QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR GREEN JOBS

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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- Solar PV Structural Design Engineer

SECTOR: GREEN JOBS

SUB-SECTOR: RENEWABLE ENERGY

OCCUPATION: DESIGNER

REFERENCE ID: SGJ/Q0109

ALIGNED TO: NCO-2015/ 2144.03

Brief Job Description: Solar PV Structural Design Engineer designs the module mounting structures, foundations for the module mounting structures, inverters and transformers and the complete layout of the solar PV power plant including walkways between the module mounting structures civil/ structural work for the control room, and allied structural works for the rooftop or ground mount solar PV power plant.

Personal Attributes: This job requires the individual to create civil and mechanical design for solar PV power plants hence quality consciousness, concentration and diligence are desired attributes for individuals performing this role. He must also be able to communicate courteously with co-workers and superiors.

Job Details

Qualifications Pack Code	**SGJ/Q0109**		
Job Role	**Solar PV Structural Design Engineer** [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**	**17/05/2017**
Occupation	**Designer**	**Next review date**	**30/09/2019**
NSQC Clearance on	**NA**		

Job Role	**Solar PV Structural Design Engineer**
Role Description	Solar PV Structural Design Engineer specializes in civil and structural design of a rooftop or ground mount solar PV power plant
NSQF level	5
Minimum Educational Qualifications	Diploma in Civil Engineering/Structural Engineering
Maximum Educational Qualifications	Not Applicable
Training (Suggested but not mandatory)	N/A
Minimum Job Entry Age	20 years
Experience	N/A
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. SGJ/N0127: Prepare the civil and structural design of solar PV power plant 2. SGJ/N0106: Maintain personal health & safety at project site 3. SGJ/N0120: Work effectively with others
Performance Criteria	As described in the relevant OS units

Definitions

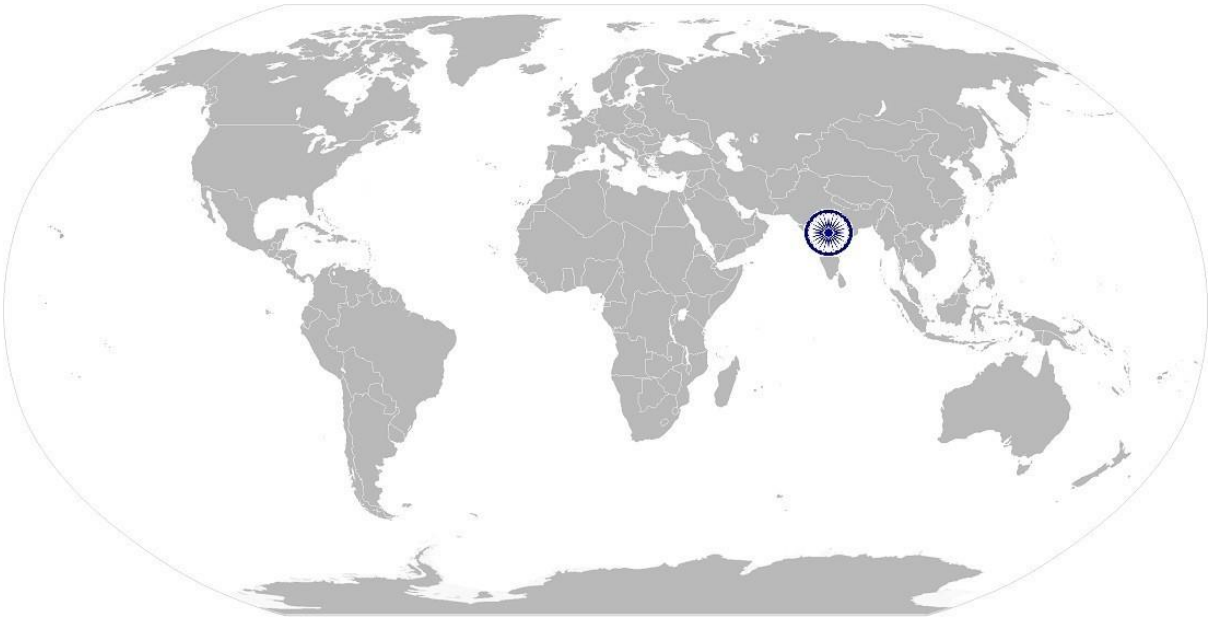
Keywords /Terms	Description
Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further 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 workplace, 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 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
PV	Photovoltaic
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
GHI	Global Horizontal Irradiance
DHI	Direct Horizontal Irradiance
DNI	Direct Normal Irradiance

