

## QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR POWER SECTOR

### What are Occupational Standards(OS)?

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

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### Introduction

## Qualifications Pack: Supervisor Street Light Installation & Maintenance

**SECTOR:**Power

**SUB-SECTOR:** Distribution

**OCCUPATION:**Technician

**REFERENCE ID:**PSS/Q6002

**ALIGNED TO:**NCO-2004/NIL

**Supervisor Street Light Installation & Maintenance** is responsible for supervising and monitoring installation, operation & maintenance, testing & commissioning of the street light network including pole, fixtures, cables, junction boxes, feeder pillars and other associated accessories. He shall also ensure quality, material handling, mobilizing resources, coordinating with seniors.

**Brief Job Description:** Provides specialized electrical services in the installation, operation and maintenance of street lighting and associated equipment in the city and performs related duties as assigned.

**Personal Attributes:**Work is performed outdoors in all weather conditions and requires availability in the event of emergency situations. Work requires the ability to supervise the gangs including assistant technician street lighting. Work requires walking and standing for significant periods of time. Work involves exposure to excessive noise, and irregular terrain, stamina to handle strenuous environment. Periodic night-time work is required.



Qualifications Pack For Supervisor Street Light  
Installation & Maintenance



Job Details

Qualifications Pack Code	PSS/ Q 6002		
Job Role	Supervisor Street Light Installation & Maintenance		
Credits(NSQF)	TBD	Version number	1.0
Sector	Power	Drafted on	15/01/2016
Sub-sector	Distribution	Last reviewed on	19/07/2016
Occupation	Technician	Next review date	19/07/2018
NSQC Clearance Date	Not Applicable		

Job Role	Supervisor Street Light Installation & Maintenance
Role Description	Supervisor Street Light Installation & Maintenance is responsible for supervising and monitoring of installation, operation & maintenance, testing & commissioning street light network including pole, fixtures, cables, junction boxes, feeder pillars and other associated accessories. He shall also ensure quality, material handling, mobilizing resources, coordinating with seniors.
NSQF level	5
Minimum Educational Qualifications	ITI
Maximum Educational Qualifications	NA
Training (Suggested but not mandatory)	Electrical equipment repair and maintenance
Minimum Job Entry Age	20 Years
Experience	Prior experience in street lighting and managing preferable
Applicable National Occupational Standards (NOS)	<p><b>Compulsory:</b></p> <ol style="list-style-type: none"> <li><a href="#">PSS/N6005 Installation</a></li> <li><a href="#">PSS/N6006 Operation and maintenance</a></li> <li><a href="#">PSS/N2001 Use basic health and safety practices as the workplace</a></li> <li><a href="#">PSS/N1336 Work effectively with others</a></li> </ol> <p><b>Optional:</b> Not Applicable</p>
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



*Qualifications Pack For Supervisor Street Light  
Installation & Maintenance*

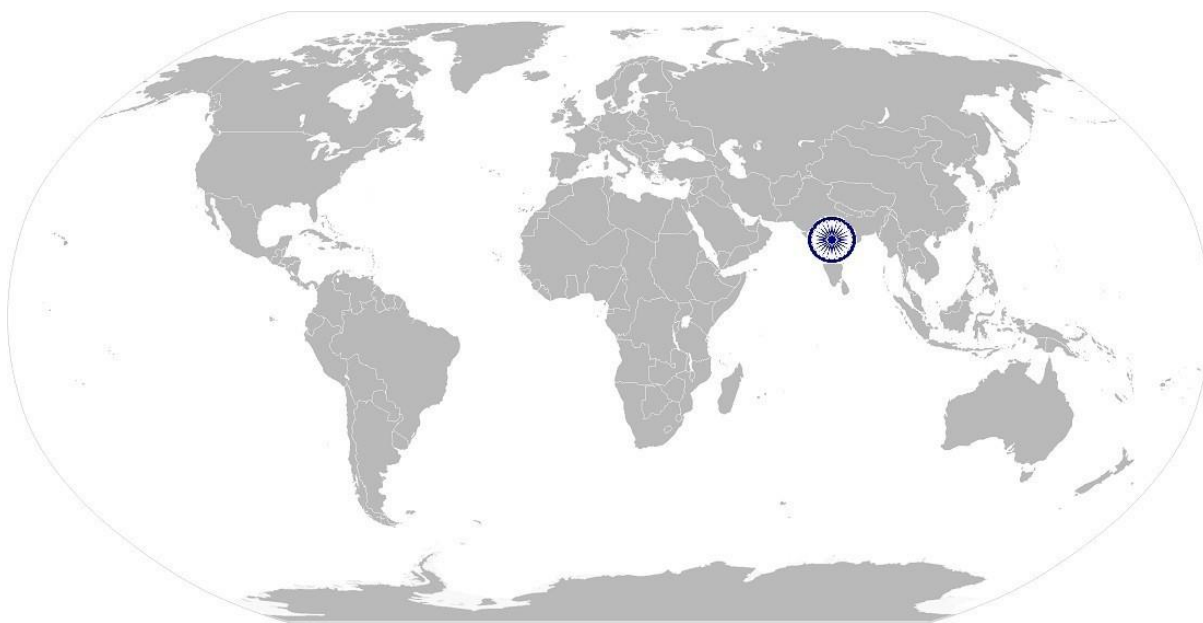


	designated roles and responsibilities.
Core Skills/Generic Skills	Core Skills or Generic Skills as set are group of skills. It is key to working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include mainly communication related skills that 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.
<b>Keywords /Terms</b>	<b>Description</b>
PPE	Personal Protective Equipment
KW	Kilowatt
V	Volt
KWH	Kilo Watt Hour
PTW	Permit to work
CPR	Cardiopulmonary Resuscitation
JB	Junction Box
KVA	Kilo Volt Ampere

