

## 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 Mechanical Technician – Wind Power Plant

**SECTOR:** GREEN JOBS

**SUB-SECTOR:** RENEWABLE ENERGY

**OCCUPATION:** OPERATION AND MAINTENANCE

**REFERENCE ID:** SGJ/Q1502

**ALIGNED TO:** NCO-2015/ NIL

**Brief Job Description:** The O&M Mechanical Technician – Wind Power Plant, carries out operation and maintenance of mechanical components of wind power plant, 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 Mechanical Technician - Wind Power Plant

Job Details	<b>Qualifications Pack Code</b>	<b>SGJ/Q1502</b>		
	<b>Job Role</b>	<b>O&amp;M Mechanical Technician-Wind Power Plant</b> [This job role is applicable in both national and international scenarios]		
	<b>Credits(NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
	<b>Sector</b>	<b>Green Jobs</b>	<b>Drafted on</b>	<b>01/09/2016</b>
	<b>Sub-sector</b>	<b>Renewable Energy</b>	<b>Last reviewed on</b>	<b>24/11/2017</b>
	<b>Occupation</b>	<b>Operation and Maintenance</b>	<b>Next review date</b>	<b>30/09/2019</b>
	<b>NSQC Clearance on</b>	<b>N.A</b>		

<b>Job Role</b>	<b>O&amp;M Mechanical Technician – Wind Power Plant</b>
<b>Role Description</b>	The O&M Mechanical Technical – Wind Power Plant, carries out operation and maintenance of mechanical components of wind power plant, complying with all operational manuals, applicable codes, standards and safety requirements
<b>NSQF level</b>	4
<b>Minimum Education Qualifications</b>	Class 12 <sup>th</sup> pass, preferably
<b>Maximum Educational Qualifications</b>	Not applicable
<b>Prerequisite License of Training</b>	N /A
<b>Minimum Job Entry Age</b>	18 years
<b>Experience</b>	Not Required
<b>Applicable National Occupational Standards (NOS)</b>	Compulsory: <ol style="list-style-type: none"> <li>SGJ/N1503 <a href="#">Carry out operation of mechanical components of wind power plant</a></li> <li>SGJ/N1504 <a href="#">Carry out maintenance of mechanical components of wind power plant</a></li> <li>SGJ/N1201 <a href="#">Perform basic health and safety practices at project site (Ground and Height)</a></li> <li>SGJ/N0120 <a href="#">Work effectively with others</a></li> </ol>

Qualifications Pack For O&M Mechanical 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 organisation.
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 organisational specific knowledge that an individual need to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation 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

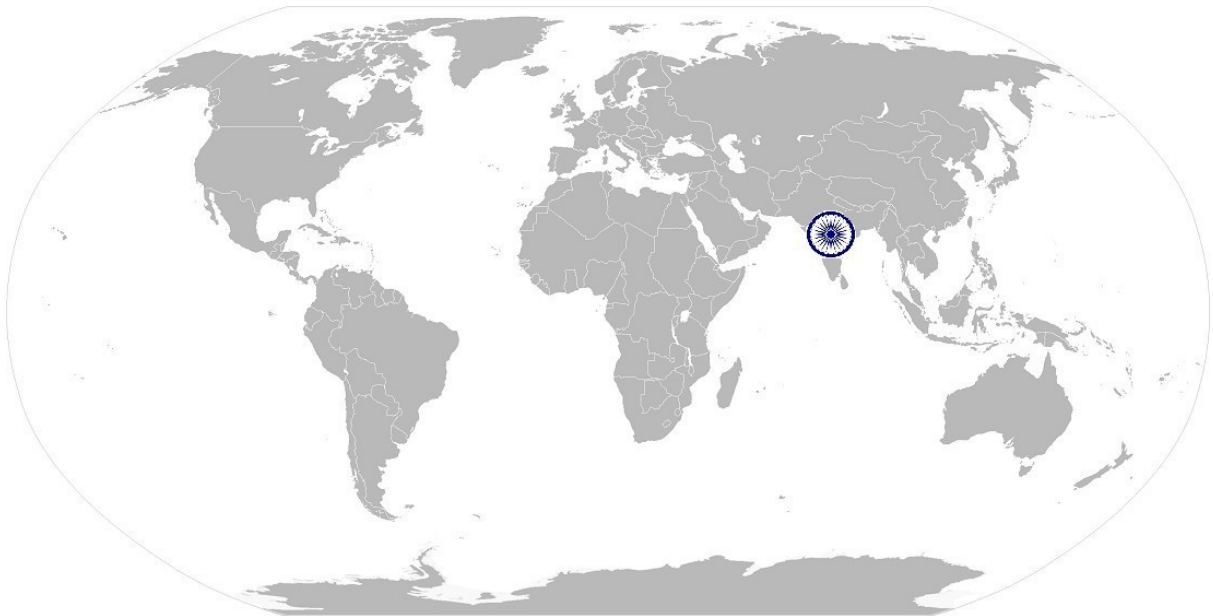
*Qualifications Pack For O&M Mechanical Technician - Wind Power Plant*

