



# Model Curriculum

**QP Name: Solar PV Installer (Electrical)**

**QP Code: SGJ/Q0102**

**QP Version: 3.0**

**NSQF Level: 4**

**Model Curriculum Version: 3.0**

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## Training Parameters

<b>Sector</b>	Green Jobs
<b>Sub-Sector</b>	Renewable Energy
<b>Occupation</b>	Solar Panel Installation Technician
<b>Country</b>	India
<b>NSQF Level</b>	4
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7421.1401
<b>Minimum Educational Qualification and Experience</b>	10th pass + ITI (1 year) (Electrical/Electronics/Civil/Mechanical/ Fitter/Instrumentation/Welder or any related trade) Or Diploma after class 10 <sup>th</sup> (Government recognised 3 years Diploma (Electrical/Mechanical/Civil/Agriculture/ Electronics & Communication /Control & Instrumentation or in a related discipline) Or 12 <sup>th</sup> Pass with Science Or 10 <sup>th</sup> grade pass and pursuing continuous schooling Or 10 <sup>th</sup> pass with 2 years of Experience Or NSQF level 3 certified in relevant job role with 2 years of relevant experience
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	16 years
<b>Last Reviewed On</b>	27 <sup>th</sup> May 2021
<b>Next Review Date</b>	26th May 2024
<b>NSQC Approval Date</b>	27 <sup>th</sup> May 2021
<b>QP Version</b>	3.0



<b>Model Curriculum Creation Date</b>	27 <sup>th</sup> May 2021
<b>Model Curriculum Valid Up to Date</b>	26 <sup>th</sup> May 2024
<b>Model Curriculum Version</b>	3.0
<b>Minimum Duration of the Course</b>	390 hours (270 hours mandatory NOS with 60 hours of employability module + 120 hours of OJT)
<b>Maximum Duration of the Course</b>	390 hours (270 hours mandatory NOS with 60 hours of employability module + 120 hours of OJT)

## Program Overview

This section summarizes the end objectives of the program along with its duration.

### Training Outcomes

At the end of the program, the learner will be able to:

- Carry out the site survey for installation of Solar PV system
- Identify and Use the Tools & tackles used for Solar PV system installation
- Install the Electrical components of a Solar PV system
- Test and Commission Solar PV system
- Maintain personal Health & Safety at project site
- Employable at work place

### Compulsory Modules

The table lists the modules, their duration and mode of delivery.

NOS and Module Details	Theory Duration	Practical Duration	On the Job Training	Employability Skills	Total Duration
Module 1: Introduction to Solar PV Installer course	07:30	07:30	120	60	15:00
Module 2: Basics of Solar Energy and Electrical Concepts	15:00	15:00			30:00
<b>SGJ/N0101: Site survey for installation of solar PV system</b> <b>NOS Version No.4</b> <b>NSQF Level 4</b>					
Module 3: Basics of Solar Photovoltaic system and its Components	15:00	15:00			30:00
<b>SGJ/N0102: Procure Solar PV system components</b> <b>NOS Version No.4</b> <b>NSQF Level 4</b>					
Module 4: Site Survey for Installation of Solar PV System and asses the customer's Solar PV Requirement	07:30	07:30			15:00
<b>SGJ/N0101: Site survey for installation of solar PV system</b> <b>NOS Version No.3</b> <b>NSQF Level 4</b>					

Module 5: Interpretation of Drawings, Material Handling and storage of components on-site	15:00	15:00			<b>30:00</b>
<b>SGJ/N0102: Procure Solar PV system components</b> <b>NOS Version No.4</b> <b>NSQF Level 4</b>					
Module 6: Installation of Electrical Components of Solar PV system	15:00	15:00			<b>30:00</b>
<b>SGJ/N0104: Installation of electrical components of a solar PV system</b> <b>NOS Version No.3</b> <b>NSQF Level 4</b>					
Module 7: Test and commission Solar PV system	15:00	15:00			<b>30:00</b>
<b>SGJ/N0105: Test and commission Solar PV system</b> <b>NOS Version No.3</b> <b>NSQF Level 4</b>					
Module 8: Maintain Personal Health & Safety at project site	15:00	15:00			<b>30:00</b>
<b>SGJ/N0106: Maintain Personal Health &amp; Safety at project site</b> <b>NOS Version No.4</b> <b>NSQF Level 4</b>					
Module 9: Employability Skills (60 hours) <b>DGT/VSQ/N0102:</b>					
<b>Total Duration (hours)</b>	<b>105</b>	<b>105</b>	<b>120</b>	<b>60</b>	<b>390</b>