**Acronyms**



# National Occupational Standard



## Overview

This unit is about the Installation activities performed by a Street Light Supervisor



PSS/N6005

Installation

National Occupational Standard

Unit Code	PSS/N6005
Unit Title (Task)	Installation
Description	Supervisor must ensure the proper installation or erection of street light pole, fixtures and wirings/cable as per the standards, designs and drawings.
Scope	<b>This unit/task covers the following:</b> <ul style="list-style-type: none"> <li>street light installation</li> <li>laying the underground cable</li> </ul>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
<b>Street Light Installation</b>	<p>The user/individual on the job needs to:</p> <p>PC1. supervise street light installation-pole, JB, fixture, cable etc.for all lightining devices including LED light</p> <p>PC2. supervise replacement and retrofit of existing light with LED light</p> <p>PC3. apply understanding of types of LED light – Wattage wise and Lumen level wise in detail</p> <p>PC4. understand wiring diagrams of LED street light</p> <p>PC5. supervise the setting of the control switch and time for automatic switch off and switch on</p> <p>PC6. supervise proper wiring and connections for erection of LED street light fixture</p> <p>PC7. supervise installation of protection devices- surge protection device, over voltage protection, voltage fluctuation etc.</p> <p>PC8. supervise and apply knowledge about the types, height of LED street light</p> <p>PC9. supervise replacement of existing street light component with LED lights</p> <p>PC10. monitor street light supply from distribution transformer during work in progress</p> <p>PC11. supervise testing of light fixtures prior to installation</p> <p>PC12. mobilize resources and manage material handling</p> <p>PC13. report to engineer if any problem is found</p> <p>PC14. coordinate with management and also monitor individual workers</p>
<b>Laying the underground cable</b>	<p>The user/individual on the job needs to:</p> <p>PC15. apply knowledge of types of underground cable(3 Core) for LED street light</p> <p>PC16. supervise the process of laying cable and termination</p> <p>PC17. supervise the supply connection from cable to fixture, and ensure proper earthing and load balancing</p> <p>PC18. troubleshoot problems involving underground electrical wiring</p> <p>PC19. demonstrate understanding about the ratings and specifications of cables, fuses, switches and wires</p> <p>PC20. report to engineer problems related to the wiring during the layout</p>
Knowledge and Understanding (K)	





**PSS/N6005**

**Installation**

<b>A. Organizational Context</b>	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"><li>KA1. relevant legislation, standards, policies, and procedures followed in the organization relevant to own employment and performance conditions</li><li>KA2. relevant health and safety requirements applicable in the work place</li><li>KA3. own job role and responsibilities, and sources for information pertaining to employment terms, entitlements, job role and responsibilities for the team</li><li>KA4. reporting structure, inter-dependent functions, lines and procedures in the work area</li><li>KA5. how to engage with specialists for support in order to resolve incidents and service requests</li><li>KA6. importance of working in a clean and safe environment</li><li>KA7. relevant people and their responsibilities within the work area</li><li>KA8. escalation matrix and procedures for reporting work and employment related issues</li></ul>
<b>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <ul style="list-style-type: none"><li>KB1. common electricity terminology &amp; correct interpretation of the same terminology: e.g. current, voltage, resistance, kilowatt (kw), kilowatt hour(kwh)</li><li>KB2. types of LED fixture- Wattage wise and Lumen level wise of street light</li><li>KB3. the technical specification of LED lights and associated components</li><li>KB4. various type of protection driver/device – surge protection, voltage fluctuation, over voltage etc.</li><li>KB5. the technical specification and types of fixture viz sodium vapor lamp, CFL, Halogen, LED, Mercury lamp etc.</li><li>KB6. the cabling system for LED street light</li><li>KB7. the types of LED street light poles</li><li>KB8. the operational familiarity with tools and tackles</li><li>KB9. control switch and timer of automatic operation</li><li>KB10. operational knowledge of lux meter and multimeter and other testing equipment</li><li>KB11. importance of reporting problems in a timely manner</li><li>KB12. ratings and specifications of cables, fuses, switches and wires</li><li>KB13. street light lift</li><li>KB14. how to use appropriate judgment and initiative pertaining to work methods and tools</li><li>KB15. how to use technical manuals, blueprints, schematics, diagrams, plans, specifications,</li><li>KB16. cable continuity test</li><li>KB17. estimated time, material and equipment needed to complete assignments</li><li>KB18. application of quality parameters, quality assessment based on physical parameters</li></ul>



**PSS/N6005**

**Installation**

Skills (S)	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to: SA1. note the information communicated by the seniors/engineer SA2. note down observations (if any) related to the process
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to: SA3. read and interpret the process required for various types of operations SA4. read and interpret and process flowchart for all operations SA5. read manuals and operation documents to understand the equipment used into operation
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists, schedules and activities with the supervisor SA7. effectively communicate with the team members SA8. communicate clearly with the customer on the issues faced during query/fault
	<b>B. Professional Skills</b>
	<b>Decision Making</b>
	The user/individual on the job needs to know and understand how to: SB1. follow organization rule-based decision making process SB2. take decision with systematic course of actions and/or response
	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand: SB3. planning and organization of tasks to meet timelines
	<b>Customer Centricity</b>
	The user/individual on the job needs to know and understand how to: SB4. build customer relationships and use customer centric approach
	<b>Problem Solving</b>
	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
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB7. apply domain information to set and define operation parameters that ensures economy and quality of the product
	<b>Critical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB8. critically evaluate operation parameters in relation to product features intended SB9. develop a holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes





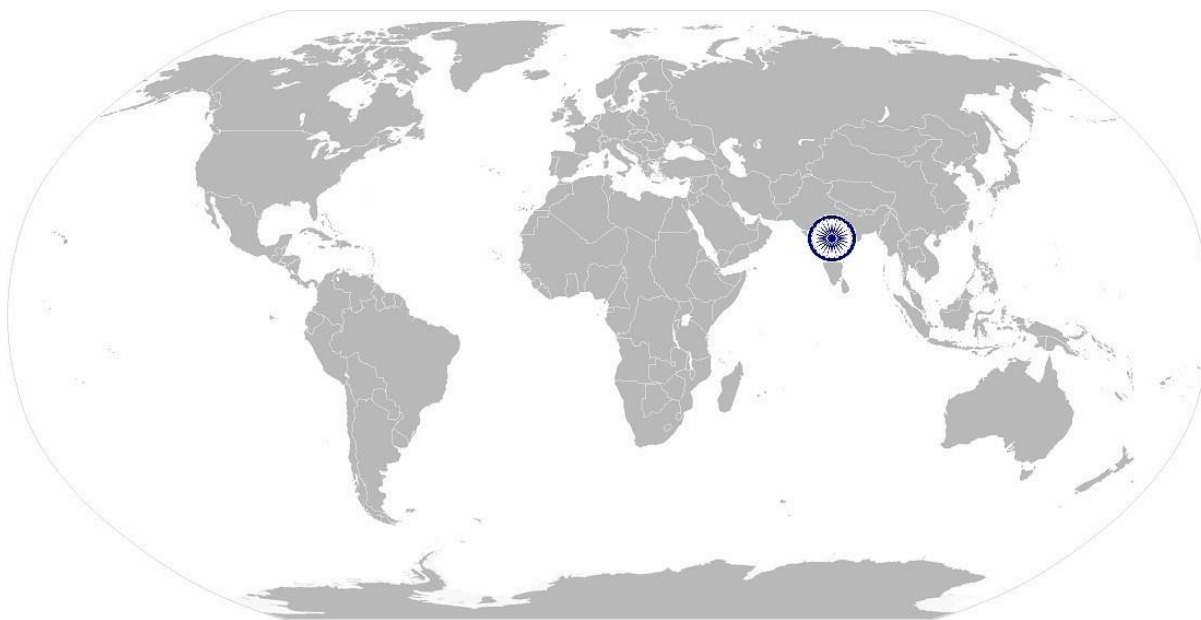
PSS/N6005

Installation

## NOS Version Control

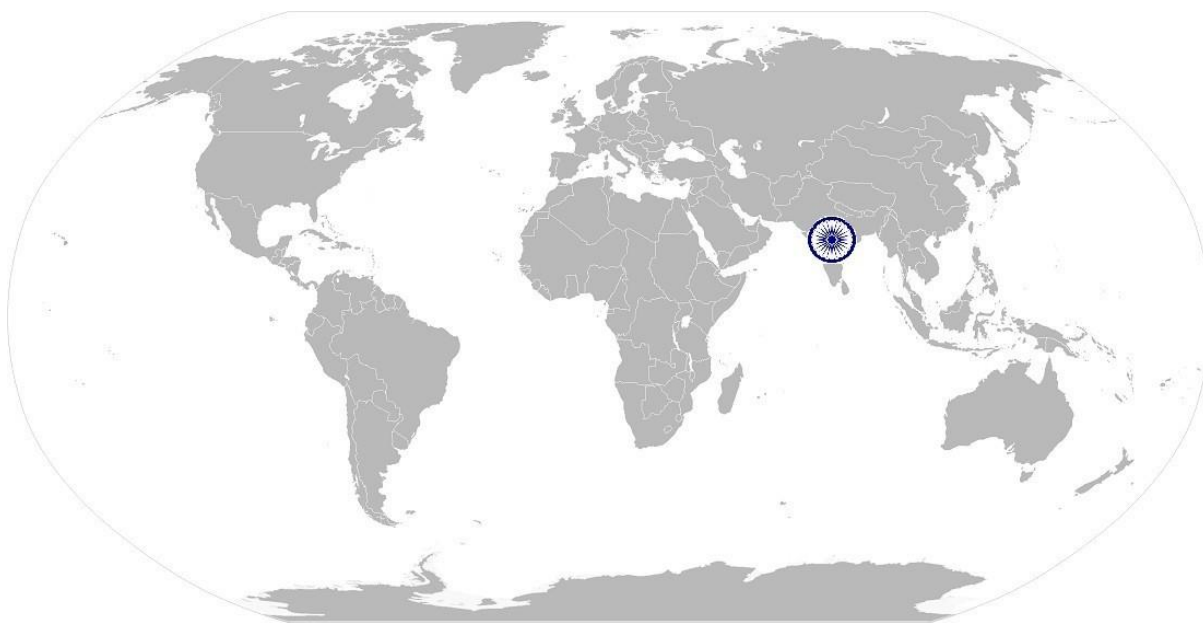
NOS Code	PSS/N6005		
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Industry	Power	Drafted on	18/01/2016
Industry Sub-sector	Distribution	Last reviewed on	19/07/2016
Occupation	Technician	Next review date	19/07/2018

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# National Occupational Standard



## Overview

This unit is about the Operation and Maintenance and repairing work of street light system.