National Occupational Standard



Overview

This unit is about preparing the civil and structural design of a Solar PV Power Plant

SGJ/N0127 **Prepare the civil and structural design of solar PV power plant**

National Occupational Standard

Unit Code	**SGJ/N0127**
Unit Title (Task)	**Prepare the civil and structural design of solar PV power plant**
Description	This unit is about preparing the civil and structural design of a Solar PV Power Plant
Scope	This unit/task covers the following: • design of module mounting structures • design of foundations • design of solar PV power plant layout and allied works • preparation of structural design report
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Design of module mounting structures	To be competent, the user/ individual must be able to: PC1. carry out the structural load analysis of rooftop PC2. design the module mounting structure for the solar PV power plants including trackers if required
Design of foundations	To be competent, the user/ individual must be able to: PC3. decide the type of foundation suitable for module mounting structures, inverters, transformers, etc. based on the type of roof / soil test report PC4. design the foundations for the module mounting structures PC5. design the foundations for inverters, transformers, etc.
Design of solar PV power plant layout and allied civil/ structural works	To be competent, the user/ individual must be able to: PC6. design the overall structural layout of the solar PV power plant PC7. design the civil/ structural allied works of the solar PV power plant including • compound wall /entry gate • internal plant roads • walkways between different rows of modules • water distribution network • water drainage system, etc. PC8. prepare the civil/ structural drawings for the solar PV power plant
Preparation of structural design report	To be competent, the user/ individual must be able to: PC9. document the specifications of materials, components, etc. used for foundations, mounting structures, etc. PC10. document the assumptions used for designing the foundations, mounting structures, etc. PC11. prepare and handover the structural design report
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the organization and its processes)	The user/individual on the job needs to know and understand: KA1. government/corporate policies and guidelines on: workplace safety, identification and mitigation of safety hazards, work procedures and guidelines for working at height KA2. document information using appropriate corporate forms KA3. obtain authorization from specified field safety officer and supervisor KA4. legislative, organization, site requirements and procedures KA5. the environmental requirements KA6. complete knowhow on manufacturer's warranty policy
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. basics on solar energy system and power generation KB2. basics of solar resource assessment including terms like DNI, DHI, GHI and albedo and their interpretation

SGJ/N0127 **Prepare the civil and structural design of solar PV power plant**

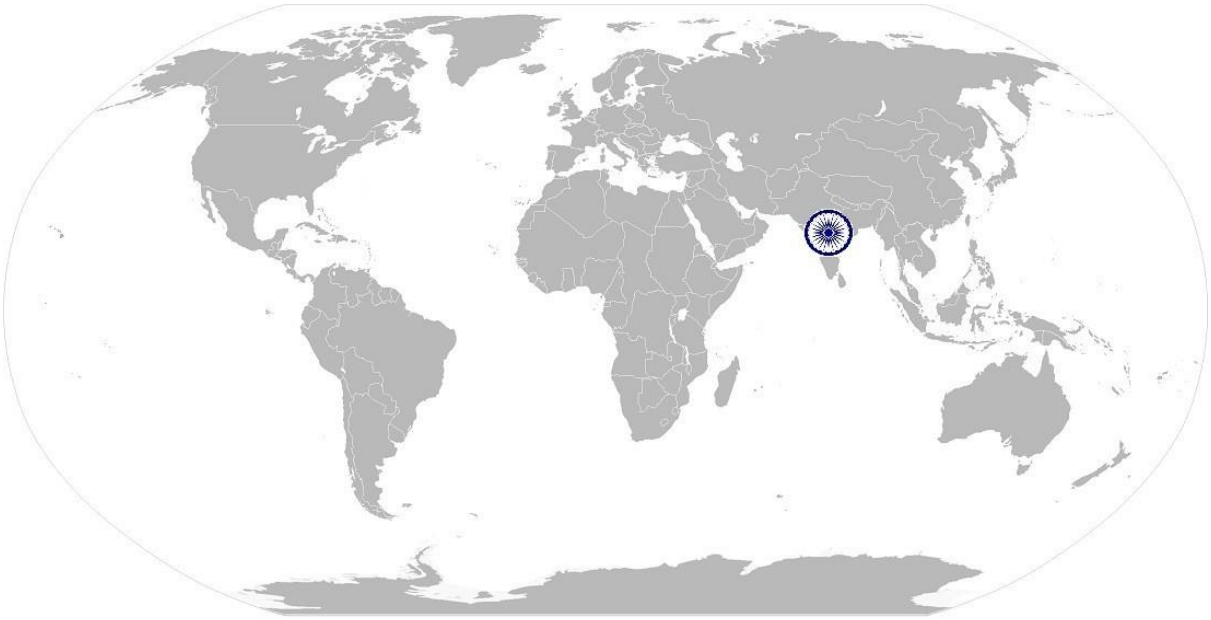
	KB3. typical specifications, functioning, operating principle and efficiencies of different types of solar photovoltaic power plants, commercially available PV modules, inverters, charge controllers, battery, mounting structures, cables, junction boxes and other components KB4. site survey and soil test reports for evaluation purposes KB5. type of foundations of various components depending on the roof structure and its appropriateness for installing a solar PV power plant KB6. type of foundations of various components depending on the different types of soils and its appropriateness for installing a solar PV power plant KB7. types of loads for doing structural load analysis KB8. types of module mounting structures, its selection and design based on type of roof/ soil test report KB9. shading analysis and its importance and effect on the solar PV power plant design KB10. types of allied civil/ structural works in a solar PV power plant including, compound wall /entry gate, internal plant roads, walkways between different rows of modules, water distribution network, water drainage system, etc. KB11. relevant occupational health and safety standards including personal protective equipment (PPE) and waste management procedures KB12. any one relevant structural design software
Skills (S)	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. prepare documentation as per relevant industry standards
	Reading Skills
	The user/individual on the job needs to know and understand: SA2. read vernacular/English language SA3. how to read and understand manuals, health and safety instructions, memos, other company documents SA4. how to read from different sources- books, screens in machines and signage SA5. the various colour codes, as per standard electrical, mechanical and civil nomenclature
	Oral Communication (Listening and Speaking 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
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. 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 with clear choice of procedures in familiar contexts (as per the authority matrix defined by the organisation)

SGJ/N0127 **Prepare the civil and structural design of solar PV power plant**

	Plan and Organize
	The user/individual on the job needs to know and understand how to : SB4. plan and organize work to meet deadlines 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 organisation 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 provide solutions using a range of cognitive and practical skills SB10. approach relevant authority when required
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB11. 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: 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

NOS Version Control

NOS Code	SGJ/N0127		
Credits (NSQF)	TBD	Version number	1.0
Industry	Green Jobs	Drafted on	01/09/2016
Industry Sub-sector	Renewable Energy	Last reviewed on	17/05/2017
Occupation	Designer	Next review date	30/09/2016



