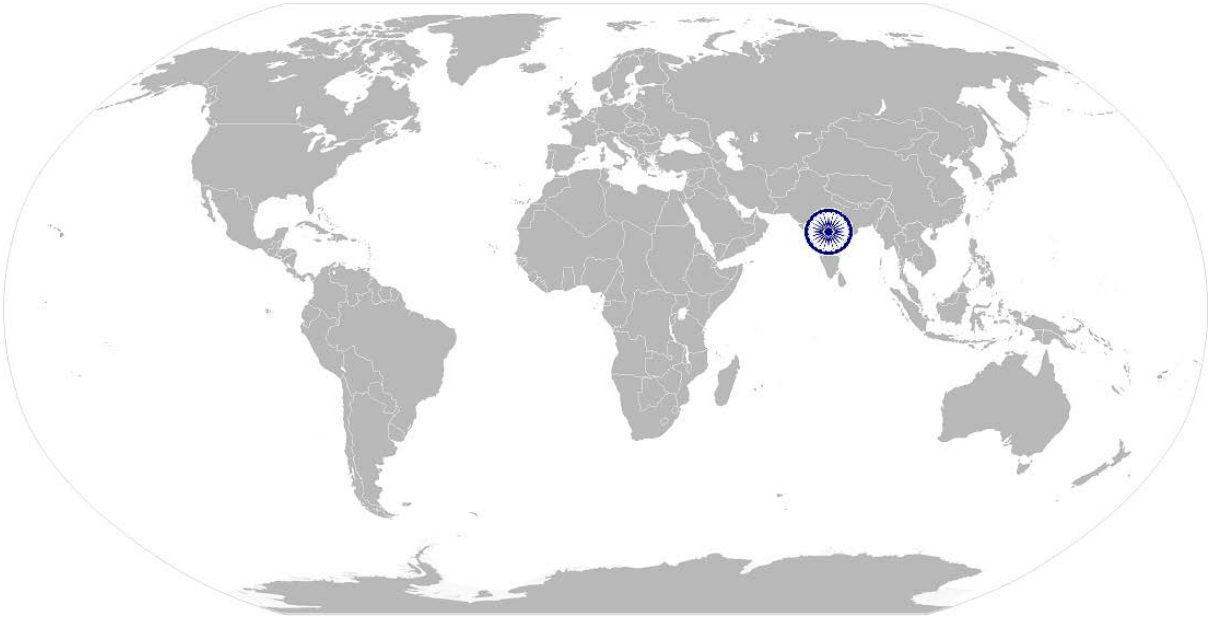


PSS/ N 2001: Use basic health and safety practices for power related work

NOS Version Control

NOS Code	PSS / N 2001		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	26/03/15
Industry Sub-sector	Generation, Transmission, Distribution, Renewable energy, Equipment manufacturing	Last reviewed on	26/03/15
		Next review date	26/03/17

National Occupational Standard



Overview

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

CSC/ N 1336: Work effectively with others

National Occupational Standard

Unit Code	**CSC / 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)	
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. reporting structure, inter-dependent functions, lines and procedures in the work area KA3. relevant people and their responsibilities within the work area KA4. escalation matrix and procedures for reporting work and employment related issues

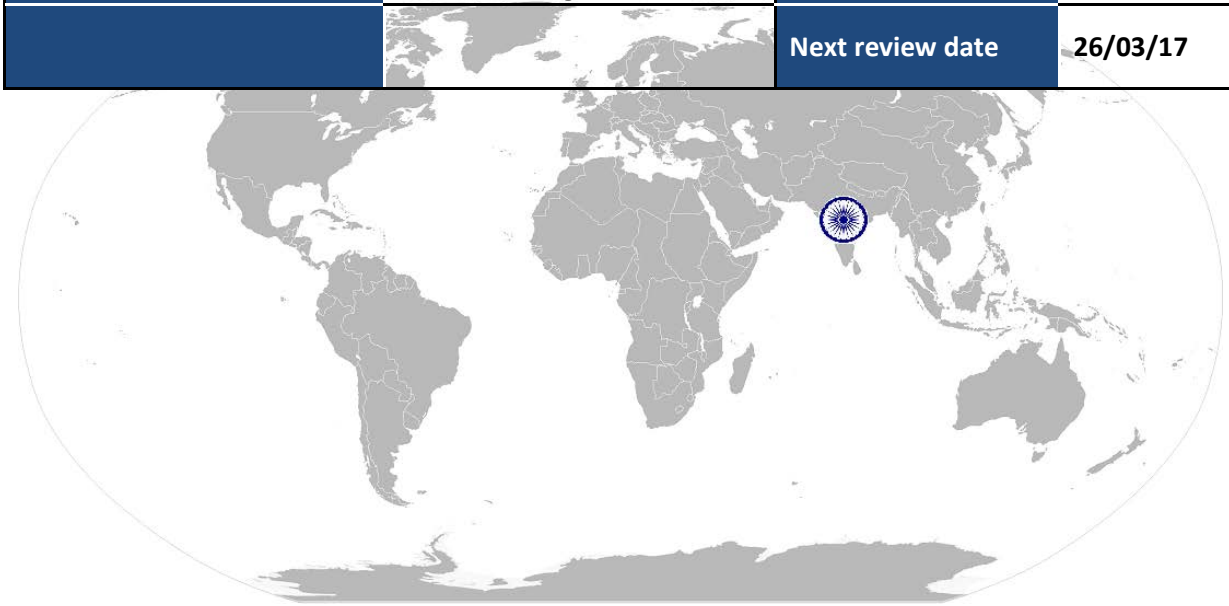
CSC/ N 1336: Work effectively with others

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. various categories of people that one is required to communicate and co-ordinate with in the organization KB2. importance of effective communication in the workplace KB3. importance of teamwork in organizational and individual success KB4. various components of effective communication KB5. key elements of active listening KB6. value and importance of active listening and assertive communication KB7. barriers to effective communication KB8. importance of tone and pitch in effective communication KB9. importance of avoiding casual expletives and unpleasant terms while communicating professional circles KB10. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer KB11. importance of ethics for professional success KB12. importance of discipline for professional success KB13. what constitutes disciplined behavior for a working professional KB14. common reasons for interpersonal conflict KB15. importance of developing effective working relationships for professional success KB16. expressing and addressing grievances appropriately and effectively KB17. importance and ways of managing interpersonal conflict effectively
Skills (S) [Optional]	

CSC/ N 1336: Work effectively with others

NOS Version Control

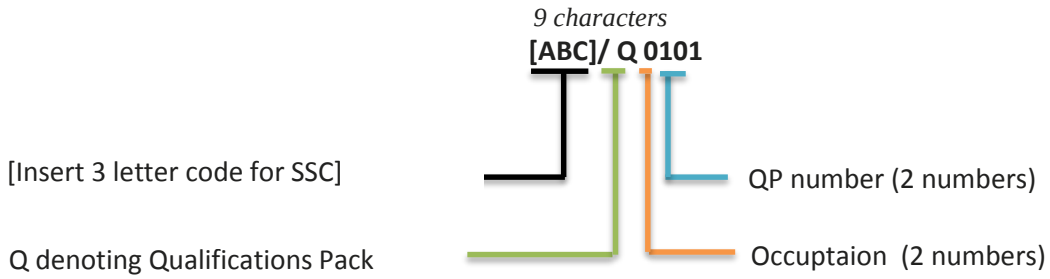
NOS Code	CSC / N 1336		
Credits(NSQF)	TBD	Version number	1.0
Industry	Power Sector	Drafted on	26/03/15
Industry Sub-sector	Power Generation Power Transmission Power Distribution Renewable Energy Power Equipment Manufacturing	Last reviewed on	26/03/15
		Next review date	26/03/17



Annexure

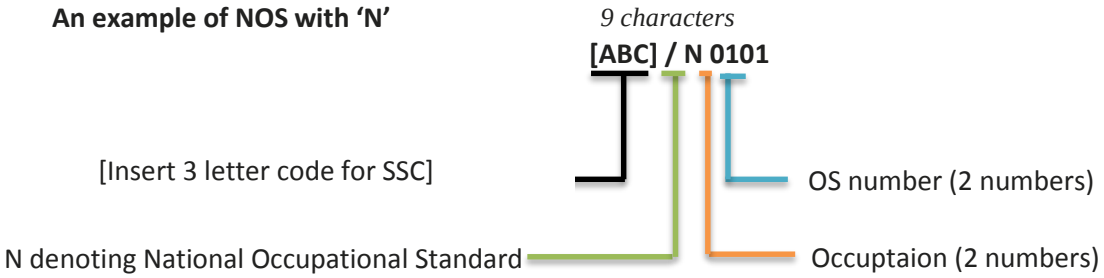
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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

Sub-sector	Range of Occupation numbers
Generation	01-10
Transmission	01-10
Distribution	01-10
Renewable Energy	01-10
Power Equipment Manufacturing	01-10

Sequence	Description	Example
Three letters	Power	PSS
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

				Mark Allocation	
		Total Mark (300)	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		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 after assessing possible risks		3	0	3
	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 properly and customer's problems are duly resolved efficiently		3	1	2
	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	2	2
	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 substances		2	0	2
		Total	**100**	**23**	**77**
PSS/ N 2001 (Use basic health and safety practices at the workplace)	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		3	0	3
	PC23. use the various appropriate fire extinguishers on different types of fires correctly		4	1	3
	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.		3	0	3
	PC29. demonstrate basic techniques of bandaging		3	1	2
	PC30. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		3	1	2

	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**	**24**	**76**
CSC/ 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,		10	3	7

	assertiveness, care and professionalism				
	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**