PSS/N6006

Operation and maintenance

National Occupational Standard

<b>Unit Code</b>	<b>PSS/N6006</b>
<b>Unit Title (Task)</b>	<b>Operation and Maintenance</b>
<b>Description</b>	This section covers the operation and maintenance duties of supervisor street lighting; like repair & maintenance, replacement of street lights and associated components etc. and ensuring health of lighting system.
<b>Scope</b>	<b>This unit/task covers the following:</b> <ul style="list-style-type: none"> <li>primary inspection for maintenance</li> <li>testing of the system</li> <li>repairing &amp; replacement</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Primary Inspection for maintenance</b>	<p>The user/individual on the job needs to:</p> <p>PC1. supervise the checking of LED fixture and its driver</p> <p>PC2. supervise the checking of all the intersections &amp; joints(Junction Box) in the wiring/cable</p> <p>PC3. supervise the checking of the ON-OFF switch or MCB</p> <p>PC4. check visually the LED light and its component</p> <p>PC5. supervise the locating process of the conduit, cables &amp; other undergoing devices to perform maintenance work</p> <p>PC6. supervise the checking of the lux level</p>
<b>Testing of the system</b>	<p>The user/individual on the job needs to:</p> <p>PC7. supervise testing of equipments like tester, multimeter, lux meter, wire, bulb etc.</p> <p>PC8. supervise the testing of the supply across the ON-OFF switch and across the all joints and intersections</p> <p>PC9. supervise the testing of the lamp head by multimeter or tester for checking the continuity of supply</p> <p>PC10. Supervise the testing of the fixture and other parts of street light system</p>
<b>Repairing &amp; replacement</b>	<p>The user/individual on the job needs to:</p> <p>PC11. supervise the maintainance, repair or replacement of photoelectric control relay and surge protection device for lighting system</p> <p>PC12. supervise troubleshooting and problem solving activites involving underground electrical wiring</p> <p>PC13. supervise repair, replacement and modification of street light equipment including heads, poles, controllers, lights, circuitry, switches, fuses, and cabinet parts</p> <p>PC14. supervise general electrical repair work</p> <p>PC15. supervise repair of any other electronic or electrical devices or equipment</p>
<b>Knowledge and Understanding (K)</b>	



**PSS/N6006**

**Operation and maintenance**

<b>A. Organizational Context</b>	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"><li>KA1. relevant legislation, standards, policies, and procedures followed in the organization relevant to own employment and performance conditions</li><li>KA2. relevant health and safety requirements applicable in the work place</li><li>KA3. own job role and responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities</li><li>KA4. reporting structure, inter-dependent functions, lines and procedures in the work area</li><li>KA5. how to engage with specialists for support in order to resolve incidents and service requests</li><li>KA6. importance of working in a clean and safe environment</li><li>KA7. relevant people and their responsibilities within the work area</li><li>KA8. escalation matrix and procedures for reporting work and employment related issues</li></ul>
<b>B. Technical Knowledge</b>	<p>The individual on the job needs to know and understand:</p> <ul style="list-style-type: none"><li>KA9. common electricity terminology and correct interpretation of the same terminology: e.g. current, voltage, resistance, kilowatt (kw), kilowatt hour(kwh)</li><li>KA10. types of LED fixture- Wattage wise and Lumen level wise of street light</li><li>KA11. the technical specification of LED lights and associated components</li><li>KA12. the various type of protection driver/device – surge protection, voltage fluctuation, over voltage etc.</li><li>KA13. the cabling system for LED street light</li><li>KA14. various types/heights of LED street light poles</li><li>KA15. control switch and timer of automatic operation</li><li>KA16. operational knowledge of lux meter and multimeter and other testing equipment</li><li>KA17. electrical and road safety measures</li><li>KA18. how to interpret wiring diagrams</li><li>KA19. importance of reporting problems in a timely manner</li><li>KA20. ratings and specifications of cables, fuses, switches and wires</li><li>KA21. street light lift</li><li>KA22. use of appropriate judgment and initiative pertaining to work methods&amp; tools</li><li>KA23. technical manuals, blueprints, schematics, diagrams, plans, specifications</li><li>KA24. estimate time, material and equipment needed to complete assignments</li><li>KA25. lux level measurement procedure.</li><li>KA26. recommended levels of illumination on various group/type of roads.</li><li>KA27. troubleshooting for non working of fixture.</li><li>KA28. troubleshooting of fixture failure</li></ul>
<b>Skills (S)</b>	



**PSS/N6006**

## Operation and maintenance

<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to: SA1. note the information communicated by the supervisor or engineer SA2. note down observations (if any) related to the process of installation, operation and maintenance of street lights
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to: SA3. read and interpret the process required for various types of operations related to street lighting SA4. read and interpret and process flowchart for all operations related to street lighting SA5. read manuals and operation documents to understand the Equipment used into operation related to street lighting
	<b>Verbal Communication (Listening and Speaking skills)</b>
<b>B. Professional Skills</b>	The user/individual on the job needs to know and understand how to: SA6. discuss task lists, schedules and activities with the supervisor SA7. effectively communicate with the team members SA8. communicate clearly with the customer on the issues faced during query/fault
	<b>Decision Making</b>
	The user/individual on the job needs to know and understand how to: SB1. follow organization rule-based decision making process SB2. take decision with systematic course of actions and/or response
	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand: SB3. planning and organization of tasks to meet deadlines
	<b>Customer Centricity</b>
	The user/individual on the job needs to know and understand how to: SB4. build customer relationships and use customer centric approach
	<b>Problem Solving</b>
	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
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB7. apply domain information to set and define operation parameters that ensures economy and quality of the product
	<b>Critical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB8. critically evaluate operation parameters in relation to product features





**PSS/N6006**

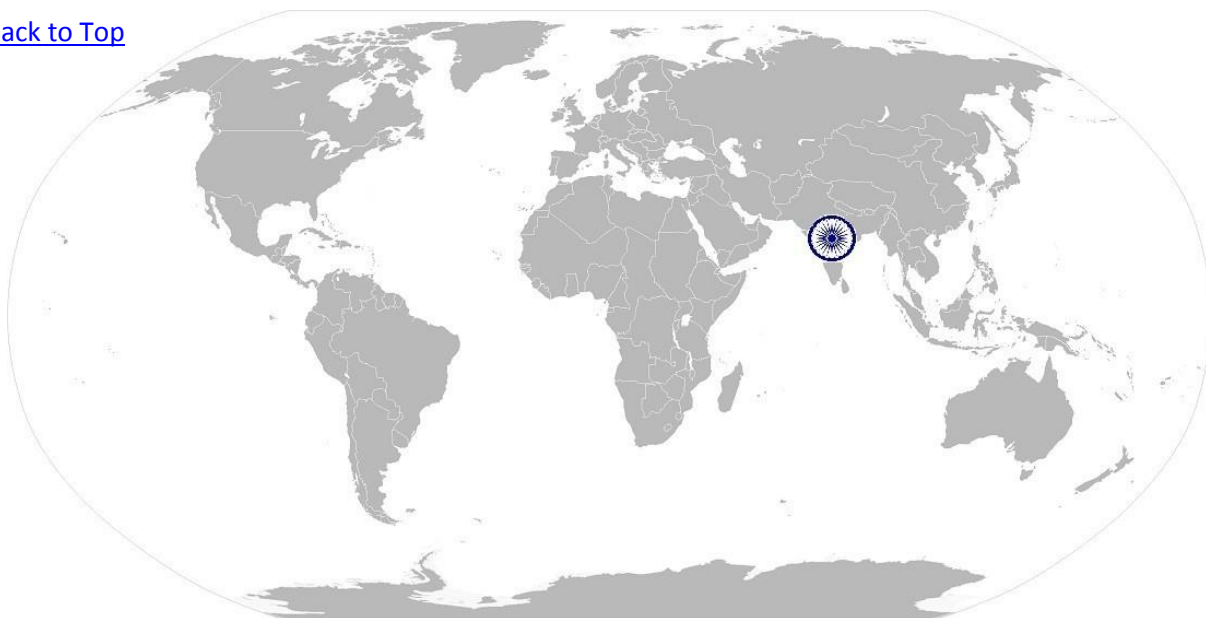
**Operation and maintenance**

	intended SB9. develop holistic and comprehensive profile of products based on segregated discrete process stages
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### **NOS Version Control**

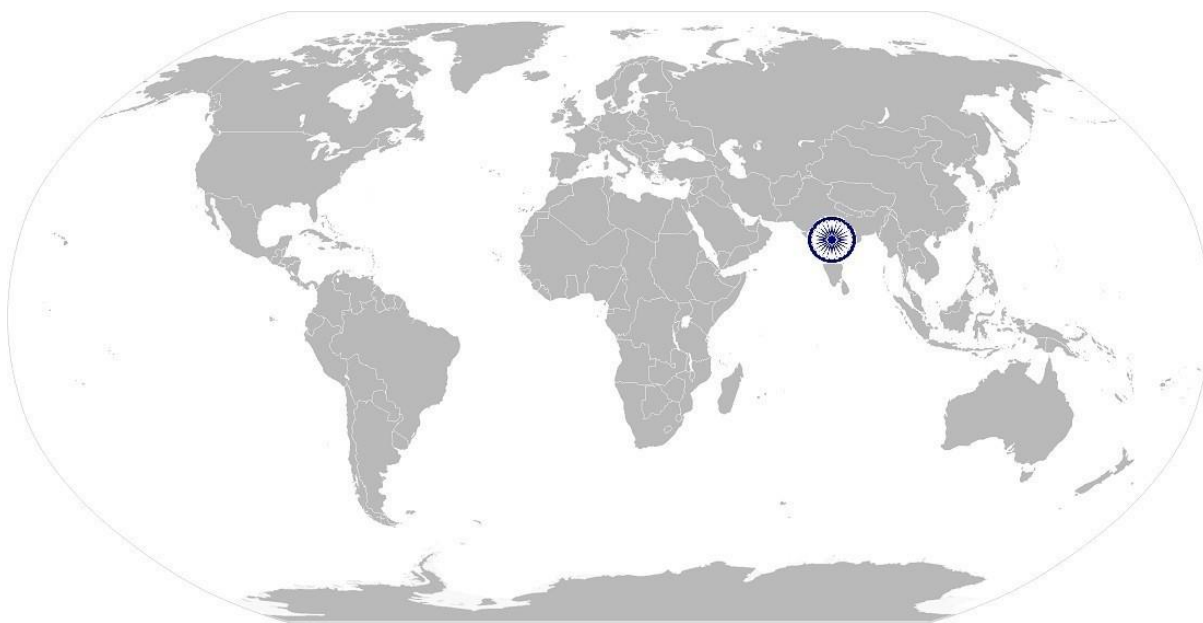
NOS Code	PSS/N6006		
Credits (NSQF)	TBD	Version number	1.0
Industry	Power	Drafted on	18/01/2018
Industry Sub-sector	Distribution	Last reviewed on	19/07/2016
Occupation	Technician	Next review date	19/07/2018

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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.