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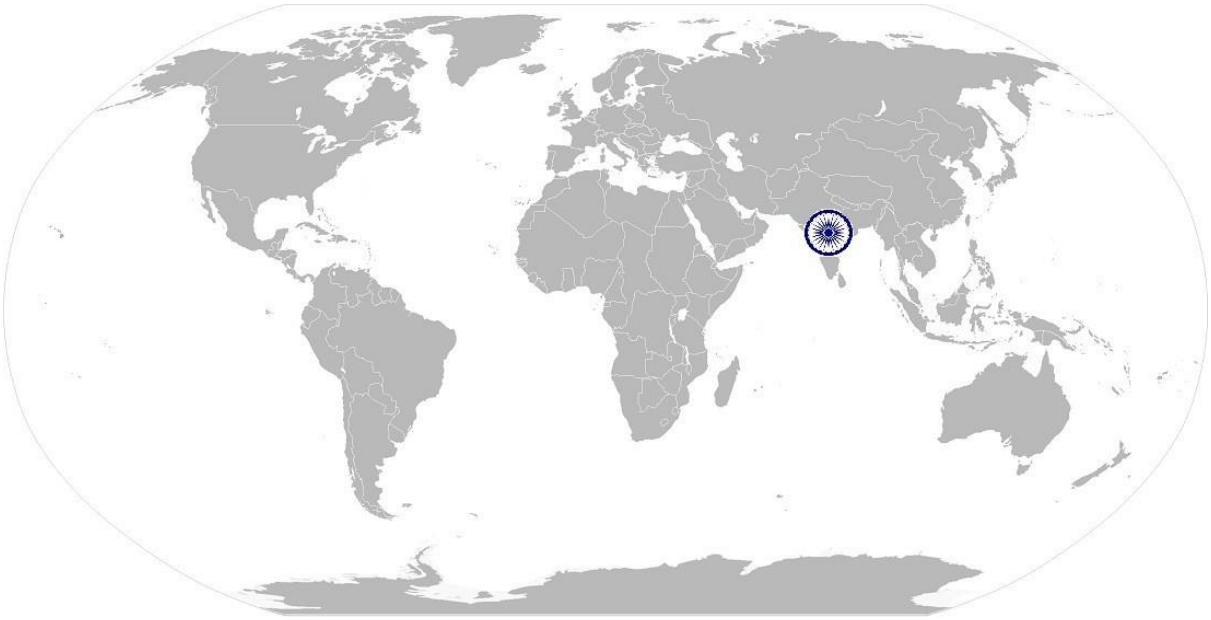
National Occupational Standard



Overview

This unit is about maintaining personal health & safety at project site

SGJ/N0106 **Maintain personal health & safety at project site**

National Occupational Standard

Unit Code	SGJ/N0106
Unit Title (Task)	**Maintain personal health & safety at project site**
Description	This unit is about maintaining personal health & safety at project site
Scope	This unit/task covers the following: • establish and follow safe work procedure • use and maintain personal protective equipment • identify and mitigate safety hazards • demonstrate safe and proper use of required tools and equipment • identify work safety procedures and instructions for working at height
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Establish and Follow safe work procedure	To be competent, the user/individual on the job must be able to: PC1. identify corporate policies required for workplace safety PC2. identify requirements for safe work area and create a safe work environment PC3. identify contact person when workplace safety policies are violated PC4. provide information about incident/violation PC5. identify the location of first aid materials and administer first aid
Use and maintain personal protective equipment	To be competent, the user/individual on the job must be able to: PC6. identify the personal protection equipment required for specific locations on-site PC7. identify expiry dates and wear & tear issues of specified equipment PC8. demonstrate safe and accepted practices for personal protection
Identify and mitigate safety hazards	To be competent, the user/individual on the job must be able to: PC9. identify environmental hazards associated with the project site PC10. identify electrical hazards PC11. identify personal safety hazards or work site hazards and mitigate hazards
Demonstrate safe and proper use of required tools and equipment	To be competent, the user/individual on the job must be able to: PC12. select tools, equipment and testing devices needed to carry out the work PC13. demonstrate safe and proper use of required tools and equipment
Identify work safety procedures and instructions for working at height	To be competent, the user/individual on the job must be able to: PC14. check access from ground to work area to ensure it is safe and in accordance with requirements PC15. re-assess risk control measures, as required, in accordance with changed work practices and/or site conditions and undertake alterations PC16. inspect/install fall protection and perimeter protection equipment ensuring adequacy for work and conformance to regulatory requirements PC17. identify approved methods of moving tools and equipment to work area and minimize potential hazards associated with tools at heights PC18. select and install appropriate signs and barricades PC19. place tools and materials to eliminate or minimize the risk of items being knocked down PC20. dismantle plant safely in accordance with sequence and remove from worksite to clear work area

SGJ/N0106 **Maintain personal health & safety at project site**

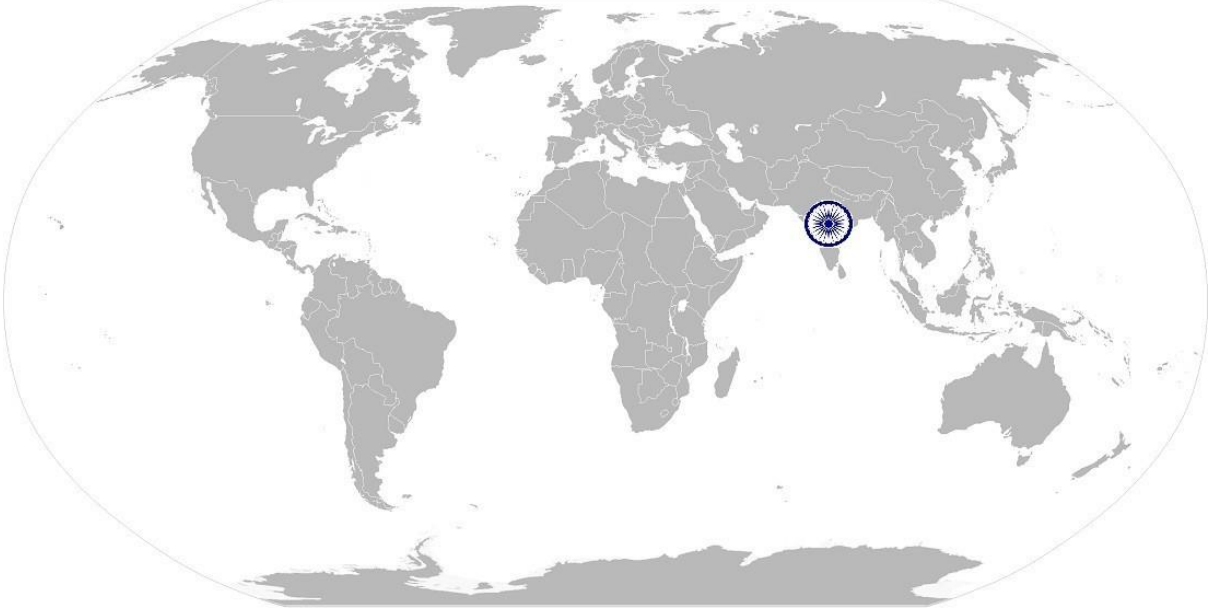
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the organization and its processes)	The user/individual on the job needs to know and understand: KA1. company's installation policy KA2. company's customer support policy KA3. company's documentation policy KA4. document information using appropriate corporate forms KA5. obtain authorization from specified field safety officer and supervisor KA6. company's reporting structure & organization culture KA7. company's different department and concerned authority
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. relevant personal protective equipment's required for installation KB2. relevant standards and regulations for installation of solar photovoltaic power plant in India KB3. occupational health and safety (OHS) standards for installation of solar photovoltaic power plant KB4. risk identification and mitigation procedure for safe installation of solar photovoltaic power plant KB5. knowhow of tools & tackles required to carry out the work
Skills (S)	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. fill up documentation applicable to one's role
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. read vernacular/English language SA3. read and understand manuals, health and safety instructions, memos, other company documents SA4. ability to read from different sources- books, screens in machines and signage SA5. understand the various colour codes, as per standard electrical, mechanical and civil nomenclature
	Oral Communication (Listening and Speaking 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, sub-ordinates and superiors
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. 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)

SGJ/N0106 **Maintain personal health & safety at project site**

	Plan and Organize
	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
	Customer Centricity
	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
	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

NOS Version Control

NOS Code	SGJ/N0106		
Credits (NSQF)	TBD	Version number	1.0
Industry	Green Jobs	Drafted on	26/06/2015
Industry Sub-sector	Solar Photovoltaic	Last reviewed on	21/10/2015
Occupation	Health and Safety	Next review date	01/10/2018



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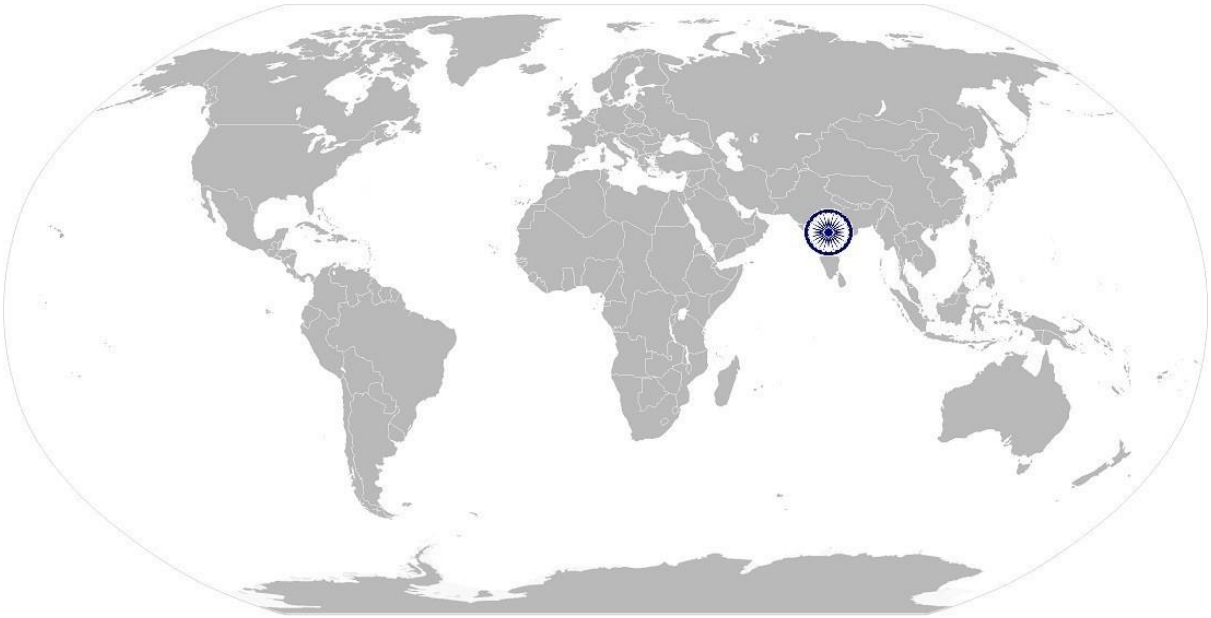
National Occupational Standard



Overview

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

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 workplace
Scope	This unit/task covers the following: • working with others
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Working with others	The user/individual on the job should be able to: PC1. accurately pass on information to the authorized persons who require it and within agreed timescale and confirm its receipt PC2. assist others in performing tasks in a positive manner where required and possible PC3. consult and assist others to maximize effectiveness and efficiency in carrying out tasks PC4. display appropriate communication etiquette while working PC5. display active listening skills while interacting with others at work PC6. demonstrate responsible and disciplined behaviors at the workplace PC7. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict PC8. identify the need for common grounds with clients, team members, etc. and negotiate in an effective manner to achieve the same PC9. consider and respect the opinions, creativity, values, beliefs and perspectives of others PC10. ensure collaboration and group participation to achieve common goals PC11. promote a friendly, co-operative environment that is conducive to employee's sense of belonging PC12. facilitate an understanding and appreciation of the differences among team members
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 user/individual on the job needs to know and understand: KB1. various categories of people that one is required to communicate and co-ordinate with in the organization KB2. importance of effective communication in the workplace

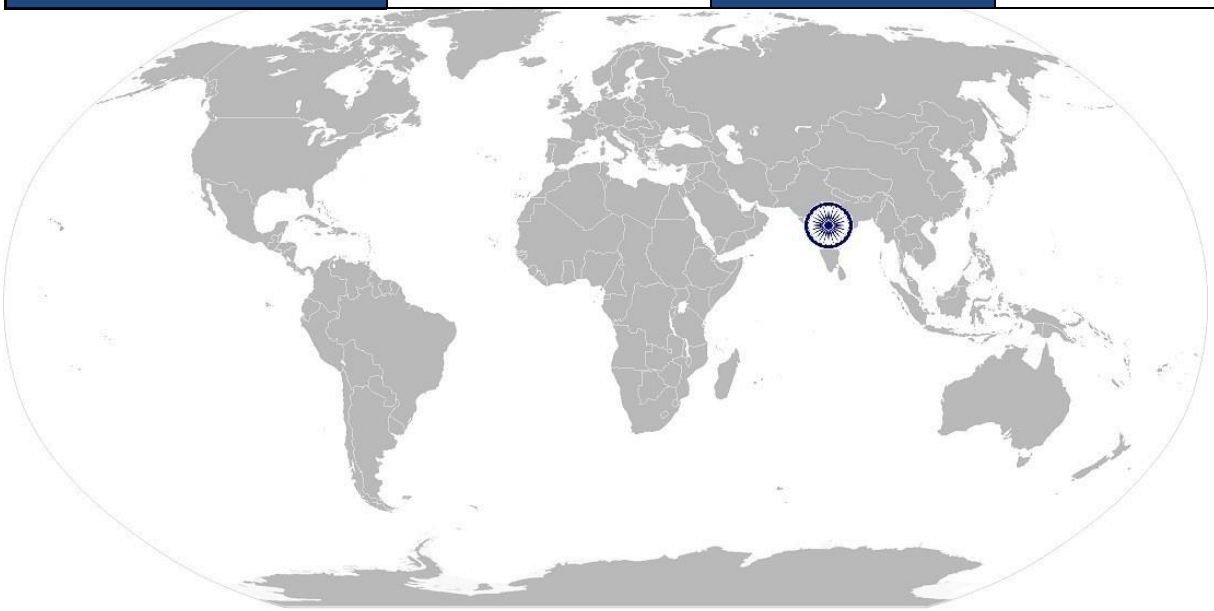
SGJ/N0120	Work effectively with others
	KB3. importance of teamwork in organizational and individual success KB4. various components of effective communication KB5. key elements of active listening KB6. value and importance of active listening and assertive communication KB7. barriers to effective communication KB8. importance of tone and pitch in effective communication KB9. importance of avoiding casual expletives and unpleasant terms while communicating professional circles KB10. how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer KB11. 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
Skills (S)	
A. Core Skills/ Generic Skills	**Writing Skills**
	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
	Reading Skills
	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
	Oral Communication (Listening and Speaking skills)
	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
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. 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)

SGJ/N0120 **Work effectively with others**

	Plan and Organize
	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
	Customer Centricity
	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
	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

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	30/09/2016



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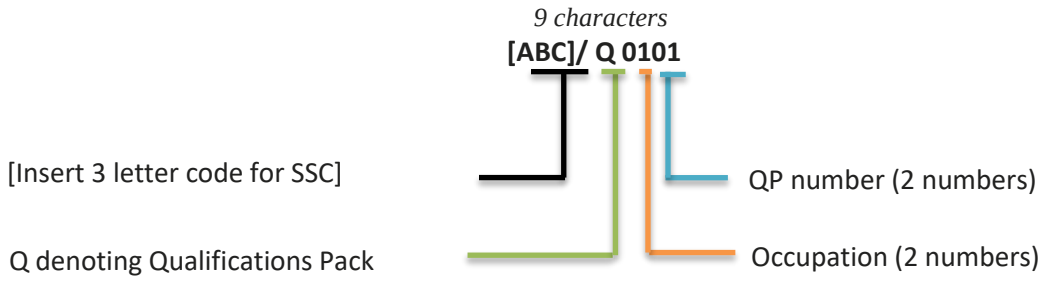
Annexure

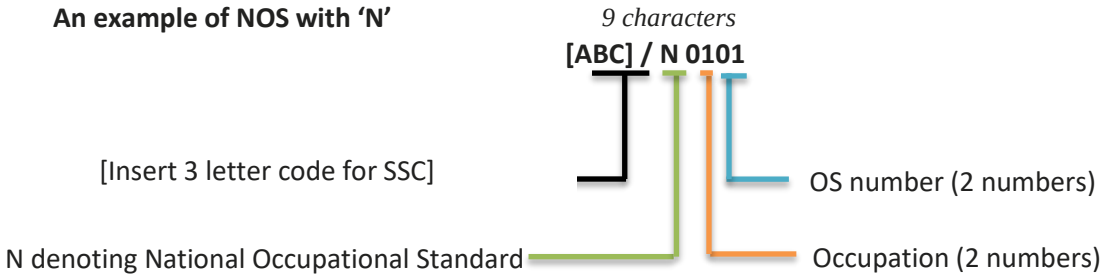
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



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

Sub-sector		Range of Occupation numbers
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 Renewables (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

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CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Solar PV Structural Design Engineer

Qualification Pack SGJ/Q0109

Sector Skill Council 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 Total Marks: 200			Marks allocation		
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
SGJ/N0127 Prepare the civil and structural design of solar PV power plant	PC1. carry out the structural load analysis of rooftop	**100**	15	6	9
	PC2. design the module mounting structure for the solar PV power plants including trackers if required		15	7	8
	PC3. decide the type of foundation suitable for module mounting structures, inverters, transformers, etc. based on the type of roof / soil test report		10	5	5
	PC4. design the foundations for the module mounting structures		10	4	6
	PC5. design the foundations for inverters, transformers, etc.		10	4	6
	PC6. design the overall structural layout of the solar PV power plant		15	6	9
	PC7. design the civil/ structural allied works of the solar PV power plant including: • compound wall /entry gate		10	4	6

	• internal plant roads • walkways between different rows of modules • water distribution network • water drainage system, etc.				
	PC8. document the specifications of materials, components, etc. used for foundations, mounting structures, etc.		5	3	2
	PC9. document the assumptions used for designing the foundations, mounting structures, etc.		5	3	2
	PC10. prepare and handover the structural design report		5	3	2
		TOTAL	**100**	**45**	**55**
SGJ/ N0106 Maintain personal health & safety at project site	PC1. identify corporate policies required for workplace safety	**50**	2	1	1
	PC2. identify requirements for safe work area and create a safe work environment		3	2	1
	PC3. identify contact person when workplace safety policies are violated		1	1	0
	PC4. provide information about incident/violation		1	1	0
	PC5. identify the location of first aid materials and administer first aid		2	1	1
	PC6. identify the personal protection equipment required for specific locations on-site		3	2	1
	PC7. identify expiry dates and wear & tear issues of specified equipment		2	1	1
	PC8. demonstrate safe and accepted practices for personal protection		3	2	1
	PC9. identify environmental hazards associated with the project site		2	1	1
	PC10. identify electrical hazards		4	2	2
	PC11. identify personal safety hazards or work site hazards and mitigate hazards		4	2	2
	PC12. select tools, equipment and testing devices needed to carry out the work		4	2	2

	PC13. demonstrate safe and proper use of required tools and equipment		4	2	2
	PC14. check access from ground to work area to ensure it is safe and in accordance with requirements		2	1	1
	PC15. reassess risk control measures, as required, in accordance with changed work practices and/or site conditions and undertake alterations		2	2	0
	PC16. inspect/install fall protection and perimeter protection equipment ensuring adequacy for work and conformance to regulatory requirements		4	2	2
	PC17. identify approved methods of moving tools and equipment to work area and minimize potential hazards associated with tools at heights		2	1	1
	PC18. select and install appropriate signs and barricades		2	1	1
	PC19. place tools and materials to eliminate or minimize the risk of items being knocked down		1	1	0
	PC20. dismantle plant safely in accordance with sequence and remove from worksite to clear work area		2	1	1
		TOTAL	**50**	**29**	**21**
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	**50**	4	2	2
	PC2. assist others in performing tasks in a positive manner where required and possible		4	2	2
	PC3. consult and assist others to maximize effectiveness and efficiency in carrying out tasks		4	2	2
	PC4. display appropriate communication etiquette while working		6	3	3
	PC5. display active listening skills while interacting with others at work		4	2	2
	PC6. demonstrate responsible and disciplined behaviors at the workplace		4	2	2

	PC7. escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict		3	1	2
	PC8. identify the need for common grounds with clients, team members, etc. and negotiate in an effective manner to achieve the same		3	1	2
	PC9. consider and respect the opinions, creativity, values, beliefs and perspectives of others		4	2	2
	PC10. ensure collaboration and group participation to achieve common goals		6	3	3
	PC11. promote a friendly, co-operative environment that is conducive to employee's sense of belonging		4	2	2
	PC12. facilitate an understanding and appreciation of the differences among team members		4	2	2
		TOTAL	**50**	**24**	**26**