

QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR GREEN JOBS

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- O&M Electrical & Instrumentation Technician – Wind Power Plant

SECTOR: GREEN JOBS

SUB-SECTOR: RENEWABLE ENERGY

OCCUPATION: OPERATION AND MAINTENANCE

REFERENCE ID: SGJ/Q1503

ALIGNED TO: NCO-2015/ NIL

Brief Job Description: O&M Electrical & Instrumentation Technician – wind power plant is expected to inspect, diagnose, troubleshoot and repair electrical & instrumentation systems of wind power plant. S/he is expected to perform operation and maintenance of switchgear, transformer, O/H and U/G Lines, SCADA, communication system (Fiber Optics) and complying with all operational manuals, applicable codes/standards, and safety requirements

Personal Attributes: This job requires the individual to concentrate on the job at hand and complete it without any accidents so hence diligence and hardworking are desired attributes for individuals performing this role. S/he must also be medically fit to work on heights, demonstrate strong work ethics, an ability to communicate courteously with co-workers, and must be good with following instructions of the supervisor

Qualifications Pack For “O&M Electrical & Instrumentation Technician -Wind Power Plant”

Job Details	Qualifications Pack Code	SGJ/Q1503		
	Job Role	O&M Electrical & Instrumentation Technician -Wind Power Plant [This job role is applicable in both national and international scenarios]		
	Credits(NSQF)	TBD	Version number	1.0
	Sector	Green Jobs	Drafted on	01/09/2016
	Sub-sector	Renewable Energy	Last reviewed on	24/11/2017
	Occupation	Operation and Maintenance	Next review date	30/09/2019
	NSQC Clearance on	N.A		

Job Role	O&M Electrical & Instrumentation Technician - Wind Power Plant
Role Description	O&M electrical & instrumentation technician – wind power plant is expected to inspect, diagnose, troubleshoot and repair electrical & instrumentation systems of wind power plant. S/he is expected to perform operation and maintenance of switchgear, transformer, O/H and U/G Lines, SCADA, communication system (Fibre Optics) and complying with all operational manuals, applicable codes/standards and safety requirements
NSQF level	4
Minimum Educational Qualifications	Class 12 th pass, preferably
Maximum Educational Qualifications	Not Applicable
Prerequisite License or Training	N.A.
Minimum Job Entry Age	18 years
Experience	N.A.
Applicable National Occupational Standards (NOS)	Compulsory: <ol style="list-style-type: none"> SGJ/N1505 Carry out operation of electrical & instrumentation systems of wind power plant SGJ/N1506 Carry out maintenance of electrical & instrumentation systems of wind power plant SGJ/N1201 Perform basic health and safety practices at project site (Ground and Height) SGJ/N0120 Work effectively with others
Performance Criteria	As described in the relevant OS units.

Qualifications Pack For “O&M Electrical & Instrumentation Technician -Wind Power Plant”

Definitions

Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar business 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.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a 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 when carrying out a function in the at project site, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria	Performance criteria are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OSs, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an ‘N’
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a 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 quality of performance required.
Knowledge and Understanding	Knowledge and understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual need to perform to the required standard.
Organizational Context	Organizational 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.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish

Qualifications Pack For “O&M Electrical & Instrumentation Technician -Wind Power Plant”

	specific designated responsibilities.
Core Skills/ Generic Skills	Core skills or generic skills are a group of skills that are the key to learning and working in today’s world. These skills are typically needed in any work environment in today’s world. In the context of the OS, these include communication related skills that are applicable to most job roles.

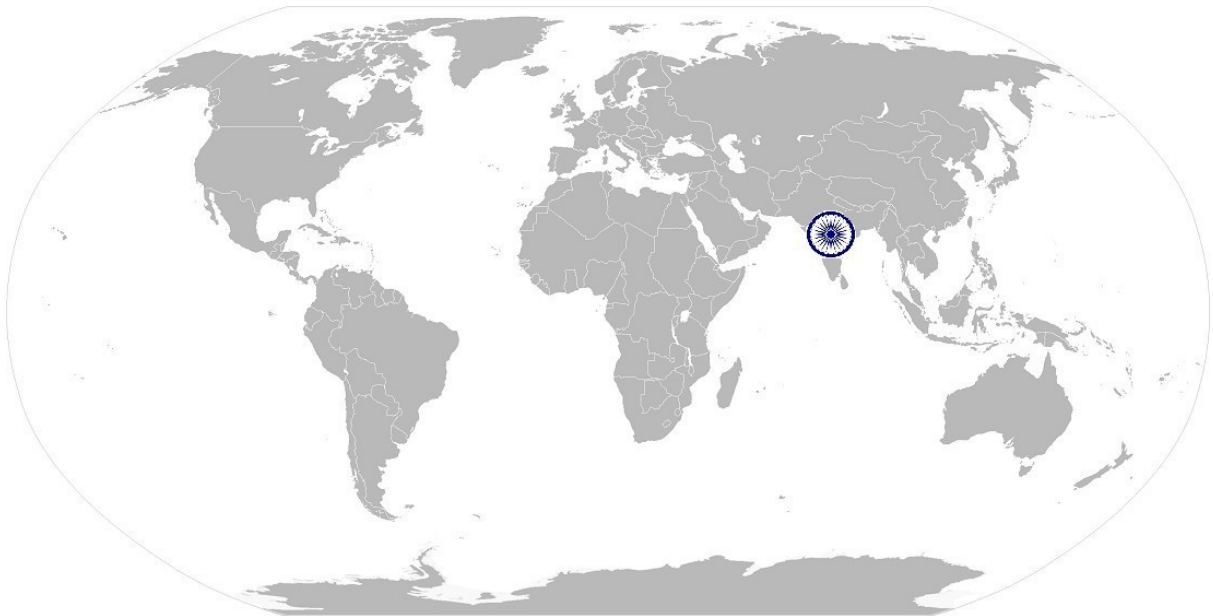
Acronyms

Keywords/Terms	Description
SCGJ	Skill Council for Green Jobs
NOS	National Occupational Standards
NSQF	National Skills Qualification Framework
NVEQF	National Vocational Educational Qualification Framework
NVQF	National Vocational Qualification Framework
OS	Occupational Standards
PC	Performance Criteria
QP	Qualification Pack
SSC	Sector Skills Council
WTG	Wind Turbine Generator
O/H	Overhead
U/G	Underground
SCADA	Supervisory Control and Data Acquisition

SGJ/N1506

Carry out operation of electrical & instrumentation systems of
wind power plant

National Occupational Standard



Overview

This unit is about operation of electrical & instrumentation systems of wind power plant

SGJ/N1505 Carry out operation of electrical & instrumentation systems of wind power plant

National Occupational Standard

Unit Code	SGJ /N1506
Unit Title (Task)	Carry out operation of electrical & instrumentation systems of wind power plant
Description	This unit is about operation of electrical & instrumentation systems of wind power plant
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • job specific safety • primary inspection of electrical/instrumentation systems • online testing of WTG and associated equipment
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Job specific safety	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> PC1. select the appropriate PPE (Personal Protective Equipment) to carry out the specific activity
Primary inspection of electrical/ instrumentation systems	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> PC2. identify the design drawing and specification of equipment for inspection PC3. carry out scheduled & preventive inspections of electrical/instrumentation components & equipment PC4. verify and record the running parameters of WTG, transformer and switchgear with design document PC5. monitor the working efficiency of WTG and associated wind power plant equipment PC6. identify the location the conduit, cables & other undergoing devices prior to performing maintenance work PC7. check all the intersections & joints (termination) in the line and cable for faults like loose joint, short circuit, open circuit etc. PC8. assist the plant engineer in undertaking breakdown maintenance, if required
Online testing of WTG and associated equipment	To be competent, the user/individual on the job must be able to: <ul style="list-style-type: none"> PC9. arrange for tools to carry out online testing of WTG and components PC10. acquire required approvals and permit to work (PTW) from the concerned authority PC11. perform visual inspection of the surroundings and the electrical component and record any defects PC12. measure and record performance parameters like voltage, current, frequency parameters, WTG temperature, etc. PC13. measure and record for performance parameters of transformer like input voltage/ output voltage, frequency, phase sequence, etc. PC14. maintain log of all performance parameters of switchgear PC15. prepare report and submit to site in-charge/plant head for further action
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> KA1. legislation, standards, policies, and procedures followed in the organization relevant to own employment and performance conditions KA2. reporting structure, inter-dependent functions, lines and procedures in the work area

SGJ/N1505 Carry out operation of electrical & instrumentation systems of wind power plant

its processes)	<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>
B. Technical Knowledge	<p>The individual on the job needs to know and understand the following aspects:</p> <p>KB1. selection of appropriate PPE for specific activities</p> <p>KB2. common electricity terminology and correct interpretation of the same terminology: e.g. current, voltage, resistance, kilowatt (KW), kilowatt hour (KWh)</p> <p>KB3. definition of the terms: energy and power, WTG, blades and other associated equipment</p> <p>KB4. basic concepts of voltage and current measurement, phase sequence measurement relating to electrical and instrumentation systems of wind power plant</p> <p>KB5. basic functioning, specifications and operating principle of various components of a wind power plant</p> <p>KB6. the plant layout, technical drawings and manuals, blueprints, schematic drawing, technical specifications, operating principle and functioning of various electrical and instrumentation systems in wind power plant</p> <p>KB7. tools, tackles and equipment required to carry out specific activities in a wind power plant relating to operation and maintenance of electrical and instrumentation systems</p> <p>KB8. basic concepts of wind technology (like vertical, axial etc.) and wind power generation</p> <p>KB9. various types of electrical equipment of wind power plant and their testing approaches</p> <p>KB10. types of faults and respective troubleshooting techniques</p> <p>KB11. principles and practices of electrical safety during operation and maintenance of WTG, transformer and other plant equipment</p> <p>KB12. ratings and specifications of cables, fuses, switches and wires</p> <p>KB13. standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm</p>
Skills	
A. Core Skills/ Generic Skills	<p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. prepare documentation as per relevant industry standards</p> <p>Reading Skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA2. read vernacular/English language</p> <p>SA3. read and understand manuals, health and safety instructions, memos, other company documents</p> <p>SA4. ability to read from different sources- books, screens in machines and signage</p> <p>SA5. understand the various colour codes, as per standard electrical, mechanical and civil nomenclature</p> <p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. express statements or information clearly so that others can hear and understand</p> <p>SA7. participate in and understand the main points of simple discussions</p> <p>SA8. respond appropriately to any queries</p> <p>SA9. communicate with peers, supervisor and sub-ordinates</p>

SGJ/N1505 Carry out operation of electrical & instrumentation systems of wind power plant

B. Professional Skills	Decision Making
	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
	Plan and Organize
	The user/individual on the job needs to know and understand: SB3. plan and organize service work to meet deadlines SB4. plan to utilize time and equipment's effectively SB5. work constructively and collaboratively with others
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB6. follow organisation code of conduct SB7. manage relationships with customers with intent on satisfying its requirements for service delivery
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB8. recognize problems and search for solutions SB9. choose best methods to complete assigned tasks SB10. approach relevant authority when required
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB11. apply domain knowledge, observations and data to select course of action to perform tasks related to solar photovoltaic power plant
Critical Thinking	
The user/individual on the job needs to know and understand how to: SB12. use reasoning skills to identify and resolve basic problems SB13. use intuition to detect any potential problems which could arise during operations SB14. use acquired knowledge of the process for identifying and handling issues	

SGJ/N1505 Carry out operation of electrical & instrumentation systems of wind power plant

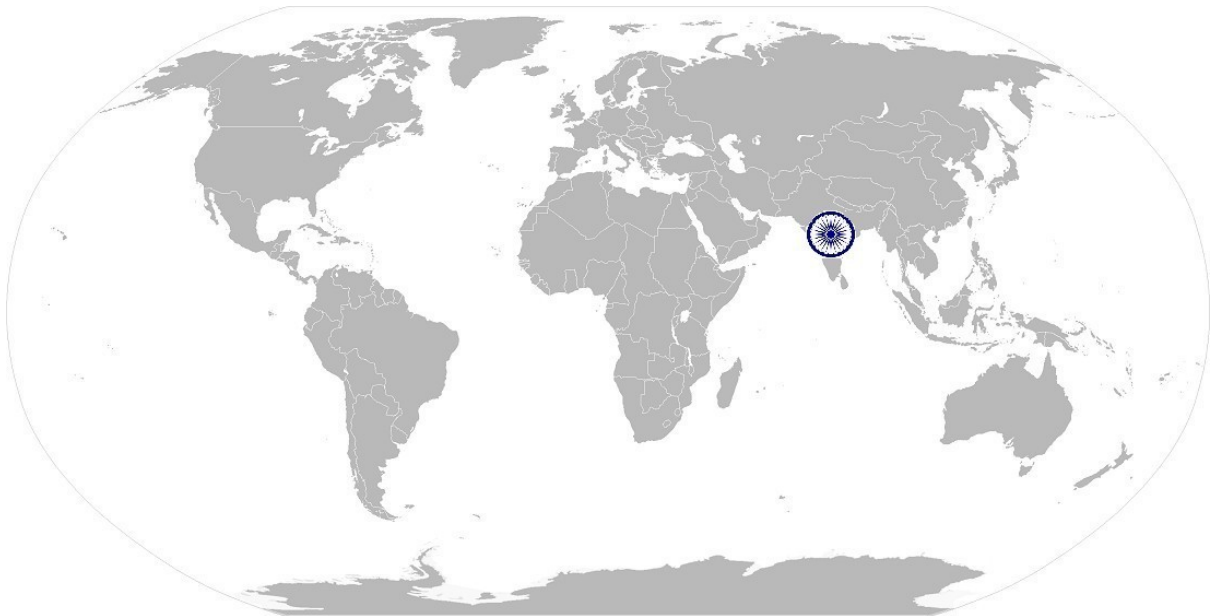
NOS Version Control

NOS Code	SGJ/N1505		
Credits (NSQF)	TBD	Version number	1.0
Industry	Green Jobs	Drafted on	01/09/2016
Industry Sub-sector	Renewable Energy	Last reviewed on	24/11/2017
Occupation	Operation and Maintenance	Next review date	30/09/2019



SGJ/N1506 Carry out maintenance of electrical & instrumentation systems of
wind power plant

National Occupational Standard



Overview

This unit is about maintenance of electrical & instrumentation systems of wind power plant

SGJ/N1506 Carry out maintenance of electrical & instrumentation systems of wind power plant

National Occupational Standard

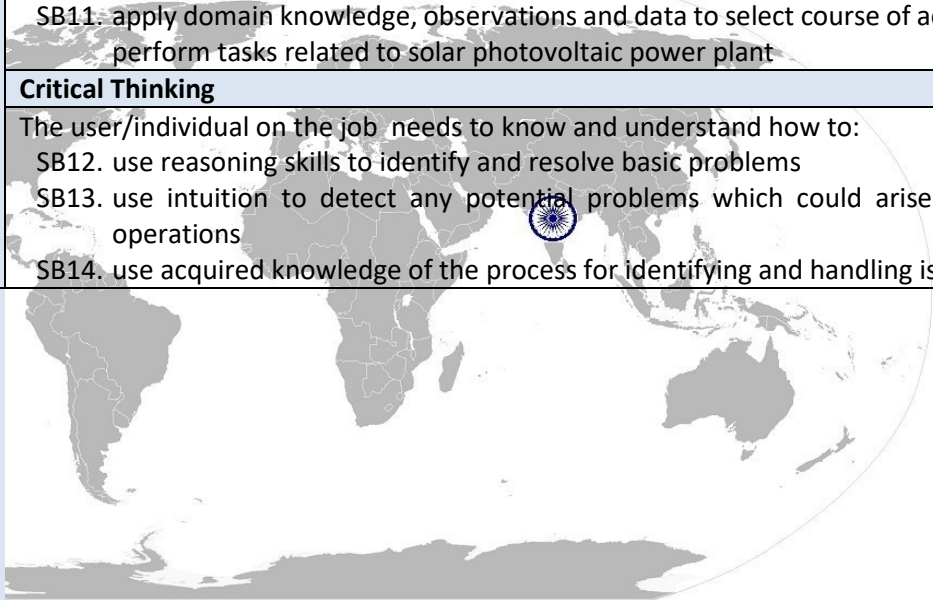
Unit Code	SGJ /N1506
Unit Title (Task)	Carry out maintenance of electrical & instrumentation systems of wind power plant
Description	This unit is about maintenance of electrical & instrumentation systems of wind power plant
Scope	This unit/task covers the following: <ul style="list-style-type: none"> • job specific safety • scheduled routine maintenance of WTG components • repair and replacement of WTG components
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Job specific safety	To be competent, the user/individual on the job must be able to: PC1. select the appropriate PPE to carry out the specific activity
Scheduled routine maintenance of WTG components	To be competent, the user/individual on the job must be able to: PC2. ensure that power supply is isolated prior to carrying out work PC3. acquire required approvals and permit to work (PTW) from the concerned authority PC4. perform visual inspection of the electrical and instrumentation systems and record any defects PC5. measure and record all parameters of WTG and associated components like continuity, earthing resistance, etc. PC6. report to the supervisor in case of any deviations from standard values
Repair and replacement of WTG components	To be competent, the user/individual on the job must be able to: PC7. acquire required approvals and permit to work (PTW) from the concerned authority PC8. arrange for tools and replacement equipment from the supervisor if required PC9. carry out repair or replacement of faulty equipment's/components of WTG, transformer, switchgear etc. as per standard operating procedures PC10. conduct readiness test on post replacement of equipment
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 organization 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
B. Technical Knowledge	The individual on the job needs to know and understand the following aspects: KB1. selection of appropriate PPE for specific activities KB2. common electricity terminology and correct interpretation of the same terminology: e.g. current, voltage, resistance, kilowatt (KW), kilowatt hour (KWh) KB3. definition of the terms: energy and power, WTG, blades and other associated equipment

SGJ/N1506 Carry out maintenance of electrical & instrumentation systems of wind power plant

	<p>KB4. basic concepts of continuity testing, earth resistance testing, phase sequence measurement relating to electrical and instrumentation systems of wind power plant</p> <p>KB5. basic functioning, specifications and operating principle of various components of a wind power plant</p> <p>KB6. the plant layout, technical drawings and manuals, blueprints, schematic drawing, technical specifications, operating principle and functioning of various electrical and instrumentation systems in wind power plant</p> <p>KB7. tools, tackles and equipment required to carry out specific activities in a wind power plant relating to operation and maintenance of electrical and instrumentation systems</p> <p>KB8. various types of pre and post commissioning tests/inspections of replacement equipment</p> <p>KB9. basic concepts of wind technology (like vertical, axial etc.) and wind power generation</p> <p>KB10. various types of electrical equipment of wind power plant and their testing approaches</p> <p>KB11. types of faults and respective troubleshooting techniques</p> <p>KB12. principles and practices of electrical safety during operation and maintenance of WTG, transformer and other plant equipment</p> <p>KB13. ratings and specifications of cables, fuses, switches and wires</p> <p>KB14. standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm</p>
Skills	
A. Core Skills/ Generic Skills	<p>Writing Skills</p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. prepare documentation as per relevant industry standards</p> <p>Reading Skills</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA2. read vernacular/English language</p> <p>SA3. read and understand manuals, health and safety instructions, memos, other company documents</p> <p>SA4. ability to read from different sources- books, screens in machines and signage</p> <p>SA5. understand the various colour codes, as per standard electrical, mechanical and civil nomenclature</p> <p>Oral Communication (Listening and Speaking skills)</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA6. express statements or information clearly so that others can hear and understand</p> <p>SA7. participate in and understand the main points of simple discussions</p> <p>SA8. respond appropriately to any queries</p> <p>SA9. communicate with supervisor</p>
B. Professional Skills	<p>Decision Making</p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. follow organization rule-based decision making process</p> <p>SB2. take decision with systematic course of actions and/or response</p> <p>Plan and Organize</p> <p>The user/individual on the job needs to know and understand:</p> <p>SB3. plan and organize service work to meet deadlines</p>

SGJ/N1506 Carry out maintenance of electrical & instrumentation systems of wind power plant

	SB4. plan to utilize time and equipment's effectively SB5. work constructively and collaboratively with others
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB6. follow organisation code of conduct SB7. manage relationships with customers with intent on satisfying its requirements for service delivery
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB8. recognize problems and search for solutions SB9. choose best methods to complete assigned tasks SB10. approach relevant authority when required
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB11. apply domain knowledge, observations and data to select course of action to perform tasks related to solar photovoltaic power plant
	Critical Thinking
The user/individual on the job needs to know and understand how to: SB12. use reasoning skills to identify and resolve basic problems SB13. use intuition to detect any potential problems which could arise during operations SB14. use acquired knowledge of the process for identifying and handling issues	



SGJ/N1506 Carry out maintenance of electrical & instrumentation systems of wind power plant

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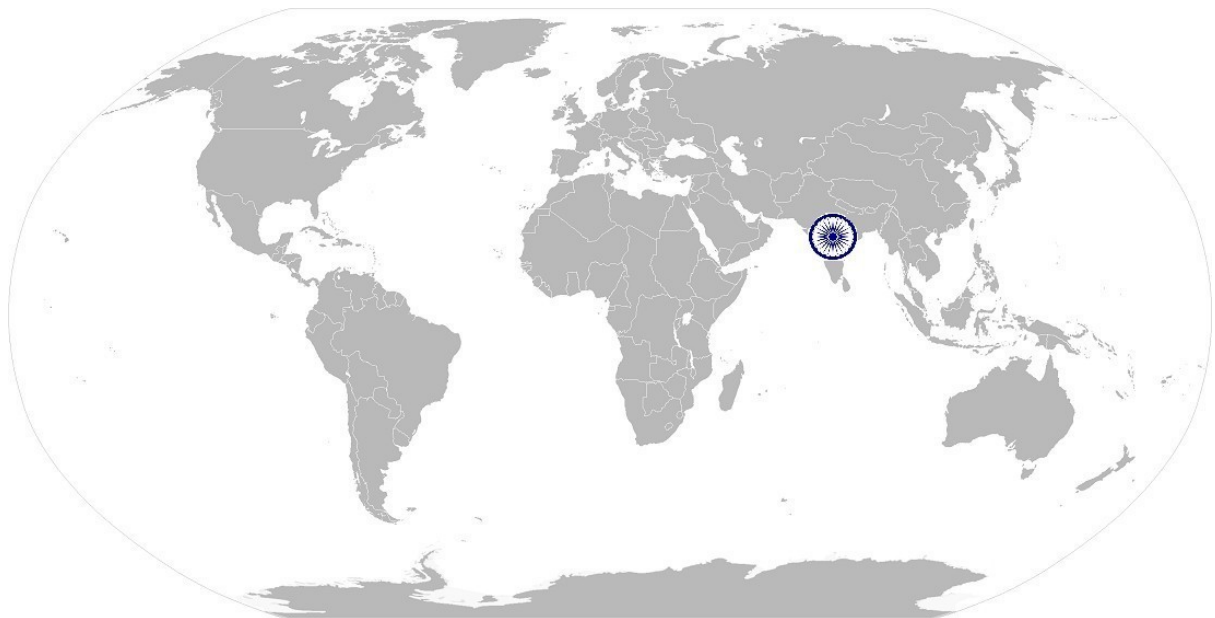
NOS Code	SGJ/N1506		
Credits (NSQF)	TBD	Version number	1.0
Industry	Green Jobs	Drafted on	01/09/2016
Industry Sub-sector	Renewable Energy	Last reviewed on	24/11/2017
Occupation	Operation and Maintenance	Next review date	30/09/2019



SGJ/N1201

Perform basic health and safety practices at project site
(Ground and Height)

National Occupational Standard



Overview

This unit covers health and safety practices to be maintained at project site


SGJ/N1201 Perform basic health and safety practices at project site (Ground and Height)

Unit Code	SGJ/N1101
Unit Title (Task)	Perform basic health and safety practices at project site (Ground and Height)
Description	This unit covers health and safety practices to be maintained at project site
Scope	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> • adherence to safe working practices at project site • fire safety and tackling emergency situations
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Adherence to safe working practices at project site	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. select the relevant protective clothing/equipment for specific tasks and work</p> <p>PC2. state the name and location of relevant documents and people responsible for health and safety in the at project site</p> <p>PC3. identify possible causes of risk at project site and their mitigation measures</p> <p>PC4. identify and follow warning signs on site</p> <p>PC5. establish safe working procedures at project site</p> <p>PC6. ensure safe working practices when working at heights, confined areas and trenches</p> <p>PC7. identify methods of accident prevention in the work environment</p> <p>PC8. follow safe operating procedures for lifting, carrying and transporting heavy objects & tools</p> <p>PC9. inspect the at project site on a regular basis for any signs of spillage</p> <p>PC10. ensure safe storage of flammable materials and machine lubricating oil</p> <p>PC11. apply good housekeeping practices at all times by removal/disposal of waste products</p> <p>PC12. inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly</p>
Fire safety and tackling emergency situations	<p>To be competent, the user/ individual must be able to:</p> <p>PC13. exhibit the use of various appropriate fire extinguishers on different types of fires correctly</p> <p>PC14. demonstrate rescue techniques applied during fire hazard</p> <p>PC15. administer appropriate first aid to victims were required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.</p> <p>PC16. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments</p> <p>PC17. participate in emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work</p> <p>PC18. report the accident to the relevant authority in the prescribed format</p>
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:-</p> <p>KA1. names (and job titles if applicable), and where to find, all the people responsible for health and safety in a at project site</p> <p>KA2. names and location of documents that refer to health and safety in the at project site</p> <p>KA3. escalation matrix and procedures for reporting work and employment related issues</p>
B. Technical Knowledge	<p>The individual on the job needs to know and understand:</p> <p>KB1. meaning of “hazards” and “risks”</p> <p>KB2. various types of safety signs and what they mean</p>



SGJ/N1201

Perform basic health and safety practices at project site (Ground and Height)

	<p>KB3. health and safety hazards commonly present in the work environment and related precautions</p> <p>KB4. possible causes of risk and accident and their mitigation measures</p> <p>KB5. safe working practices when working with tools and machines</p> <p>KB6. location of first-aid and safety equipment in the at project site</p> <p>KB7. 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> <p>KB8. standard safety procedures and equipments to be used to work at heights, trenches and confined places</p> <p>KB9. importance of using PPE and its selection as per the activity</p> <p>KB10. various causes of fires: heating of metal; spontaneous ignition; sparking; electrical heating; loose fires (smoking, welding, etc.); chemical fires; etc.</p> <p>KB11. precautionary activities taken to prevent fire accident or any other emergency situation</p> <p>KB12. different types of fire extinguishers and their usage and methods of extinguishing fire using various techniques</p> <p>KB13. emergency rescue techniques to be applied during a fire hazard or any other emergency situation</p>
Skills (S)	
A. Core Skills/ Generic Skills	Reading and writing skills
	The user/ individual on the job needs to know and understand: SA1. proper documentation as per relevant industry standards
	Reading skills
	The user/ individual on the job needs to know and understand: SA2. vernacular/English language SA3. manuals, health and safety instructions, memos, other company documents SA4. how to read and interpret data from different sources SA5. the various colour codes, as per standard electrical, mechanical and civil nomenclature
	Oral communication (listening and speaking skills)
B. Professional Skills	The user/ individual on the job needs to know and understand how to: SA6. express statements or information clearly so that others can hear and understand SA7. participate in and understand the main points of simple discussions SA8. respond appropriately to any queries SA9. communicate with peers, superiors and sub-ordinates
	Decision Making
	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
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB3. plan and organize work to meet deadlines SB4. plan to utilize time and equipment effectively SB5. work constructively and collaboratively with others
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB6. follow organisation code of conduct



SGJ/N1201 Perform basic health and safety practices at project site (Ground and Height)

	SB7. manage relationships with customers with intent on satisfying its requirements for service delivery
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB8. recognize problems and provide solutions using a range of cognitive and practical skills SB9. approach relevant authority when required
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB10. apply knowledge of facts, principles and processes to select the right course of action to perform tasks
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB11. use reasoning skills to identify and resolve basic problems SB12. use intuition to detect any potential problems which could arise during operations SB13. use acquired knowledge of the process for identifying and handling issues

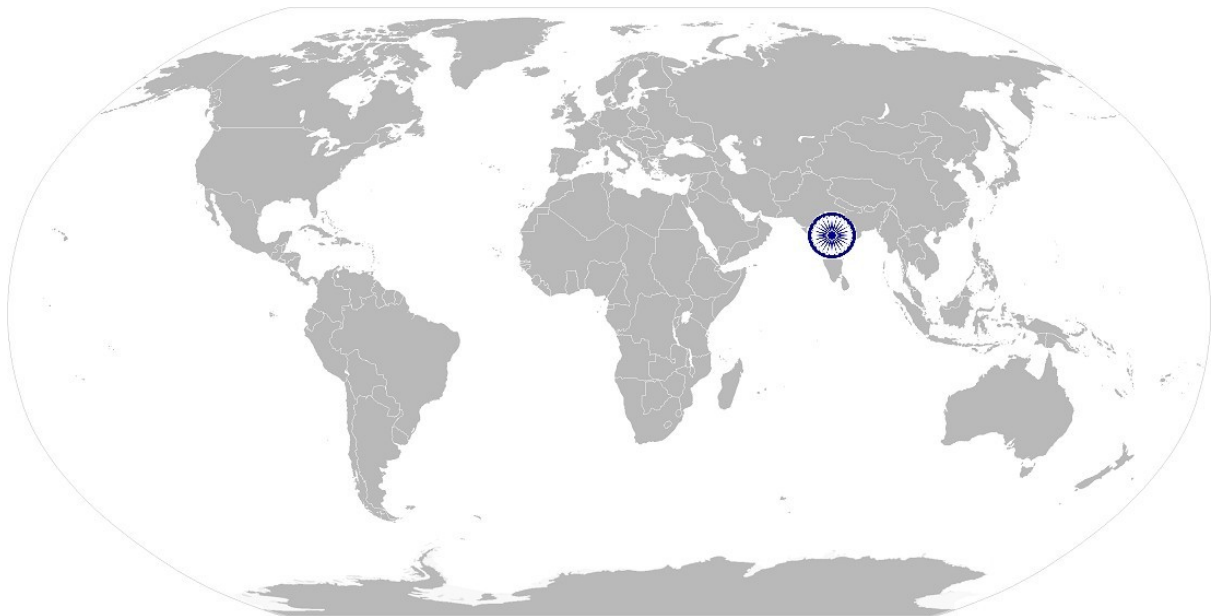


NOS Version Control

NOS Code	SGJ/N1201		
Credits (NSQF)	TBD	Version number	1.0
Industry	Green Jobs	Drafted on	01/09/2016
Industry Sub-sector	Renewable Energy	Last reviewed on	24/11/2017
Occupation	Health and Safety	Next review date	30/09/2019



National Occupational Standard



Overview

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

SGJ/N0120

Work effectively with others

National Occupational Standard

Unit Code	SGJ/ N0120
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 at project site
Scope	This unit/task covers the following: <ul style="list-style-type: none"> working with others
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Working with others	<p>The user/individual on the job should be able to:</p> <p>PC1. accurately pass on information to the authorized persons who require it and within agreed timescale and confirm its receipt</p> <p>PC2. assist others in performing tasks in a positive manner where required and possible</p> <p>PC3. consult and assist others to maximize effectiveness and efficiency in carrying out tasks</p> <p>PC4. display appropriate communication etiquette while working</p> <p>PC5. display active listening skills while interacting with others at work</p> <p>PC6. demonstrate responsible and disciplined behaviors at the at project site</p> <p>PC7. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict</p> <p>PC8. identify the need for common grounds with clients, team members, etc. and negotiate in an effective manner to achieve the same</p> <p>PC9. consider and respect the opinions, creativity, values, beliefs and perspectives of others</p> <p>PC10. ensure collaboration and group participation to achieve common goals</p> <p>PC11. promote a friendly, co-operative environment that is conducive to employee's sense of belonging</p> <p>PC12. facilitate an understanding and appreciation of the differences among team members</p>
Knowledge and Understanding (K)	
A. Organizational context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. legislation, standards, policies, and procedures followed in the organization 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>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. various categories of people that one is required to communicate and co-ordinate with in the organization</p> <p>KB2. importance of effective communication in the at project site</p> <p>KB3. importance of teamwork in organizational and individual success</p> <p>KB4. various components of effective communication</p>

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	<p>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. key elements and importance of non-verbal communication KB12. importance of ethics for professional success KB13. importance of discipline for professional success KB14. what constitutes disciplined behavior for a working professional KB15. common reasons for interpersonal conflict KB16. importance of developing effective working relationships for professional success KB17. expressing and addressing grievances appropriately and effectively KB18. importance and ways of managing interpersonal conflict effectively KB19. importance of teamwork and collaboration</p>
Skills (S)	
<p>A. Core Skills/ Generic Skills</p>	<p>Writing Skills</p>
	<p>The user/ individual on the job needs to know and understand how to: SA1. note the information communicated SA2. record the readings of various parameters in the prescribed format SA3. note down observations related to the activity SA4. write information documents to internal departments/ internal teams</p>
	<p>Reading Skills</p>
	<p>The user/individual on the job needs to know and understand how to: SA5. read vernacular/English language SA6. read and understand equipment manuals, health and safety instructions, memos, other company documents SA7. read from different sources- books, screens in machines and signage SA8. read internal information documents sent by internal teams</p>
<p>B. Professional Skills</p>	<p>Oral Communication (Listening and Speaking skills)</p>
	<p>The user/individual on the job needs to know and understand how to: SA9. express statements or information clearly so that others can hear and understand SA10. participate in and understand the main points of simple discussions SA11. respond appropriately to any queries SA12. communicate effectively with supervisor, peers and subordinates</p>
	<p>Decision Making</p>
	<p>The user/individual on the job needs to know and understand how to: SB1. follow organization rule-based decision making process SB2. analyze critical points in day to day tasks and identify control measures to solve the issue SB3. handle issues in case the superior is not available (as per the authority matrix defined by the organisation)</p>
	<p>Plan and Organize</p>
	<p>The user/individual on the job needs to know and understand how to : SB4. planning and organization of work to meet deadlines</p>

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	SB5. work constructively and collaboratively with others SB6. support the superiors in scheduling tasks
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB7. follow organization code of conduct SB8. manage relationships with customers with intent on satisfying its requirements for service delivery
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB9. recognize problems and search for solutions SB10. choose best methods to complete assigned tasks SB11. approach relevant authority when required
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB12. apply domain knowledge, observations and data to select course of action to perform tasks
	Critical Thinking
The user/individual on the job needs to know and understand how to: SB13. critically evaluate information obtained from customers, supervisor and co-workers to perform day to day activities SB14. ask questions for better understanding	

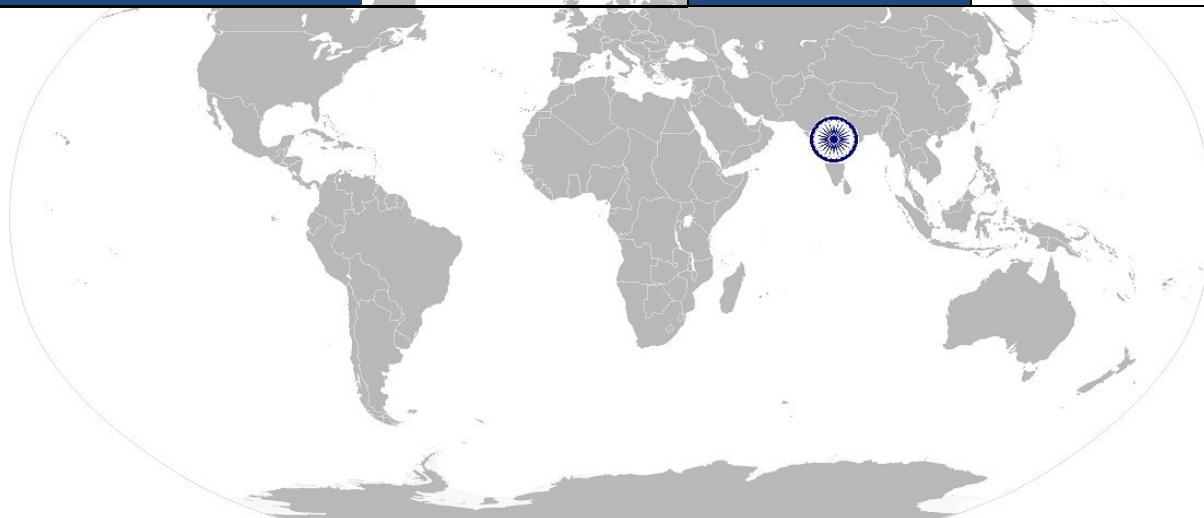


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NOS Version Control

NOS Code	SGJ/N0120		
Credits (NSQF)	TBD	Version number	1.0
Industry	Green Jobs	Drafted on	01/09/2016
Industry Sub-sector	Renewable Energy	Last reviewed on	15/02/2017
Occupation	Team management	Next review date	30/09/2019

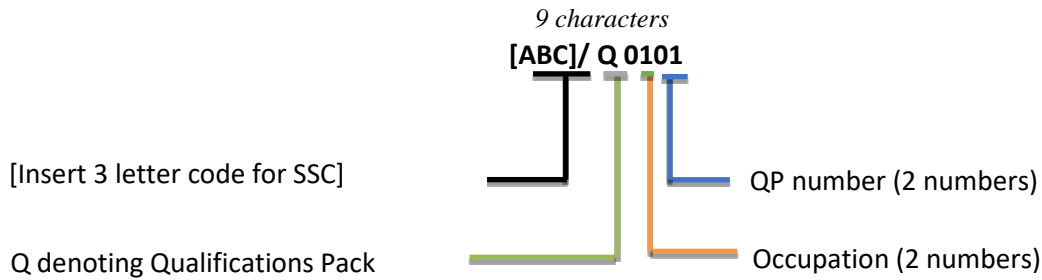


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Annexure

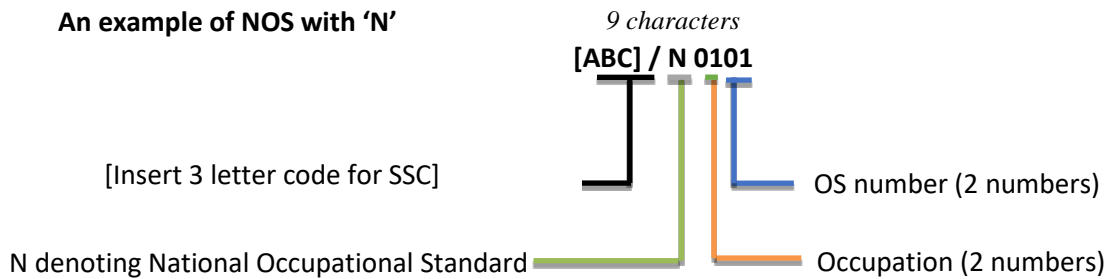
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



SGJ/Q1503 Qualifications Pack For “O&M Electrical & Instrumentation Technician- Wind Power Plant”

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

Sub-sector		Range of Occupation numbers
Renewable Energy (01-35)	Solar Photovoltaic	01-05
	Solar Thermal	06-10
	Wind	11-15
	Hydro	16-20
	Biomass	21-25
	Geothermal	26-30
	All Renewable Energy (Cross-cutting/ Enabling Activities)	31-35
Green Transportation (36 - 40)	Alternative Fuel Transportation	36-40
	Bio-fuels and Farming	40-45
	Other Green Transportation	46-50
Green Construction (51- 60)	Green Buildings	51-55
	Energy Efficiency	56-60
Waste Management (61- 65)	Waste Management	61-65
Water Management (66-70)	Water and Wastewater Management	66-70
Co-Generation (71 - 75)	Co-generation	71-75
Other Green Jobs (76- 99)	Carbon Sinks	76-80
	Environmental Compliance and Sustainability Planning	81-85
	Other Green Jobs	85-99

Sequence	Description	Example
Three letters	Industry name	SGJ
Slash	/	/
Next letter	Whether QP or NOS	Q or N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role O&M Electrical & Instrumentation Technician- Wind Power Plant

Qualification Pack SGJ/Q1503

Sector Skill Council Skill Council for Green Jobs

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS				Marks Allocation	
Total Marks:400				Theory	Skills Practical
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out Of		
SGJ /N1505 Carry out operation of electrical & instrumentation system of wind power plant	PC1. select the appropriate PPE to carry out the specific activity	100	6	4	2
	PC2. identify the design drawing and specifications of equipment for inspection		6	4	2
	PC3. carry out scheduled & preventive inspections of electrical/instrumentation components & equipment		10	2	8
	PC4. verify and record the running parameters of WTG, transformer and switchgear with design document		7	1	6
	PC5. monitor the working efficiency of WTG and associated wind power plant equipment		8	2	6
	PC6. identify the location of the conduit, cables & other undergoing devices prior to performing maintenance work		6	2	4
	PC7. check all the intersections & joints(termination) in the		6	2	4



SGJ/Q1503 Qualifications Pack For "O&M Electrical & Instrumentation Technician- Wind Power Plant"

	line and cable for faults like loose joint, short circuit, open circuit etc.				
	PC8. assist the plant engineer in undertaking breakdown maintenance, if required		8	3	5
	PC9. arrange for tools to carry out online testing of WTG and components		6	2	4
	PC10. acquire required approvals and permit to work (PTW) from the concerned authority		4	3	1
	PC11. perform visual inspection of the surroundings and the electrical component and record any defects		10	4	6
	PC12. measure and record performance parameters like voltage, current, frequency parameters, WTG temperature, etc.		6	4	2
	PC13. measure and record for performance parameters of transformer like input voltage/ output voltage, frequency, phase sequence, etc.		6	4	2
	PC14. maintain log of all performance parameters of switch gear		6	4	2
	PC15. prepare report and submit to site in-charge/plant head for further action		5	3	2
		TOTAL	100	44	56
SGJ /N1506 Perform maintenance of electrical & instrumentation systems of wind power plant	PC1. select the appropriate PPE to carry out the specific activity	100	4	1	3
	PC2. ensure that power supply is isolated prior to carrying out work		15	7	8
	PC3. acquire required approvals and permit to work (PTW) from the concerned authority		5	3	1
	PC4. perform visual inspection of the electrical and instrumentation systems and record any defects		15	6	9
	PC5. measure and record all parameters of WTG and associated components		15	6	9



SGJ/Q1503 Qualifications Pack For “O&M Electrical & Instrumentation Technician- Wind Power Plant”

	like continuity, earthing resistance, etc.				
	PC6. report to the supervisor in case of any deviations from standard values		8	3	5
	PC7. acquire required approvals and permit to work (PTW) from the concerned authority		5	2	3
	PC8. arrange for tools and replacement equipment from the supervisor if required		7	3	4
	PC9. carry out repair or replacement of faulty equipment's/components of WTG, transformer, switchgear etc. as per standard operating procedures		16	8	8
	PC10. conduct readiness test on post replacement of equipment		10	4	6
		TOTAL	100	43	56
SGJ/N1201 Perform basic health and safety practices at project site (Ground and Height)	PC1. select the relevant protective clothing/equipment for specific tasks and work	100	6	4	2
	PC2. state the name and location of relevant documents and people responsible for health and safety in the at project site		6	4	2
	PC3. identify possible causes of risk at at project site and their mitigation measures		6	2	4
	PC4. identify and follow warning signs on site		3	2	1
	PC5. establish safe working procedures at the at project site		6	2	4
	PC6. ensure safe working practices when working at heights, confined areas and trenches		6	2	4
	PC7. identify methods of accident prevention in the work environment		6	2	4
	PC8. follow safe operating procedures for lifting, carrying and transporting heavy objects & tools		6	2	4

SGJ/Q1503 Qualifications Pack For “O&M Electrical & Instrumentation Technician- Wind Power Plant”

	PC9. inspect the at project site on a regular basis for any signs of spillage		6	2	4
	PC10. ensure safe storage of flammable materials and machine lubricating oil		6	4	2
	PC11. apply good housekeeping practices at all times by removal/disposal of waste products		6	2	4
	PC12. inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly		6	2	4
	PC13. exhibit the use of various appropriate fire extinguishers on different types of fires correctly		6	4	2
	PC14. demonstrate rescue techniques applied during fire hazard		6	3	3
	PC15. administer appropriate first aid to victims were required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		6	4	2
	PC16. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		6	2	4
	PC17. participate in emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work		3	1	2
	PC18. report the accident to the relevant authority in the prescribed format		4	2	2
		TOTAL	100	46	54
SGJ/N0120 Work effectively with others	PC1. accurately pass on information to the authorized persons who require it and within agreed timescale and confirm its receipt	100	10	2	8
	PC2. assist others in performing tasks in a positive manner where required and possible		6	1	5



SGJ/Q1503 Qualifications Pack For “O&M Electrical & Instrumentation Technician- Wind Power Plant”

	PC3. consult and assist others to maximize effectiveness and efficiency in carrying out tasks		8	2	6
	PC4. display appropriate communication etiquette while working		9	2	7
	PC5. display active listening skills while interacting with others at work		8	2	6
	PC6. demonstrate responsible and disciplined behaviors at the at project site		8	2	6
	PC7. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict		9	2	7
	PC8. identify the need for common grounds with clients, team members, etc. and negotiate in an effective manner to achieve the same		9	2	7
	PC9. consider and respect the opinions, creativity, values, beliefs and perspectives of others		9	2	7
	PC10. ensure collaboration and group participation to achieve common goals		8	2	6
	PC11. promote a friendly, co-operative environment that is conducive to employee’s sense of belonging		8	2	6
	PC12. facilitate an understanding and appreciation of the differences among team members		8	2	6
		TOTAL	100	23	77