# Module Details

## Module 1: Introduction to Solar PV Installer Course

### Mapped to SGJ/N0101

#### Terminal Outcomes:

- Discuss the role and responsibilities of a Solar PV Installer (Electrical)
- Discuss the importance of doing this course

<b>Duration:</b> 07:30	<b>Duration:</b> 07:30
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain the role of Solar PV Installer and emerging jobs &amp; entrepreneurial opportunities.</li> <li>• Illustrate the advantages of doing this course.</li> <li>• Explain the importance of basic skills for communication; along with how to work effectively with others while respecting gender and disability concerns.</li> <li>• Explain the importance of reading and interpreting signs, notices and/or cautions at project site.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate general discipline during the training program.</li> <li>• Demonstrate how to interpret signs, notices and/or cautions at project site.</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
Sample signs, notice, cautions used at project sites	



## Module 2: Basics of Solar Energy and Electrical Concepts

### Mapped to SGJ/N0101

#### Terminal Outcomes:

- Describe the basics of solar energy along with various fundamental concepts in electrical energy supported with calculations.

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> <li>• Explain Ohm’s Law.</li> <li>• Explain the basics of solar energy/ electricity and electrical concepts.</li> <li>• Explain the relevance of Diffused Normal Irradiance (DNI) and Global Horizontal Irradiance (GHI) along with differences in Irradiance &amp; Irradiation.</li> <li>• Illustrate the movement of the sun and assess its effect on the performance of the solar power plant.</li> </ul>	<ul style="list-style-type: none"> <li>• Perform simple calculations to illustrate the fundamental concepts of power and energy.</li> <li>• Demonstrate how the movement of sun affects the performance of the solar power plant.</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
Pyranometer, Multimeter, Clamp meter, Safety Gloves	



## Module 3: Basics of Solar Photovoltaic system and its Components

### Mapped to SGJ/N0102

#### Terminal Outcomes:

- Discuss solar PV system operation along with the functions of different system components.
- Discuss the importance of emerging innovative technologies like “Plug & Play” or “Behind the Meter” energy system.
- Discuss the manufacturer’s specification sheets of various components of solar PV system and their relevance.

<b>Duration: 15:00</b>	<b>Duration: 15:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain various terminologies used in the solar industry.</li> <li>• Identify the different components of a Solar PV system and explain its basic operation.</li> <li>• Explain the working of different types of Solar PV systems.</li> <li>• Discuss the latest and innovative technologies used in system configurations like “Plug &amp; Play” or “Behind the Meter” energy systems.</li> <li>• Describe the different types, sizes and specifications of modules, inverters, charge controllers, cables, conduits, junction boxes, solar batteries and allied accessories.</li> <li>• Explain about the manufacturing data specification sheets of different types of solar PV components.</li> <li>• Read and interpret various certification requirements of solar PV system components</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse the different types, sizes and specifications of solar modules, inverters, charge controllers, cables, conduits, junction boxes, solar batteries and allied accessories.</li> <li>• Analyse the manufacturing data specification sheets of different types of solar PV components.</li> <li>• Demonstrate how to acquire know-how of different types, sizes and specifications of foundations/ footings;</li> <li>• Demonstrate to select the right footing/foundation as per site location including suitability of roof condition or suitability of soil</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
Pyranometer, Multimeter, Clamp meter, 1 kWp Solar PV system with 2 number of solar batteries	



## Module 4: Site Survey for Installation of Solar PV System and assess the customer's Solar PV Requirement

### Mapped to SGJ/N0101

#### Terminal Outcomes:

- Perform steps to conduct site survey for solar PV system installation.
- Discuss how to effectively assess customer's requirement and identify opportunities to meet those.

<b>Duration:</b> 07:30	<b>Duration:</b> 07:30
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe how to observe Sun path diagram and explain the importance of shading analysis.</li> <li>• Explain the importance of assessing various site conditions for safe installation of solar PV system.</li> <li>• Identify and list the load to be connected to the Solar PV system.</li> <li>• Describe load profile.</li> <li>• Explain the importance of engaging with customers for any specific requirement and budget constraints while identifying opportunities for deploying innovative energy solution like "Plug and Play" or "Behind the Meter" solution, where typical civil construction work may not be required.</li> <li>• Describe the importance of system sizing and explain its calculation with basic mathematical tools.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to observe Sun path diagram and perform shading analysis.</li> <li>• Demonstrate how to assess the site conditions for safe installation of Solar PV system.</li> <li>• Demonstrate how to assess the load to be connected to the Solar PV system and how to prepare the load profile.</li> <li>• Demonstrate how to engage with customers to meet their energy requirements, including through deploying innovative energy solutions like "behind the meter" system.</li> <li>• Perform system sizing calculations.</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
Tool kit, Measuring tape, wire gauge, Line Dori, Water testing instrument (TDS meter)	