	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
UTM	Universal Testing Machine
CTM	Compression Testing Machine

# National Occupational Standard



## Overview

This unit is about operation of mechanical components of wind power plant

**SGJ/N150 Carry out maintenance of mechanical components of wind power plant**

National Occupational Standard

<b>Unit Code</b>	<b>SGJ /N1503</b>
<b>Unit Title (Task)</b>	<b>Carry out operation of mechanical components of wind power plant</b>
<b>Description</b>	This unit is about operation of mechanical components of wind power plant
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• job specific safety</li> <li>• primary inspection of mechanical components</li> <li>• online testing of WTG components</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Job specific safety</b>	To be competent, the user/individual on the job must be able to: <p>PC1. select the appropriate PPE (Personal Protective Equipment) to carry out the specific activity</p>
<b>Primary inspection of mechanical components</b>	To be competent, the user/individual on the job must be able to: <p>PC2. identify the operation manuals of all mechanical components for inspection</p> <p>PC3. acquire required approvals and permit to work (PTW) from the concerned authority</p> <p>PC4. prepare site and equipment for inspection</p> <p>PC5. carry out inspections of WTG, blade and associated mechanical components as per schedule</p> <p>PC6. verify and record the operative parameters for all components as per design standards</p> <p>PC7. monitor working efficiency of WTG and associated components</p> <p>PC8. identify the location of the conduit, cables, pipes &amp; other undergoing devices prior to performing maintenance work</p>
<b>Online testing of WTG components</b>	To be competent, the user/individual on the job must be able to: <p>PC9. arrange for tools to carry out online testing of WTG and components</p> <p>PC10. acquire required approvals and permit to work (PTW) from the concerned authority</p> <p>PC11. perform visual inspection of the surroundings and the mechanical components and record any defects</p> <p>PC12. measure and record real time parameters of WTG and associated components like vibration, torqueing, temperature of bearings, grease level, alignment etc.</p> <p>PC13. measure and record real time parameters of wind turbine blades and associated components like temperature, vibration, alignment, etc.</p> <p>PC14. maintain log of all systems condition (parameters)</p> <p>PC15. prepare report and submit to site in-charge/plant head for further action</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: <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>



**SGJ/N150 Carry out maintenance of mechanical components of wind power plant**

	<p>KA4. escalation matrix and procedures for reporting work and employment related issues</p>
<p><b>B. Technical Knowledge</b></p>	<p>The individual on the job needs to know and understand:</p> <p>KB1. selection of appropriate PPE for specific activities</p> <p>KB2. definition of the terms: energy ,power, WTG, blades and tower</p> <p>KB3. basic concepts of wind technology and wind power generation</p> <p>KB4. basic concepts of vibration, torqueing, temperature relating to mechanical components of wind power plant</p> <p>KB5. principles and practices of safety during the process of operation and maintenance of WTG, transformer and other plant equipment</p> <p>KB6. basic functioning, specifications and operating principle of various components of a wind power plant</p> <p>KB7. the plant layout, technical drawings and manuals, blueprints, schematic drawing, technical specifications, operating principle and functioning of various mechanical components in wind power plant</p> <p>KB8. tools, tackles and equipment required to carry out specific activities in a wind power plant relating to operation and maintenance of mechanical components</p> <p>KB9. types of faults and troubleshooting techniques for mechanical components of wind power plant</p> <p>KB10. process of reporting problems in a timely manner</p> <p>KB11. standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm</p>
<p><b>Skills</b></p>	
<p><b>A. Core Skills/ Generic Skills</b></p>	<p><b>Writing Skills</b></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><b>Reading Skills</b></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><b>Oral Communication (Listening and Speaking skills)</b></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>
<p><b>B. Professional Skills</b></p>	<p><b>Decision Making</b></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>

**SGJ/N150 Carry out maintenance of mechanical components of wind power plant**

	<b>Plan and Organize</b>
	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
	<b>Customer Centricity</b>
	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
	<b>Problem Solving</b>
	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
	<b>Analytical Thinking</b>
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 wind power plant	
<b>Critical Thinking</b>	
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/N150 Carry out maintenance of mechanical components of wind power plant

## NOS Version Control

<b>NOS Code</b>	<b>SGJ/N1503</b>		
<b>Credits (NSQF)</b>	TBD	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	Green Jobs	<b>Drafted on</b>	<b>01/09/2016</b>
<b>Industry Sub-sector</b>	Renewable Energy	<b>Last reviewed on</b>	<b>24/11/2017</b>
<b>Occupation</b>	Operation and Maintenance	<b>Next review date</b>	<b>30/09/2019</b>

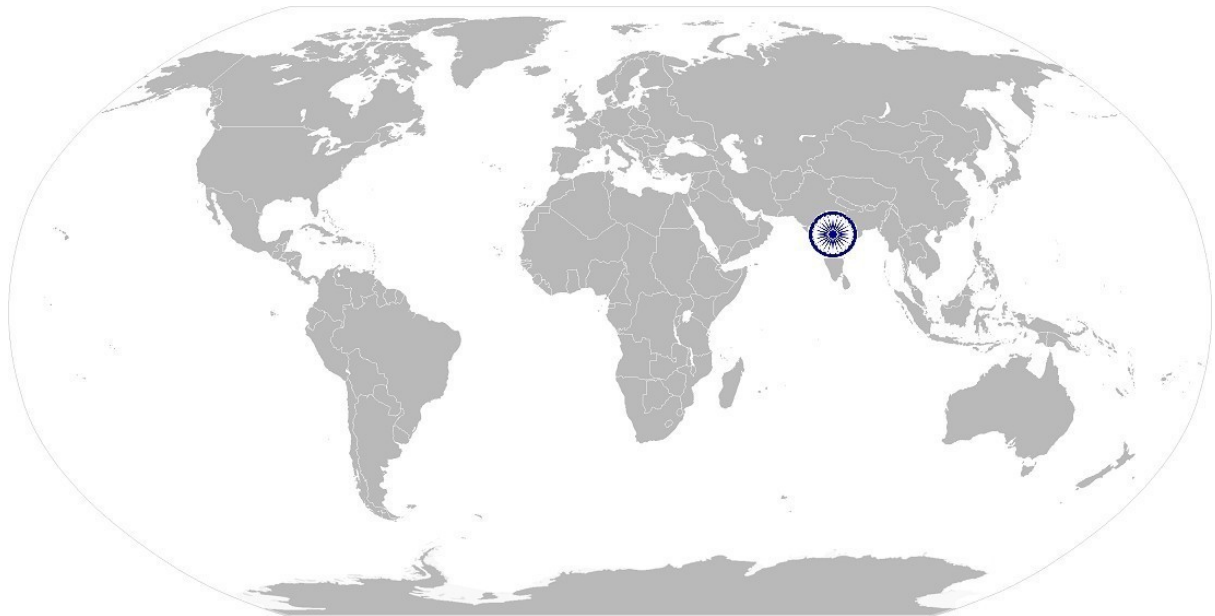


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SGJ/N150 Carry out maintenance of mechanical components of wind power plant

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# National Occupational Standard



## **Overview**

This unit is about maintenance of mechanical components of wind power plant

**SGJ/N1504 Carry out maintenance of mechanical components of wind power plant**

National Occupational Standard

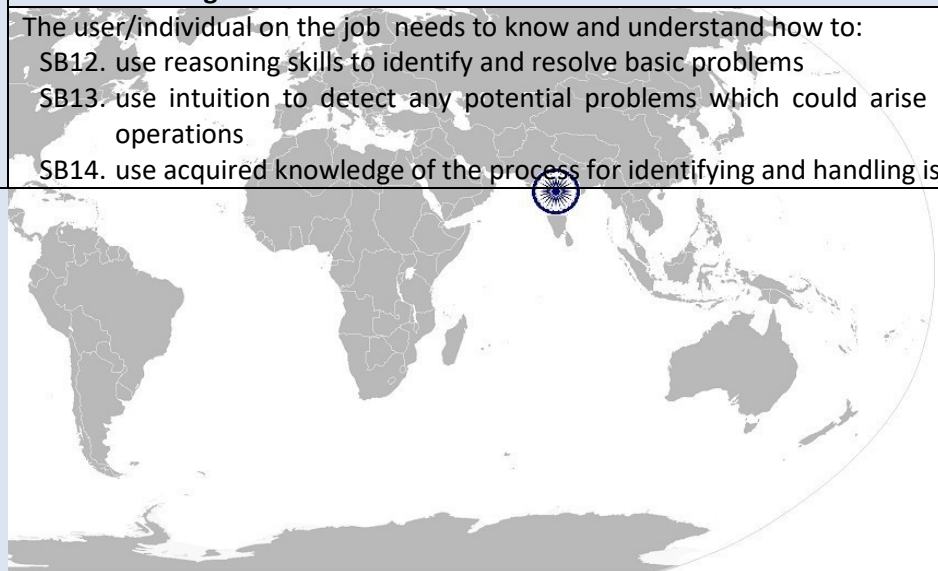
<b>Unit Code</b>	<b>SGJ /N1504</b>
<b>Unit Title (Task)</b>	<b>Carry out maintenance of mechanical components of wind power plant</b>
<b>Description</b>	This unit is about maintenance of mechanical components of wind power plant
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>• job specific safety</li> <li>• scheduled routine maintenance of WTG components</li> <li>• repair and replacement of WTG components</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Job specific safety</b>	To be competent, the user/individual on the job must be able to: <p>PC1. select the appropriate PPE (Personal Protective Equipment) to carry out the specific activity</p>
<b>Scheduled routine maintenance of WTG components</b>	To be competent, the user/individual on the job must be able to: <p>PC2. identify required approvals and permit to work (PTW) from the concerned authority</p> <p>PC3. ensure that the system is shut down prior to carrying out work</p> <p>PC4. perform visual inspection of the mechanical components of wind power plant and record any defects</p> <p>PC5. carry out maintenance activities for mechanical components of WTG as per standard operating procedures</p> <p>PC6. carry out testing of WTG and associated components on</p> <ol style="list-style-type: none"> <li>universal testing machine (UTM)</li> <li>compression testing machine (CTM)</li> </ol> <p>PC7. measure and record parameters post maintenance activities</p> <p>PC8. report to the supervisor in case of any deviations from standard values</p>
<b>Repair and replacement of WTG components</b>	To be competent, the user/individual on the job must be able to: <p>PC9. identify required approvals and permit to work (PTW) from the concerned authority</p> <p>PC10. arrange for tools and replacement equipment from the supervisor if required</p> <p>PC11. carry out repair or replacement of faulty mechanical components of wind power plant as per standard operating procedures</p> <p>PC12. conduct readiness test on post replacement of equipment</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: <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>B. Technical Knowledge</b>	The individual on the job needs to know and understand: <p>KB1. definition of the terms: energy ,power, WTG, blades and tower</p> <p>KB2. basic concepts of wind technology and wind power generation</p> <p>KB3. basic concepts of vibration, torquing, temperature relating to mechanical components of wind power plant</p>

**SGJ/N1504 Carry out maintenance of mechanical components of wind power plant**

	<p>KB4. principles and practices of safety during the process of operation and maintenance of WTG, transformer and other plant equipment</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 mechanical components 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 mechanical components such as:</p> <ol style="list-style-type: none"> <li>a. Compression Testing Machine</li> <li>b. Universal Testing Machine</li> </ol> <p>KB8. the types and process of various pre and post commissioning tests to be conducted on replaced equipment</p> <p>KB9. types of faults and troubleshooting techniques for mechanical components of wind power plant</p> <p>KB10. process of reporting problems in a timely manner</p> <p>KB11. standard procedures how to deal with electric shocks and electrocutions to rescue and minimize damage and harm</p> <p>KB12. selection of appropriate PPE for specific activities</p>
<b>Skills</b>	
<b>A. Core Skills/ Generic Skills</b>	<p><b>Writing Skills</b></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><b>Reading Skills</b></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><b>Oral Communication (Listening and Speaking skills)</b></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>B. Professional Skills</b>	<p><b>Decision Making</b></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><b>Plan and Organize</b></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> <p>SB4. plan to utilize time and equipment's effectively</p> <p>SB5. work constructively and collaboratively with others</p>

**SGJ/N1504 Carry out maintenance of mechanical components of wind power plant**

	<b>Customer Centricity</b>
	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
	<b>Problem Solving</b>
	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
	<b>Analytical Thinking</b>
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 wind power plant	
<b>Critical Thinking</b>	
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	

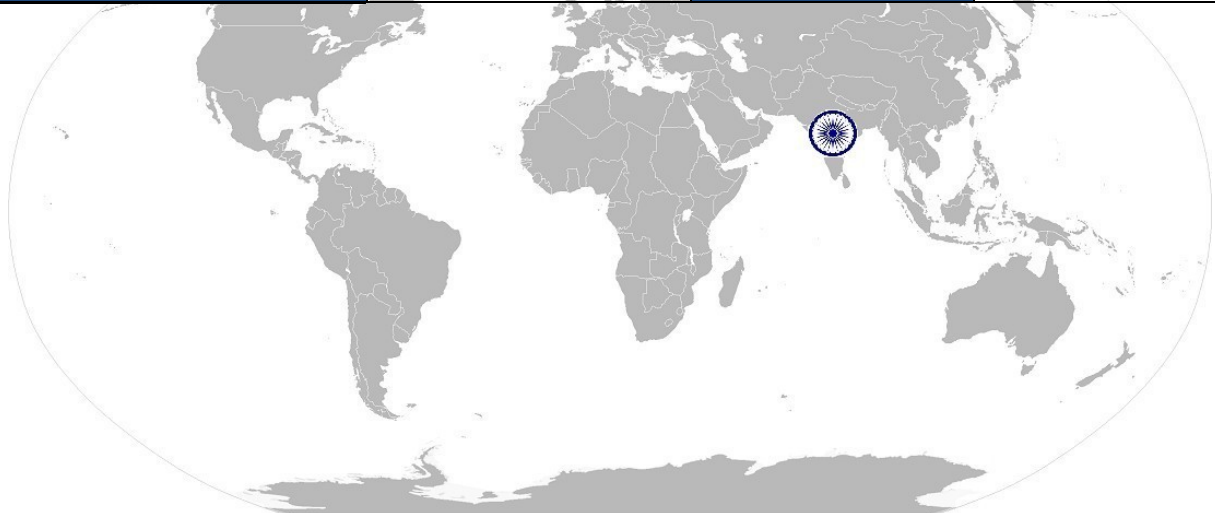


SGJ/N1504

Carry out maintenance of mechanical components of wind power plant

## NOS Version Control

<b>NOS Code</b>	<b>SGJ/N1504</b>		
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<b>Industry Sub-sector</b>	Renewable Energy	<b>Last reviewed on</b>	<b>24/11/2017</b>
<b>Occupation</b>	Operation and Maintenance	<b>Next review date</b>	<b>30/09/2019</b>



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SCGJ

SKILL COUNCIL FOR  
GREEN JOBS

SGJ/N1201



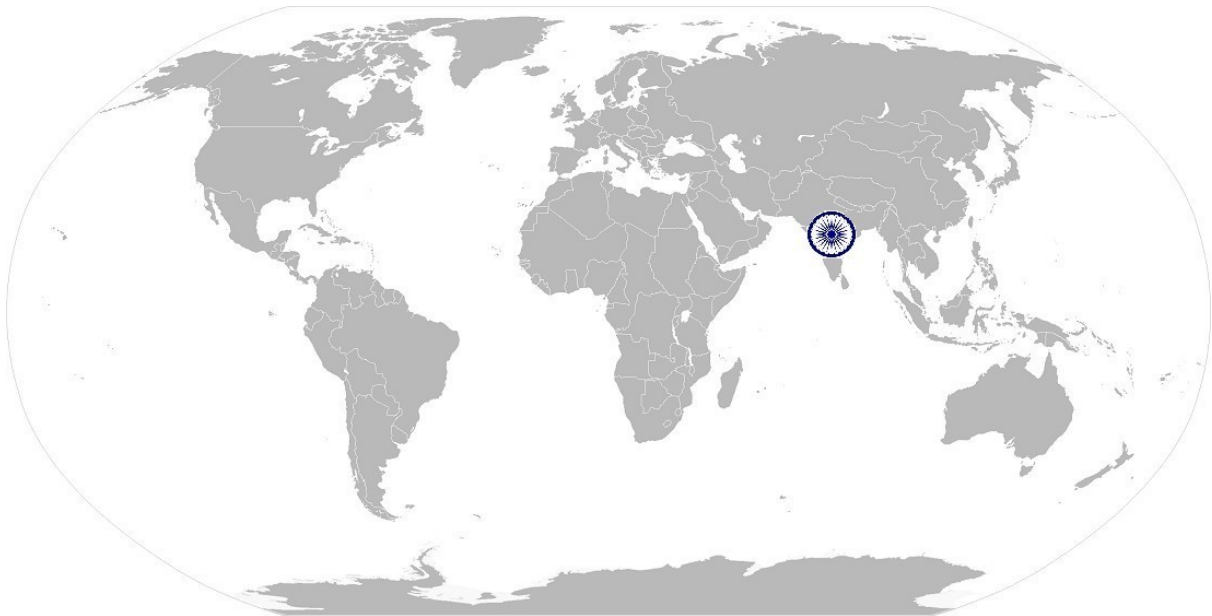
N · S · D · C

National  
Skill Development  
Corporation

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

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# 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)**

<b>Unit Code</b>	<b>SGJ/N1201</b>
<b>Unit Title (Task)</b>	<b>Perform basic health and safety practices at project site (Ground and Height)</b>
<b>Description</b>	This unit covers health and safety practices to be maintained at project site
<b>Scope</b>	<p>This unit/task covers the following:</p> <ul style="list-style-type: none"> <li>• adherence to safe working practices at project site</li> <li>• fire safety and tackling emergency situations</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Adherence to safe working practices at project site</b>	<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 at the 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 the 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 &amp; 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>
<b>Fire safety and tackling emergency situations</b>	<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>
<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. 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>

SGJ/N1201

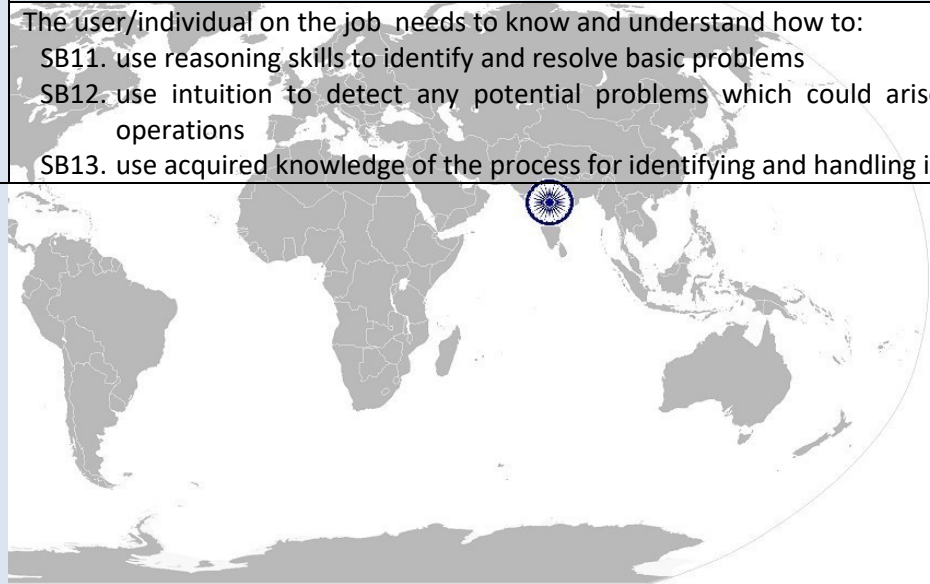
**Perform basic health and safety practices at project site  
(Ground and Height)**

<p><b>B. Technical Knowledge</b></p>	<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> <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>
<p><b>Skills (S)</b></p>	
<p><b>A. Core Skills/ Generic Skills</b></p>	<p><b>Reading and writing skills</b></p> <p>The user/ individual on the job needs to know and understand:</p> <p>SA1. proper documentation as per relevant industry standards</p> <p><b>Reading skills</b></p> <p>The user/ individual on the job needs to know and understand:</p> <p>SA2. vernacular/English language</p> <p>SA3. manuals, health and safety instructions, memos, other company documents</p> <p>SA4. how to read and interpret data from different sources</p> <p>SA5. the various colour codes, as per standard electrical, mechanical and civil nomenclature</p> <p><b>Oral communication (listening and speaking skills)</b></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, superiors and sub-ordinates</p>
<p><b>B. Professional Skills</b></p>	<p><b>Decision Making</b></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><b>Plan and Organize</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB3. plan and organize work to meet deadlines</p> <p>SB4. plan to utilize time and equipment effectively</p> <p>SB5. work constructively and collaboratively with others</p>



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

	<b>Customer Centricity</b>
	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
	<b>Problem Solving</b>
	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
	<b>Analytical Thinking</b>
	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
	<b>Critical Thinking</b>
	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





SCGJ

SKILL COUNCIL FOR  
GREEN JOBS

SGJ/N1201



N · S · D · C

National  
Skill Development  
Corporation

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

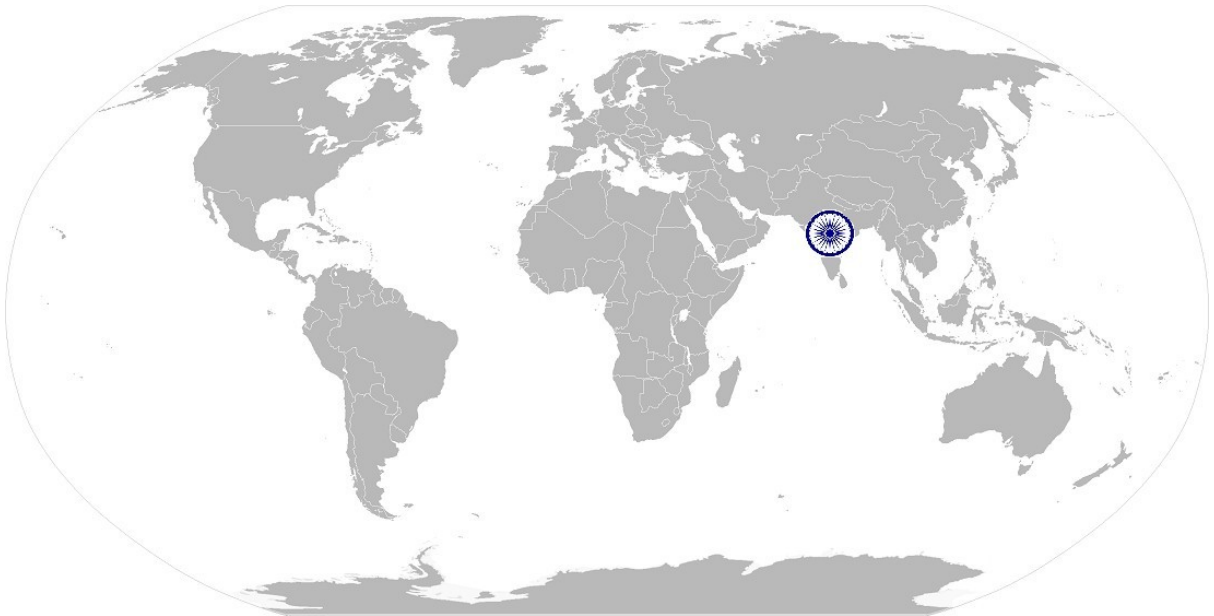
## NOS Version Control

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



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# 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

<b>Unit Code</b>	SGJ/ N0120
<b>Unit Title (Task)</b>	Work effectively with others
<b>Description</b>	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
<b>Scope</b>	This unit/task covers the following: <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 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>
<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 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>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 at project site</p> <p>KB3. importance of teamwork in organizational and individual success</p>

**SGJ/N0120**

**Work effectively with others**

	<p>KB4. various components of effective communication            KB5. key elements of active listening            KB6. value and importance of active listening and assertive communication            KB7. barriers to effective communication            KB8. importance of tone and pitch in effective communication            KB9. importance of avoiding casual expletives and unpleasant terms while communicating professional circles            KB10. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer            KB11. 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>
<b>Skills (S)</b>	
<p><b>A. Core Skills/ Generic Skills</b></p>	<p><b>Writing Skills</b></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><b>Reading Skills</b></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>B. Professional Skills</b></p>	<p><b>Oral Communication (Listening and Speaking skills)</b></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><b>Decision Making</b></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>

SGJ/N0120

Work effectively with others

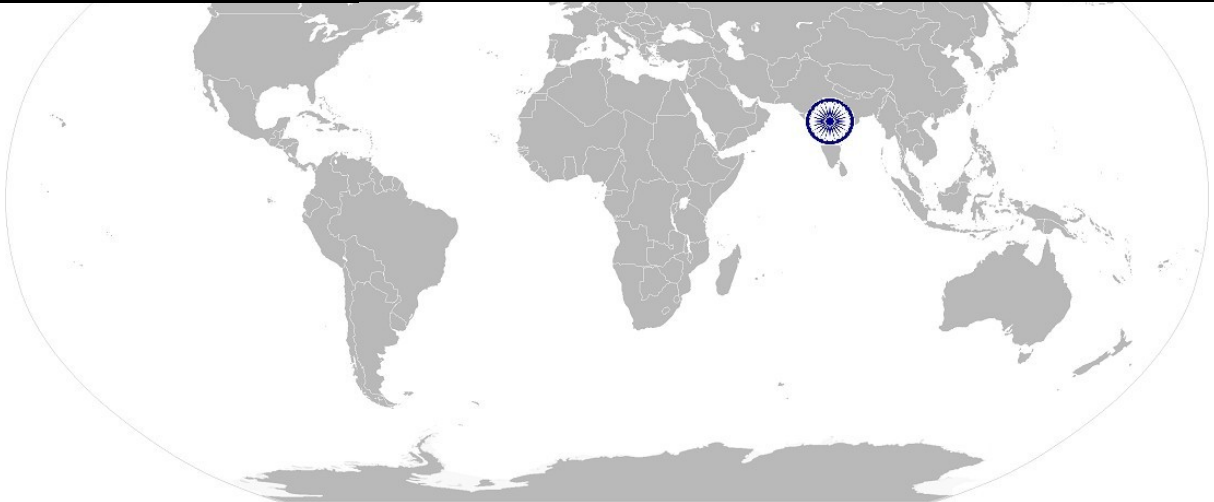
	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand how to : SB4. planning and organization of work to meet deadlines SB5. work constructively and collaboratively with others SB6. support the superiors in scheduling tasks
	<b>Customer Centricity</b>
	The user/individual on the job needs to know and understand how to: SB7. follow organisation code of conduct SB8. manage relationships with customers with intent on satisfying its requirements for service delivery
	<b>Problem Solving</b>
	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
	<b>Analytical Thinking</b>
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	
<b>Critical Thinking</b>	
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	

SGJ/N0120

Work effectively with others

## NOS Version Control

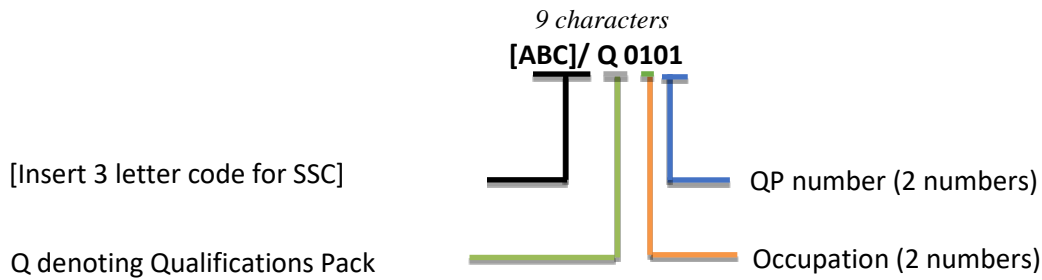
<b>NOS Code</b>	<b>SGJ/N0120</b>		
<b>Credits (NSQF)</b>	TBD	<b>Version number</b>	1.0
<b>Industry</b>	Green Jobs	<b>Drafted on</b>	01/09/2016
<b>Industry Sub-sector</b>	Renewable Energy	<b>Last reviewed on</b>	15/02/2017
<b>Occupation</b>	Team management	<b>Next review date</b>	30/09/2019



## Annexure

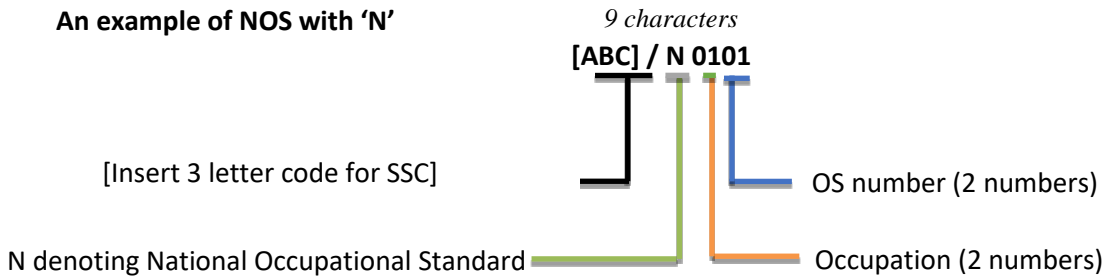
### Nomenclature for QP and NOS

#### Qualifications Pack



#### Occupational Standard

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





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

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

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



**CRITERIA FOR ASSESSMENT OF TRAINEES**

**Job Role** O&M Mechanical Technician- Wind Power Plant

**Qualification Pack** SGJ/Q1502

**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	Theory	Skills Practical
SGJ /N1503 Carry out operation of mechanical components of wind power plant	PC1. select the appropriate PPE to carry out the specific activity	100	4	1	3
	PC2. identify the operation manuals of all mechanical components for inspection		7	1	6
	PC3. acquire required approvals and permit to work (PTW) from the concerned authority – (element II)		10	2	8
	PC4. prepare site and equipment for inspection		7	1	6
	PC5. carry out inspections of WTG, blade and associated mechanical components as per schedule		8	2	6
	PC6. verify and record the operative parameters for all components as per design standards		8	2	6
	PC7. monitor working efficiency of WTG and associated components		7	1	6
	PC8. identify the location of the conduit, cables, pipes &		8	2	6



SGJ/Q1502 Qualifications Pack For "O&M Mechanical Technician- Wind Power Plant"

	other undergoing devices prior to performing maintenance work				
	PC9. arrange for tools to carry out online testing of WTG and components		7	1	6
	PC10. acquire required approvals and permit to work (PTW) from the concerned authority – (element III)		5	1	4
	PC11. perform visual inspection of the surroundings and the mechanical components and record any defects		8	2	6
	PC12. measure and record real time parameters of WTG and associated components like vibration, torqueing, temperature of bearings, grease level, alignment etc.		6	2	4
	PC13. measure and record real time parameters of wind turbine blades and associated components like temperature, vibration, alignment, etc.		7	3	4
	PC14. maintain log of all systems condition (parameters)		4	2	2
	PC15. prepare report and submit to site in-charge/plant head for further action		4	1	3
		<b>TOTAL</b>	<b>100</b>	<b>24</b>	<b>76</b>
<b>SGJ /N1504 Carry out maintenance of mechanical components of wind power plant</b>	PC1. select the appropriate PPE to carry out the specific activity	<b>100</b>	4	1	3
	PC2. identify required approvals and permit to work (PTW) from the concerned authority – (element II)		5	3	2
	PC3. ensure that the system is shut down prior to carrying out work		8	5	3
	PC4. perform visual inspection of the mechanical components of wind power plant and record any defects		12	5	7
	PC5. carry out maintenance activities for mechanical components of WTG as per standard operating procedures		12	5	7



SGJ/Q1502 Qualifications Pack For "O&M Mechanical Technician- Wind Power Plant"

	PC6. carry out testing of WTG and associated components on a. universal testing machine (UTM) b. compression testing machine (CTM)		12	5	7
	PC7. measure and record parameters post maintenance activities		12	5	7
	PC8. report to the supervisor in case of any deviations from standard values		5	2	3
	PC9. identify required approvals and permit to work from the concerned authority – (element III)		6	3	3
	PC10. arrange for tools and replacement equipment from the supervisor if required		7	3	4
	PC11. carry out repair or replacement of faulty mechanical components of wind power plant as per standard operating procedures		7	3	4
	PC12. conduct readiness test on post replacement of equipment		10	4	6
		<b>TOTAL</b>	<b>100</b>	<b>44</b>	<b>56</b>
<b>SGJ/N1201 Perform basic health and safety practices at wind project site (Ground and Height)</b>	PC1. select the relevant protective clothing/equipment for specific tasks and work	<b>100</b>	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



SGJ/Q1502 Qualifications Pack For "O&M Mechanical Technician- Wind Power Plant"

	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
	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
		<b>TOTAL</b>	<b>100</b>	<b>46</b>	<b>54</b>
<b>SGJ/N0120 Work effectively with others</b>	PC1. accurately pass on information to the authorized persons who require it and within	<b>100</b>	10	2	8



SGJ/Q1502 Qualifications Pack For “O&M Mechanical Technician- Wind Power Plant”

	agreed timescale and confirm its receipt			
PC2.	assist others in performing tasks in a positive manner where required and possible	6	1	5
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
	<b>TOTAL</b>	<b>100</b>	<b>23</b>	<b>77</b>

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