PSS/N2001

Use basic health and safety practices for power related work

National Occupational Standard

<b>Unit Code</b>	<b>PSS/N2001</b>
<b>Unit Title (Task)</b>	<b>Use basic health and safety practices for power related work</b>
<b>Description</b>	This unit covers health, safety and security for power related work. This includes procedures and practices that candidates need to follow to help maintain a healthy, safe and secure work environment. It covers responsibilities towards self, others, assets and the environment. .
<b>Scope</b>	<b>This unit/task covers the following:</b> <ul style="list-style-type: none"> <li>• health and safety</li> <li>• fire safety</li> <li>• emergencies, rescue and first-aid procedures</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Health and safety</b>	<p>The user/individual on the job needs to:</p> <p>PC1. use protective clothing/equipment for specific tasks and work conditions.</p> <p>PC2. state the name and location of people responsible for health and safety in the workplace</p> <p>PC3. state the names and location of documents that refer to health and safety in the workplace</p> <p>PC4. identify job-site hazardous work and state possible causes of risk or accident in the workplace</p> <p>PC5. follow electrical safe working procedures such as Tag out/Lock out and display PTW (Permit To Work),</p> <p>PC6. follow warning signs (danger, out of service, etc.) while working with electrical systems</p> <p>PC7. use standard safe working practices when working at heights, confined areas and trenches</p> <p>PC8. test any electrical equipment and system using insulated testing devices before touching them</p> <p>PC9. ensure positive isolation of electrical equipment &amp; system as per given standards</p> <p>PC10. recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed</p> <p>PC11. carry out safe working practices while dealing with hazards to ensure the safety of self and others</p> <p>PC12. state methods of accident prevention in the work environment of the job role</p> <p>PC13. state location of general health and safety equipment in the workplace</p> <p>PC14. inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder</p> <p>PC15. lift, carry and transport heavy objects &amp; tools safely using correct procedures from storage to workplace and vice versa</p> <p>PC16. inspect Grid station and its equipment routinely for any signs of oil and water leakage</p> <p>PC17. store flammable materials and machine lubricating oil safely and correctly</p>



**PSS/N2001**

**Use basic health and safety practices for power related work**

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



**PSS/N2001**

**Use basic health and safety practices for power related work**

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





**PSS/N2001**

**Use basic health and safety practices for power related work**

	SA5. read manuals and documents to understand the product-details & how they can be used.
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to:
	SA6. discuss task lists, schedules and activities with the colleague/supervisor.
	SA7. effectively communicate with the team members.
	SA8. attentively listen and comprehend the information given by the colleague/supervisor/contractor.
	SA9. communicate clearly with the colleague on the issues faced during query/fault.
<b>B. Professional Skills</b>	<b>Decision Making</b>
	The user/individual on the job needs to know and understand how to:
	SB1. follow colleague/contractor rule-based decision making process.
	SB2. take decisions with systematic course of actions and/or response.
	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand:
	SB3. planning and organization of tasks to meet deadlines.
	<b>Customer Centricity</b>
	The user/individual on the job needs to know and understand how to:
	SB4. build customer relationships and use customer centric approach.
	<b>Problem Solving</b>
	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
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to:
	SB7. work systematically and logically to resolve the issues and identify causation and anticipate unexpected results.
	SB8. quick approach and solution towards faults repairing.
	<b>Critical Thinking</b>
	The user/individual on the job needs to know and understand how to:
	SB9. critically evaluate operation parameters in relation to system normality
	SB10. develop a holistic and comprehensive profile of grid station on segregated discrete process stages of blank forming processes



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

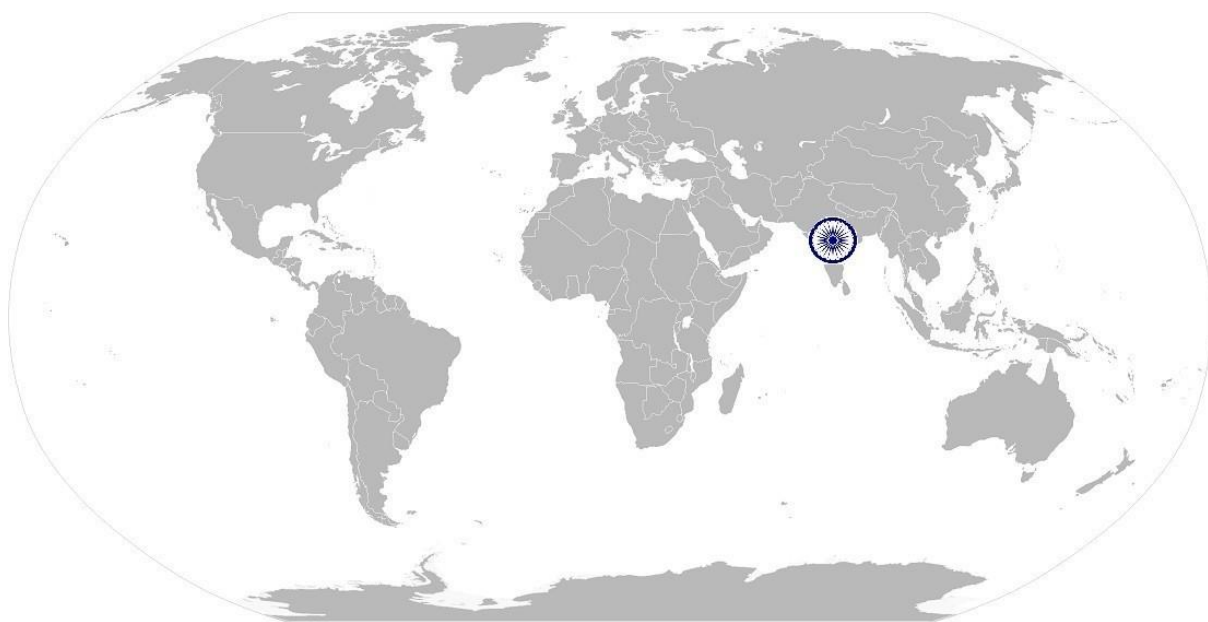
### **NOS Version Control**

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

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# National Occupational Standard



## Overview

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



**PSS/N1336**

**Work effectively with others**

National Occupational Standard

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



**PSS/N1336**

## Work effectively with others

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





**PSS/N1336**

### Work effectively with others

<b>Skills</b>	The user/individual on the job needs to know and understand how to: SB11. follow colleague/contractor rule-based decision making process. SB12. take decisions with systematic course of actions and/or response.
	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand: SB13. planning and organization of tasks to meet deadlines.
	<b>Customer Centricity</b>
	The user/individual on the job needs to know and understand how to: SB14. build customer relationships and use customer centric approach.
	<b>Problem Solving</b>
	The user/individual on the job needs to know and understand how to: SB15. seek and comprehend operation related inputs for clarification find ways of modifying difficult operating stages to make it operation friendly
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB16. work systematically and logically to resolve the issues and identify causation and anticipate unexpected results.quick approach and solution towards faults repairing.
	<b>Critical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB17. critically evaluate operation parameters in relation to system normality develop a holistic and comprehensive profile of grid station on segregated discrete process stages of blank forming processes

### NOS Version Control

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

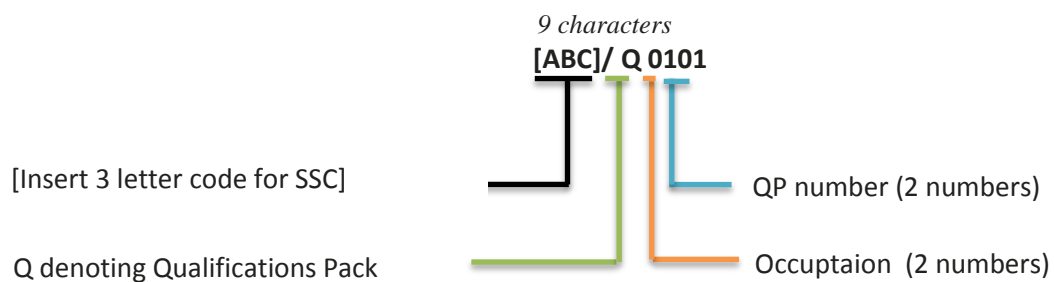
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## Annexure

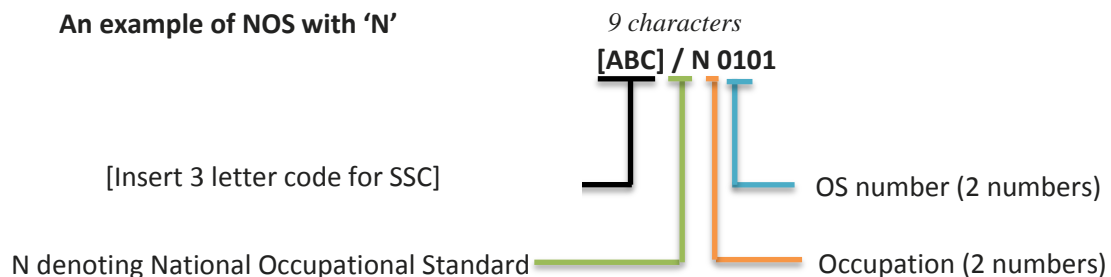
### Nomenclature for QP and NOS

#### Qualifications Pack



#### Occupational Standard

##### An example of NOS with 'N'





*Qualifications Pack for Supervisor Street Light  
Installation & Maintenance*



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

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

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



## Assessment Criteria

### CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role** Supervisor Street Light Installation & Maintenance

**Qualification Pack** PSS/Q6002

**Sector Skill Council** Power

#### Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessable Outcomes	Assessment Criteria for Outcomes	Marks Allocation			
		Total Marks	Out Of	Theory	Skills Practical
<b>1. PSS/N6005 Installation</b>	PC1. supervise street light installation- pole, JB, fixture, cable etc.	<b>100</b>	4	1	3
	PC2. supervise replacement and retrofit of existing light with LED light		4	1	3
	PC3. apply understanding of types of LED light – Wattage wise and Lumen level wise in detail		4	2	2
	PC4. understand wiring diagrams of LED street light		2	0	2
	PC5. supervise the setting of the control switch and time for automatic switch off and switch on		5	2	3
	PC6. supervise proper wiring and connections for erection of LED street light fixture		3	0	3



	PC7. supervise installation of protection devices- surge protection device, over voltage protection, voltage fluctuation etc.		3	0	3
	PC8. supervise and apply knowledge about the types, height of LED street light		5	2	3
	PC9. supervise replacement of existing street light component with LED light		4	1	3
	PC10. monitor street light supply from distribution transformer during work in progress		5	2	3
	PC11. supervise testing of light fixtures prior to installation		4	2	2
	PC12. mobilize resources and manage material handling		4	0	4
	PC13. report to engineer if any problem is found		4	0	4
	PC14. coordinate with management and also monitor individual workers		4	0	4
	PC15. apply knowledge of types of underground cable(3 Core) for LED street light		5	2	3
	PC16. supervise the process of laying cable and termination		2	0	2
	PC17. supervise the supply connection from cable to fixture, and ensure proper earthing and load balancing		2	0	2
	PC18. troubleshoot problems involving underground electrical wiring		5	2	3
	PC19. apply knowledge about the ratings and specifications of cables, fuses, switches and wires		4	1	3





	PC20. report to engineer problems related to the wiring during the layout		4	0	4
			<b>100</b>	<b>22</b>	<b>78</b>
<b>2. PSS/N6006 Operation &amp; Maintenance</b>	PC1. supervise the checking of LED fixture and its driver	<b>100</b>	<b>3</b>	<b>1</b>	<b>2</b>
	PC2. supervise the checking of all the intersections & joints(Junction Box) in the wiring/cable		<b>2</b>	<b>1</b>	<b>1</b>
	PC3. supervise the checking of the ON-OFF switch or MCB		<b>2</b>	<b>0</b>	<b>2</b>
	PC4. check visually the LED light and its component		<b>2</b>	<b>1</b>	<b>1</b>
	PC5. supervise the locating process of the conduit, cables & other undergoing devices to perform maintenance work		<b>2</b>	<b>1</b>	<b>1</b>
	PC6. supervise the checking of the lux level		<b>2</b>	<b>1</b>	<b>1</b>
	PC7. supervise testing of equipments like tester, multimeter, lux meter, wire, bulb etc.		<b>2</b>	<b>0</b>	<b>2</b>
	PC8. supervise the testing of the supply across the ON-OFF switch and across the all joints and intersections		<b>3</b>	<b>1</b>	<b>2</b>
	PC9. supervise the testing of the lamp head by multimeter or tester for checking the continuity of supply		<b>1</b>	<b>0</b>	<b>1</b>
	PC10. Supervise the testing of the fixture and other parts of street light system		<b>1</b>	<b>0</b>	<b>1</b>
	PC11. supervise the maintainance, repair or replacement of photoelectric control relay and surge protection device for lighting system		<b>1</b>	<b>0</b>	<b>1</b>
	PC12. supervise troubleshooting and problem solving activites involving		<b>3</b>	<b>1</b>	<b>2</b>



	underground electrical wiring				
	PC13. supervise repair, replacement and modification of street light equipment including heads, poles, controllers, lights, circuitry, switches, fuses, and cabinet parts		3	1	2
	PC14. supervise general electrical repair work		2	1	1
	PC15. supervise repair of any other electronic or electrical devices or equipment		2	1	1
			100	26	74
<b>3. PSS/N2001 Use basic health and safety practices for power related work</b>	PC1. use protective clothing/equipment for specific tasks and work conditions.	<b>100</b>	3	0	3
	PC2. state the name and location of people responsible for health and safety in the workplace		2	0	2
	PC3. state the names and location of documents that refer to health and safety in the workplace		2	0	2
	PC4. identify job-site hazardous work and state possible causes of risk or accident in the workplace		3	1	2
	PC5. follow electrical safe working procedures such as Tag out/Lock out and display PTW (Permit To Work),		3	1	2
	PC6. follow warning signs (danger, out of service, etc.) while working with electrical systems		3	1	2
	PC7. use standard safe working practices when working at heights, confined areas and trenches		3	1	2
	PC8. test any electrical equipment and system using insulated testing		3	1	2



	devices before touching them				
	PC9. ensure positive isolation of electrical equipment & system as per given standards		3	1	2
	PC10. recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed		3	1	2
	PC11. carry out safe working practices while dealing with hazards to ensure the safety of self and others		3	1	2
	PC12. state methods of accident prevention in the work environment of the job role		2	0	2
	PC13. state location of general health and safety equipment in the workplace		2	0	2
	PC14. inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder		2	0	2
	PC15. lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa		2	1	1
	PC16. inspect Grid station and its equipment routinely for any signs of oil and water leakage		2	0	2
	PC17. store flammable materials and machine lubricating oil safely and correctly		2	0	2
	PC18. check that the emission and pollution control devices are working properly in line with environmental policy standards		3	1	2



	PC19. apply good housekeeping practices at all times		3	1	2
	PC20. identify common hazard signs displayed in various areas		2	0	2
	PC21. retrieve and/or point out documents that refer to health and safety in the workplace		2	0	2
	PC22. inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly		3	0	3
	PC23. use the various appropriate fire extinguishers on different types of fires correctly		2	1	1
	PC24. distinguish types of fire		3	1	2
	PC25. demonstrate rescue techniques applied during fire hazard		3	1	2
	PC26. demonstrate good housekeeping in order to prevent fire hazards		3	1	2
	PC27. demonstrate the correct use of a fire extinguisher		3	1	2
	PC28. demonstrate how to free a person from electrocution		3	1	2
	PC29. administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		3	0	3
	PC30. demonstrate basic techniques of bandaging		3	1	2
	PC31. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		3	1	2



	PC32. perform and organize loss minimization or rescue activity during an accident in real or simulated environments		3	1	2
	PC33. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases		3	1	2
	PC34. demonstrate the artificial respiration and the CPR Process		3	1	2
	PC35. participate in emergency procedures Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work		3	1	2
	PC36. complete a written accident/incident report or dictate a report to another person, and send report to person responsible		3	1	2
	PC37. demonstrate correct method to move injured people and others during an emergency		3	1	2
			<b>100</b>	<b>24</b>	<b>76</b>
<b>4. PSS/N1336 Work effectively with others</b>	PC1. accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	<b>100</b>	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
			<b>100</b>	<b>30</b>	<b>70</b>