## Module 5: Interpretation of Drawings, Material Handling and storage of components on-site

### Mapped to SGJ/N0102

#### Terminal Outcomes:

- Discuss to properly read and interpret various civil/mechanical and electrical drawings.
- Discuss safe handling of materials on site.
- Describe the process to prepare Bill of Materials (BoM) along with effectively reading and interpreting that to verify with the delivery of components on-site.

<b>Duration:</b> 15:00	<b>Duration:</b> 15:00
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain the importance of reading and rightly interpreting Single Line Diagram (SLD), Layout Diagrams, Civil/Mechanical and Electrical Drawings.</li> <li>• Describe the DO's and Don'ts of material handling;</li> <li>• Explain how to read and interpret the Bill of Material to verify with the delivery of components on-site.</li> <li>• Explain how to ensure that all the components are handled and stored properly as per standard operating procedures.</li> <li>• Describe the importance of Preparing Bill of Materials (BoM) including for portable and innovative solutions like Plug &amp; Play or Behind the Meter system.</li> <li>• Explain how to approach organization's warehouse/vendors, suppliers and/or manufacturers to place the order for components as per BoM</li> <li>• Discuss how to ensure quantity of modules / panels, inverters etc matches with the requirement of the system</li> <li>• Identify and list any variation in material specification and design and explain how to submit the documented variation to design team (if required) for approval or revised drawings</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to read and rightly interpret Single Line Diagram (SLD), Layout Diagrams, Civil/Mechanical and Electrical Drawings.</li> <li>• Demonstrate the process of safe material handling.</li> <li>• Demonstrate how to prepare Bill of Materials for solar PV system, including for innovative solutions like Plug &amp; Play or Behind the Meter system.</li> <li>• Show how to check materials received as per final BoM to ensure that the correct material for the job arrives on site and is damage free.</li> <li>• Show how to ensure that all materials are QC passed.</li> <li>• Show how to report and document the status of material received at site and take appropriate action for replacements, if any</li> <li>• Identify materials which can be replaced by environment friendly substitutes and identify processes where material utilization can be optimized and accordingly suggest those to higher authority.</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
1 kW Solar PV system and tool kit, sample bill of material, Sample Single Line Diagram, Layout Diagrams, Civil/Mechanical and Electrical Drawings	

## Module 6: Installation of Electrical components of a Solar PV System

### Mapped to SGJ/N0104

#### Terminal Outcomes:

- Describe the installation of various electrical components of a solar photovoltaic system.

<b>Duration: 15:00</b>	<b>Duration: 15:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>Identify tools and tackles for electrical component installation for Solar PV Power plant</li> <li>Describe the process of installing the electrical components including inverter, batteries, junction boxes, energy meters, cables and conduits other electrical components.</li> <li>Explain the Do's and Don'ts of DC wiring.</li> <li>Identify tools &amp; tackles used for cable and conduit installation.</li> <li>Describe the importance of Earthing for the protection of solar PV system.</li> <li>Explain the significance and types of earth faults as per standards</li> <li>Explain the de-mounting of a solar PV power plant (after commissioning).</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate how to install electrical components of solar PV system; including inverter, batteries, junction boxes, energy meters, cables and conduits other electrical components.</li> <li>Analyse how to perform DC wiring.</li> <li>Demonstrate the application of tools &amp; tackles used for cable and conduit installation.</li> <li>Demonstrate how to perform earthing for the protection of solar PV system.</li> <li>Demonstrate demounting of solar PV power plant.</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
Tool kit, 1kWp Solar PV system, Side cutting pliers, Nose pliers, Wire stripper, Electrician knife, Hand crimping tools, Cable cutter, Screw driver, Water level Measuring tape, Centre punch, Standard wire gauge, Vanier calliper, Line Dori, Fuse puller, Safety helmet, Safety shoe,	



## Module 7: Test and Commission Solar PV system

### Mapped to SGJ/N0105

#### Terminal Outcomes:

- Perform steps for testing and commissioning of solar photovoltaic system.

