

Model Curriculum

Construction Technician (Civil) -Wind Power Plant

SECTOR: GREEN JOBS
SUB-SECTOR: RENEWABLE ENERGY
OCCUPATION: INSTALLATION AND COMMISSIONING
REF ID: SGJ/Q1402, V1.0
NSQF LEVEL: 4



Skill India
शिक्षण करो - कुशल करो



SCGJ SKILL COUNCIL FOR
GREEN JOBS



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**CURRICULUM COMPLIANCE TO
QUALIFICATION PACK – NATIONAL OCCUPATIONAL
STANDARDS**

is hereby issued by the

SKILL COUNCIL FOR GREEN JOBS

for the

MODEL CURRICULUM

Complying to National Occupational Standards of Job Role/
Qualification Pack: 'Construction Technician (Civil) -Wind Power Plant' QP No. 'SGJ/Q14.02 NSQF Level 4.'

Date of Issuance: **February 5th, 2018**

Valid up to: **September 30th, 2019**

* Valid up to the next review date of the Qualification Pack



Authorised Signatory
(Skill Council for Green Jobs)

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Construction Technician (Civil) -Wind Power Plant

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Construction Technician (Civil) -Wind Power Plant”, in the “Green Jobs” Sector/Industry and aims at building the following key competencies amongst the learner.

Program Name	Construction Technician (Civil) -Wind Power Plant		
Qualification Pack Name & Reference ID.	SGJ/Q1402, v1.0		
Version No.	1.0	Version Update Date	01 st Feb 2018
Pre-requisites to Training	Class 12 th pass, preferably		
Training Outcomes	After completing this programme, participants will be able to: <ul style="list-style-type: none">• Carry out installation of civil components of wind power plant• Perform basic health and safety practices at project site (Ground and Height)• Work effectively with others		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Solar PV Business Development Executive” Qualification Pack issued by “Skill Council for Green Jobs”.

S. No	Module	Key Learning Outcomes	Equipment Required
1.	Introduction to Wind Power Sector Theory Duration (hh:mm) 18:00 Practical Duration (hh:mm) 6:00 Introduction Module	<ul style="list-style-type: none"> • identify different types of Wind technology and overview of Wind power sector in India • understand the various market research reports and industrial magazines present in the market • identify the different types of wind power plant, its components and working principles • understand basics of electrical concepts like voltage, current, power, energy, etc. • explain the benefits of wind energy over conventional sources of energy • describe the typical specifications, functioning, operating principle, maintenance requirements, warranties, and safe operating & handling procedures of different Wind power plant components like Blades, towers, motors, monitoring system and other components 	
2.	Carry out installation of civil components of wind power plant Theory Duration (hh:mm) 24:00 Practical Duration (hh:mm) 80:00 Corresponding NOS Code SGJ/N1403	<ul style="list-style-type: none"> • select the appropriate PPE to carry out the specific activity • identify the relevant technical drawings and schematic drawing • identify all the tools & equipment needed for erection of wind power plant components • assist seniors at site in materials planning and handling • ensure readiness of plant and equipment for erection • ensure land preparation for land leveling • ensure removal of all vegetation from the site • perform site grading as per design drawings • ensure the rough grading of the proposed wind power plant site • ensure removal of surface soil from the construction site • ensure the compacting of sub – soils as per standard industry procedures (SOPs) 	

		<ul style="list-style-type: none"> • carry out the construction of the local access roads and inter turbine roads as per design specifications • take necessary steps to ensure erosion control • excavate trenches for installation of U/G cables and grid mat • install below grade raceway for power cable installation as per design drawings • install below grade grid mat as per the design drawings • identify and mark the area where the tower is to be installed • carry out removal and stockpiling of topsoil and subsoil • carry out the excavation of hole at the proposed installation site as per design drawings • carry out the placement of reinforced steel in the excavated hole as per design drawings • carry out the back filling of the excavations for with required aggregate of concrete as per design specifications • replace the subsoil and topsoil over the concrete foundation such that only the center of the foundation remains above ground • install the base plate of appropriate specifications on the concrete foundations as per design • ensure the construction of the super structure including: <ul style="list-style-type: none"> ○ plinth ○ slabs ○ beams ○ access design (staircase & lifts) ○ vents ○ concrete mix • ensure the construction of structural provisions for mounting of WTG & other associated components • mark and prepare the site for the installation of foundations for <ol style="list-style-type: none"> a. transformers b. substation c. control rooms 	
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		<ul style="list-style-type: none"> • carry out the excavation of the marked site as per design • construct the foundations as per design specifications 	
3.	<p>Perform basic health and safety practices at project site (Ground and Height)</p> <p>Theory Duration (hh:mm) 12:00</p> <p>Practical Duration (hh:mm) 42:00</p> <p>Corresponding NOS Code SGJ/N1201</p>	<ul style="list-style-type: none"> • select the relevant protective clothing/equipment for specific tasks and work • state the name and location of relevant documents and people responsible for health and safety at the project site • identify possible causes of risk at project site and their mitigation measures • identify and follow warning signs on site • establish safe working procedures at the project site • ensure safe working practices when working at heights, confined areas and trenches • identify methods of accident prevention in the work environment • follow safe operating procedures for lifting, carrying and transporting heavy objects & tools • inspect the project site on a regular basis for any signs of spillage • ensure safe storage of flammable materials and machine lubricating oil • apply good housekeeping practices at all times by removal/disposal of waste products • inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly • exhibit the use of various appropriate fire extinguishers on different types of fires correctly • demonstrate rescue techniques applied during fire hazard • administer appropriate first aid to victims were required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc. • respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments • participate in emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work • report the accident to the relevant authority in the prescribed format 	

<p>4</p> <p>Work effectively with others</p> <p>Theory Duration (hh:mm) 6:00</p> <p>Practical Duration (hh:mm) 12:00</p> <p>Corresponding NOS Code SGJ/N0120</p>	<ul style="list-style-type: none"> accurately pass on information to the authorized persons who require it and within agreed timescale and confirm its receipt assist others in performing tasks in a positive manner where required and possible consult and assist others to maximize effectiveness and efficiency in carrying out tasks display appropriate communication etiquette while working display active listening skills while interacting with others at work demonstrate responsible and disciplined behaviours at the workplace escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict identify the need for common grounds with clients, team members, etc. and negotiate in an effective manner to achieve the same consider and respect the opinions, creativity, values, beliefs and perspectives of others ensure collaboration and group participation to achieve common goals promote a friendly, co-operative environment that is conducive to employee's sense of belonging facilitate an understanding and appreciation of the differences among team members 	
<p>Theory Duration (hh:mm) 60:00</p> <p>Practical Duration (hh:mm) 140:00</p>		

Grand Total Course Duration: 200 Hours, 0 Minutes

(This syllabus/ curriculum has been approved by [Skill Council for Green Jobs](#))

Trainer Prerequisites for Job role: “Construction Technician (Civil) - Wind Power Plant” Executive mapped to Qualification Pack: “SGJ/Q1402, v1.0”.

Sr. No.	Area	Details
1	Description	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “SGJ/Q1402, Version 1.0”.
2	Personal Attributes	Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field.
3	Minimum Educational Qualifications	Diploma / B.E / B.Tech
4a	Domain Certification	Certified for Job Role: “Construction Technician (Civil) - Wind Power Plant” mapped to QP: “SGJ/Q1402, Version 1.0”. Minimum accepted score as per respective as per SCGJ guidelines is 80%.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q0102” or equivalent. Minimum accepted score as per SSC guidelines is 80%.
5	Experience	Diploma+ Minimum 3 years of relevant industry experience or BE/B.Tech with Minimum 2 years of relevant industry experience and The education qualification can be relaxed in case of extraordinary relevant field experience.

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Construction Technician (Civil)- Wind Power Plant

Qualification Pack SGJ/Q1402

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:300				Theory	Skills Practical
Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out Of		
SGJ /N1403 Carry out installation of civil components of wind power plant	PC1. select the appropriate PPE to carry out the specific activity		3	1	2
	PC2. identify the relevant technical drawings and schematic drawing		4	1	3
	PC3. identify all the tools & equipment needed for erection of wind power plant components		3	1	2
	PC4. assist seniors at site in materials planning and handling		3	1	2
	PC5. Ensure readiness of plant and equipment for erection		4	1	3
	PC6. ensure land preparation for land leveling		3	1	2

	PC7. ensure removal of all vegetation from the site		3	1	2
	PC8. perform site grading as per design drawings		4	1	3
	PC9. ensure the rough grading of the proposed wind power plant site		4	1	3
	PC10. ensure removal of surface soil from the construction site		3	1	2
	PC11. ensure the compacting of sub – soils as per standard industry procedures (SOPs)		3	2	1
	PC12. carry out the construction of the local access roads and inter turbine roads as per design specifications		4	1	3
	PC13. take necessary steps to ensure erosion control		3	1	2
	PC14. excavate trenches for installation of U/G cables and grid mat		3	2	1
	PC15. install below grade raceway for power cable installation as per design drawings		4	2	2
	PC16. install below grade grid mat as per the design drawing		3	1	2
	PC17. identify and mark the area where the tower is to be installed		3	1	2
	PC18. carry out removal and stockpiling of topsoil and subsoil		3	1	2
	PC19. carry out the excavation of hole at the proposed installation site as per design drawings		3	1	2
	PC20. carry out the placement of reinforced steel in the		5	2	3

	excavated hole as per design drawings			
	PC21. carry out the back filling of the excavations for with required aggregate of concrete as per design specifications		3	1 2
	PC22. replace the subsoil and topsoil over the concrete foundation such that only the centre of the foundation remains above ground		3	1 2
	PC23. install the base plate of appropriate specifications on the concrete foundations as per design		4	1 3
	PC24. ensure the construction of the super structure including: <ul style="list-style-type: none"> • plinth • slabs • beams • access design (staircase & lifts) • vents • concrete mix 		5	2 3
	PC25. ensure the construction of structural provisions for mounting of WTG & other associated components		3	1 2
	PC26. mark and prepare the site for the installation of foundations for <ol style="list-style-type: none"> a. transformers b. substation c. control rooms 		4	2 2
	PC27. carry out the excavation of the marked site as per design		3	1 2

	PC28. construct the foundations as per design specifications		7	3	4
		TOTAL	100	36	64
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	5	1	4
	PC2. state the name and location of relevant documents and people responsible for health and safety at the project site		5	1	4
	PC3. identify possible causes of risk at project site and their mitigation measures		6	2	4
	PC4. identify and follow warning signs on site		6	2	4
	PC5. establish safe working procedures at the project site		5	2	3
	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		5	2	3
	PC8. follow safe operating procedures for lifting, carrying and transporting heavy objects & tools		5	1	4
	PC9. inspect the 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		5	1	4
	PC11. apply good housekeeping practices at all times by removal/disposal of waste products		5	1	4
	PC12. inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly		5	1	4
	PC13. exhibit the use of various appropriate fire extinguishers on different types of fires correctly		6	2	4

	PC14. demonstrate rescue techniques applied during fire hazard		6	2	4
	PC15. administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		6	2	4
	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		6	2	4
	PC18. report the accident to the relevant authority in the prescribed format		6	2	4
		TOTAL	100	30	70
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 project site		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