<b>Duration: 15:00</b>	<b>Duration: 15:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Describe the importance of conducting testing of all solar PV components and performing fault finding and analysis, continuity checks, polarity check and other commissioning activities.</li> <li>• Explain the concerned regulations &amp; standards for grid interconnection.</li> <li>• Describe the commissioning process for the solar PV system.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to perform testing of all components, along with fault finding &amp; analysis, continuity checks, polarity check and other commissioning activities.</li> <li>• Examine concerned regulations &amp; standards for grid interconnection.</li> <li>• Demonstrate the commissioning process for the Solar PV System.</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
Tool kit, 1kWp Solar PV system, Side cutting pliers, Nose pliers, Wire stripper, Electrician knife, Hand crimping tools, Cable cutter, Screw driver, Water level Measuring tape, Centre punch, Standard wire gauge, Vanier calliper, Line Dori, Fuse puller, Safety helmet, Safety shoe, Safety belt, Nose mask, Safety goggles, Ear plug, PVC hand glove, Cotton hand glove, Reflective jacket, Clamp meter, Multimeter, Megger, Earth tester, Earthing Rod, Soldering Iron & Flux, Phase, Sequence Meter, Safety Gloves, Pyranometer.	



## Module 8: Maintain Personal Health & Safety at project site

### Mapped to SGJ/N0106

#### Terminal Outcomes:

- Perform steps to maintain personal health, safety and hygiene at project site.

<b>Duration: 15:00</b>	<b>Duration: 15:00</b>
<b>Theory – Key Learning Outcomes</b>	<b>Practical – Key Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• Explain the requirements for safe work area.</li> <li>• Explain the importance of administering first aid.</li> <li>• Identify the personal protective equipment used for the specific purpose.</li> <li>• Identify the hazards associated with photovoltaic installations;</li> <li>• Identify work safety procedures and instructions for working at height.</li> <li>• Explain the importance of Occupational health &amp; Safety standards and regulations for installation of Solar PV system.</li> <li>• Incorporate good housekeeping practices and infection control guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate how to administer first aid.</li> <li>• Demonstrate the usage of personal protective equipment for ensuring safety during installation and O&amp;M work.</li> <li>• Demonstrate good housekeeping and infection control &amp; prevention practices.</li> </ul>
<b>Classroom Aids</b>	
Laptop, white board, marker, projector, charts	
<b>Tools, Equipment and Other Requirements</b>	
Safety helmet, Safety souse, Safety belt, Ear plug, PVC hand glove, Cotton hand glove, Reflective jacket, Safety Gloves	



## Module 9: Employability Skills (60 hours)

### Mapped to DGT/VSQ/N0102:

#### Terminal Outcomes:

- Discuss the key Employability Skills

#### Introduction to Employability Skills

- Discuss the Employability Skills required for jobs in various industries
- List different learning and employability related GOI and private portals and their usage

#### Constitutional values - Citizenship:

- Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
- Show how to practice different environmentally sustainable practices.

#### Becoming a Professional in the 21st Century

- Discuss importance of relevant 21st century skills.
- Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
- Describe the benefits of continuous learning.

#### Basic English Skills Duration:

- Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
- Read and understand text written in basic English
- Write a short note/paragraph / letter/e -mail using correct basic English

#### Career Development & Goal Setting

- Create a career development plan with well-defined short- and long-term goals

#### Communication Skills Duration

- Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
- Explain the importance of active listening for effective communication
- Discuss the significance of working collaboratively with others in a team

#### Diversity and Inclusion

- Demonstrate how to behave, communicate, and conduct appropriately with all genders and PwD
- Discuss the significance of escalating sexual harassment issues as per POSH act

#### Financial and Legal Literacy

- Outline the importance of selecting the right financial institution, product, and service
- Demonstrate how to carry out offline and online financial transactions, safely and securely

- List the common components of salary and compute income, expenditure, taxes, investments etc. Discuss the legal rights, laws, and aids

#### Essential Digital Skills Duration:

- Describe the role of digital technology in today's life
- Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
- Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
- Create sample word documents, excel sheets and presentations using basic features
- Utilize virtual collaboration tools to work effectively

#### Entrepreneurship

- Explain the types of entrepreneurship and enterprises
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
- Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
- Create a sample business plan, for the selected business opportunity

#### Customer Service

- Describe the significance of analyzing different types and needs of customers
- Explain the significance of identifying customer needs and responding to them in a professional manner.
- Discuss the significance of maintaining hygiene and dressing appropriately

#### Getting ready for apprenticeship & Jobs Duration:

- Create a professional Curriculum Vitae (CV)
- Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
- Discuss the significance of maintaining hygiene and confidence during an interview
- Perform a mock interview
- List the steps for searching and registering for apprenticeship opportunities

# Annexure

## Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI /Diploma Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation or B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / Electrical and Electronics Eng.) or MSc Physics or The education qualification can be relaxed in case of extraordinary relevant field experience.		Minimum 3 years of relevant industry experience for ITI /Diploma (Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation)  Or Minimum 2 years of relevant industry experience for B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / MSc Physics)				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.
As per the Relevant Craft Instructor Training Scheme (CITS)						

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Solar PV Installer (Electrical)" mapped to QP: "SGJ/Q0102". Minimum accepted score as per SCGJ is 70%.	Recommended that the Trainer is certified for the Job Role: "Trainer", mapped to the Qualification Pack: "MEP/Q2601". Minimum accepted Score as per SCGJ is 80%.

## Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
ITI /Diploma Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation or B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / Electrical and Electronics Eng.) or MSc Physics or The education qualification can be relaxed in case of extraordinary relevant field experience.		Minimum 4 years of relevant industry experience for ITI /Diploma (Electrical, Electronics, Civil, Mechanical, Fitter, Instrumentation)				Personal Attributes:  Aptitude for conducting assessment. 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.
		Or  Minimum 3 years of relevant industry experience for B.Tech (Civil/Mechanical /Electrical/ Instrumentation / Electronics / MSc Physics				
As per the Relevant Craft Instructor Training Scheme (CITS)						

Assessor Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Solar PV Installer (Electrical)" mapped to QP: "SGJ/Q0101". Minimum accepted score as per SCGJ is 70%.	Recommended that the Assessor is certified for the Job Role: "Assessor", mapped to the Qualification Pack: "MEP/Q2701". Minimum accepted Score as per SCGJ is 80%.



## Assessment Strategy

This section includes the processes involved in identifying, gathering and interpreting information to evaluate the learner on the required competencies of the program. The emphasis is on examination of existing businesses through case study analysis and practical demonstration of skills and knowledge based on the performance criteria. The assessment papers are developed by Subject Matter Experts (SME), available with the Assessment Agency, in collaboration with Skill Council for Green Jobs, as per the performance and assessment criteria mentioned in the Qualification Pack. The assessments papers are also checked for the various outcome-based parameters such as quality, time taken, precision, tools & equipment requirement etc. The assessment sets are then reviewed for consistency. The technical limitations at the training centres are taken care in theory and viva. The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments. The assessment agencies are instructed to identify assessors as per the Assessment Policy and Guidelines established by Skill Council for Green Jobs relevant for that Qualification.

The assessors selected by Assessment Agencies are scrutinized and made to undergo training and introduction to SCGJ Assessment Framework, competency-based assessments, and assessor's guides. The assessors are provided with assessor's guide developed by the Subject Matter Expert of the assessment agency in collaboration with SCGJ as per the assessment framework. The assessment guides are developed to ensure the maximum possible consistency in the assessment by different assessors and elaborate on the following:

- Qualification Pack Structure
- Guidance for the assessor to conduct theory, practical and viva assessments
- Guidance for trainees to be given by assessor before the start of the assessments.
- Guidance on assessments process, practical brief with steps of operations practical observation checklist and mark sheet
- Viva guidance for uniformity and consistency across the batch.

The assessment to be conducted by assessment agency is completely based on the assessment criteria as mentioned in the Qualification Pack. Each NOS in the Qualification Pack (QP) is assigned a relative weightage for assessment based on the criticality of the NOS. Therein each Performance Criteria in the NOS is assigned marks for or practical based on relative importance, criticality of function and training infrastructure.

The following tools are proposed to be used for final assessment:

Practical Assessment: This will comprise of a test to evaluate the individual's grasp on domain skills imparted.



Viva/Structured Interview: This tool will be used to assess the conceptual understanding and the behavioural aspects as regards the job role and the specific task at hand. It will also include questions to ascertain the soft skills of interacting with the customer or client.

Written Test: Under this test few key items which cannot be assessed practically will be assessed. The written assessment will comprise of:

- True / False Statements
- Multiple Choice Questions
- Problem Statements
- Case Study Analysis



## References

## Glossary

Term	Description
<b>Declarative Knowledge</b>	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
<b>Key Learning Outcome</b>	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
<b>OJT (M)</b>	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
<b>OJT (R)</b>	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
<b>Procedural Knowledge</b>	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
<b>Training Outcome</b>	Training outcome is a statement of what a learner will know, understand and be able to do <b>upon the completion of the training</b> .
<b>Terminal Outcome</b>	Terminal outcome is a statement of what a learner will know, understand and be able to do <b>upon the completion of a module</b> . A set of terminal outcomes help to achieve the training outcome.



## Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards