

## **NSQF QUALIFICATION FILE**

**Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022**

### **CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE**

#### **Name and address of submitting body:**

Electronics Sector Skills Council of India(ESSCI)

Head Office: 155, 2nd Floor, ESC House

Okhla Industrial Area - Phase 3, New Delhi - 110020

Tel: +91 -84477-38-501

#### **Name and contact details of individual dealing with the submission**

**Name:** Dr. Abhilasha Gaur

**Position in the organisation:** COO

**Address if different from above:** Same as above

**Tel number(s):**

**E-mail address:** ceo@essc-india.org

#### **List of documents submitted in support of the Qualifications File**

1. Model Curriculum

#### **Model Curriculum to be added which will include the following:**

- **Indicative list of tools/equipment to conduct the training**
- **Trainers qualification**
- **Lesson Plan**
- **Distribution of training duration into theory/practical/OJT component**

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

### SUMMARY

1	<b>Qualification Title:</b> Solar Panel Installation Technician
2	<b>Qualification Code, if any:</b> ELE/Q5901
3	<b>NCO code and occupation:</b> NCO-2015/NIL Installation
4	<b>Nature and purpose of the qualification (Please specify whether qualification is short term or long term):</b> This is a long-term qualification, which will enable participants to check the site and install the solar panel as per customers requirement
5	<b>Body/bodies which will award the qualification:</b> Electronics Sector Skills Council of India
6	<b>Body which will accredit providers to offer courses leading to the qualification:</b> Electronics Sector Skills Council of India
7	<b>Whether accreditation/affiliation norms are already in place or not, if applicable (if yes, attach a copy):</b> Yes
8	<b>Occupation(s) to which the qualification gives access:</b> Installation
9	<b>Job description of the occupation:</b> Solar Panel Installation Technician in this job checks the installation site, understands the layout requirement as per design, assesses precautionary measures to be taken, installs the solar panel as per customers requirement and ensures effective functioning of the system post installation
10	<b>Licensing requirements:</b> N/A
11	<b>Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided):</b> N/A
12	<b>Level of the qualification in the NSQF:</b> Level 4
13	<b>Anticipated volume of training/learning required to complete the qualification:</b> 600 Hours
14	<b>Indicative list of training tools required to deliver this qualification:</b> Personal Protection Equipment: safety glasses, head protection, rubber gloves, safety footwear, warning signs and tapes, fire extinguisher, first aid kit, fire extinguishers and warning signs. Solar panel, screw driver, multimeter, tester, pliers, spanner, inverters, power analyzer, repairing tools, Sample of escalation matrix, organization structure.

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

15	<b>Entry requirements and/or recommendations and minimum age:</b> 8th Grade Pass + NTC (2 years after 8th) + 2 Year NAC/relevant Experience) OR 10th Grade pass + 2 Year NTC/NAC/ relevant experience OR Certificate-NSQF (Level-3 in Maintenance Technician) with 2 Years of relevant Experience OR 12th Class and 18 Years		
16	<b>Progression from the qualification (Please show Professional and academic progression):</b> Solar Panel Installation Engineer		
17	<b>Arrangements for the Recognition of Prior learning (RPL):</b> RPL will be based on the same approved Qualification Pack and Assessment Criteria mentioned in the Qualification Pack by Electronics Sector Skills Council of India (ESSCI)		
18	<b>International comparability where known (research evidence to be provided):</b> Yet to establish		
19	<b>Date of planned review of the qualification:</b> 02 <sup>nd</sup> June, 2025		
20	<b>Formal structure of the qualification</b> <b>Mandatory components</b>		
	<b>Title of component and identification code/NOSs/Learning outcomes</b>	<b>Estimated size (learning hours)</b>	<b>Level</b>
(i)	Bridge Module (Introduction to the role of Solar Panel Installation Technician)	30	4
(ii)	Check site conditions, collect tools and raw materials (ELE/N5901)	225	4
(iii)	Install the solar panel (ELE/N5902)	225	4
(iv)	Work effectively at the workplace (ELE/N9905)	30	4
(v)	Apply health and safety practices at the workplace (ELE/N1002)	30	4
(vi)	Employability Skills (60 Hours) (DGT/VSQ/N0102)	60	4
	<b>Total</b>	600	

**SECTION 1**

**ASSESSMENT**

21	<p><b>Body/Bodies which will carry out assessment:</b> Electronics Sector Skills Council of India</p>
22	<p><b>How will RPL assessment be managed and who will carry it out?</b> Give details of how RPL assessment for the qualification will be carried out and quality assured.</p> <p>The RPL assessment will be carried out through pre assessment, identifying the skills gaps, provide bridge training to cover the competency gap and then conduct final assessment of the candidates.</p>
23	<p><b>Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.</b></p> <p>Assessment is done through third parties who are affiliated to ESSCI as Assessment Body. Assessors are trained &amp; certified by ESSCI through Training of Assessors program. The assessment involves two processes. The first process is gathering the evidence of the competency of individuals. The second part of the assessment process is the judgement as to whether a person is competent or not. The assessment plan contains the following information:</p> <ul style="list-style-type: none"> <li>• What will be assessed, i.e. the competency based on each NOS</li> <li>• How assessment will occur i.e. methods of assessment</li> <li>• When the assessment will occur</li> <li>• Where the assessment will take place i.e. context of the assessment (workplace/simulation)</li> <li>• The criteria for decision making i.e. those aspects that will guide judgements and</li> </ul> <p>Where appropriate, any supplementary criteria used to make a judgement on the level of performance.</p> <p>The assessment is conducted through theory, viva voce and practical.</p>

Please attach most relevant and recent documents giving further information about assessment and/or RPL.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

### ASSESSMENT EVIDENCE

**Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.**

*NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – i.e. Learning Outcomes to be assessed, assessment criteria and the means of assessment.*

**24. Assessment evidences**

**Title of Component:** Solar Panel Installation Technician

**CRITERIA FOR ASSESSMENT OF TRAINING**

**Job Role** Solar Panel Installation Technician

**Qualification Pack** ELE/Q5901

**Sector Skill Council** Electronics Sector Skills Council of India

**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 centre (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre 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

<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<b>ELE/N5901: Check site conditions, collect tool and raw materials</b>				
<i>Identify and plan the work target</i>	<b>4</b>	<b>6</b>	-	-
<b>PC1.</b> interact with the supervisor to identify the installation targets for the day and/or week, individual work requirement, areas of operation	2	3	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC2.</b> identify the location of installations, plan the day's activities and complete the work plan for each installation	2	3	-	-
<i>Assessing site conditions</i>	<b>5</b>	<b>12</b>	-	-
<b>PC3.</b> assess the site for identify pre-requisites for solar panel installation	1	3	-	-
<b>PC4.</b> select the type of mounting to be made such as roof top, open fields, small spaces and mounting accessories required for installation as per the site condition	1	3	-	-
<b>PC5.</b> select the place of installation where maximum period of sunlight is captured in the area	1	2	-	-
<b>PC6.</b> ensure that land is levelled for flat surface mounting and construction is strong to hold solar panel for 20-25 years, especially, on roof top	1	1	-	-
<b>PC7.</b> identify any civil construction requirements for installing the panels and inform the customer for same	1	3	-	-
<i>Identify the installation requirement</i>	<b>10</b>	<b>14</b>	-	-
<b>PC8.</b> interact with customer and understand the purpose of installation and suggest alternatives	1	3	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC9.</b> obtain the location and mounting preference of customer	1	2	-	-
<b>PC10.</b> match the voltage and power output of the type of installation designed and losses with customer requirement	3	3	-	-
<b>PC11.</b> inform customer about the approximate time required for installation and any requirements during installation	2	3	-	-
<b>PC12.</b> get concurrence from the customer on the package of materials to be procured for installation based on agreed design	3	3	-	-
<i>Collecting recommended material for installation</i>	<b>9</b>	<b>14</b>	-	-
<b>PC13.</b> arrange and collect the material such as solar panels as per customers requirement, mounting stands as per design, tools and consumables required for mounting the solar panels	3	5	-	-
<b>PC14.</b> ensure that the quantity of modules / panels match the voltage requirement of the system	2	2	-	-
<b>PC15.</b> ensure that only company recommended quality materials are used unless specified by customer	2	3	-	-
<b>PC16.</b> ensure all the materials procured are QC passed, module is not damaged and the outer glass is not broken	2	4	-	-
<i>Ensure proper handling and storage of material</i>	<b>7</b>	<b>19</b>	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC17.</b> identify the material handling requirement and follow the standard operating procedure while moving the material	2	5	-	-
<b>PC18.</b> follow the standard module handling procedure such as two people should lift a module, module should not be carried on head, etc.	2	5	-	-
<b>PC19.</b> cover the glass module with an opaque material in storage to ensure that there is no electricity generation before installation	2	5	-	-
<b>PC20.</b> ensure that modules are stored in a way that they will not get not damaged by falling or by any external disturbance	1	4	-	-
<b>TOTAL</b>	<b>35</b>	<b>65</b>	-	-
<b>ELE/N5902: Install the Solar Panel</b>				
<i>Understanding installation and material usage procedure</i>	<b>4</b>	<b>11</b>	-	-
<b>PC1.</b> understand the customer requirement on installation	1	1	-	-
<b>PC2.</b> ensure that all appropriate materials are available during installation time	1	1	-	-
<b>PC3.</b> ensure that the installation meets the local building rules and regulations	-	2	-	-
<b>PC4.</b> ensure to disconnect PV module from any electric sources such as batteries, inverters, etc., before working on the module	1	2	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC5.</b> check that the module is defect free before installing	1	2	-	-
<b>PC6.</b> ensure to take specified measures such as fire resistance, corrosion resistance for the module during installation	-	3	-	-
<i>Assessing mounting</i>	<b>7</b>	<b>13</b>	-	-
<b>PC7.</b> understand the type of mounting and other accessories required	1	2	-	-
<i>Identify the installation requirement</i>	<b>10</b>	<b>14</b>	-	-
<b>PC8.</b> assess the degree of inclination and angle of tilt of PV module for the specific area, locality or region to enable the system absorb maximum annual sunlight	2	2	-	-
<b>PC9.</b> ensure that sunlight falls perpendicular to the PV module to absorb maximum energy	1	2	-	-
<b>PC10.</b> ensure that panels are mounted in a place where there is no shade at any time of the year	-	2	-	-
<b>PC11.</b> ensure that mounting is strong to withstand wind, rain, etc.	1	1	-	-
<b>PC12.</b> ensure that any special construction requirement for mounting is done by following acceptable quality standards, especially, in rooftop installations	1	1	-	-
<b>PC13.</b> use approved tools for mounting	1	1	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC14.</b> set the mounting fixture firmly at the desired location	-	2	-	-
<i>Installing the panel</i>	8	17	-	-
<b>PC15.</b> remove packaging of the solar panel carefully	1	1	-	-
<b>PC16.</b> handle the panels carefully without damaging the material	1	2	-	-
<b>PC17.</b> take safety measures and wear protection gear such as gloves to avoid shock / injuries while handling modules	1	2	-	-
<b>PC18.</b> cover the module with opaque material while installing to avoid any current generation	1	2	-	-
<b>PC19.</b> ensure that junction box is covered	1	2	-	-
<b>PC20.</b> do not disturb or disassemble any part of the module part during installation	-	2	-	-
<b>PC21.</b> take necessary precautions for fire resistance of modules	-	2	-	-
<b>PC22.</b> use recommended material of solar cable and plugs for electrical connection	1	1	-	-
<b>PC23.</b> install spare fuse to avoid any short circuits as per company policy	1	1	-	-
<b>PC24.</b> mount the module on the fixture with the mounting rails using bolts and nuts	1	1	-	-
<b>PC25.</b> ensure that the panels are mounted firmly	-	1	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<i>Connecting the system and check for functioning</i>	<b>7</b>	<b>10</b>	-	-
<b>PC26.</b> use the recommended cables to connect multiple PV modules in combination to generate the desired voltage and current	1	1	-	-
<b>PC27.</b> choose type of connection, i.e., series or parallel, as per design	1	3	-	-
<b>PC28.</b> check the maximum system voltage as per the installation and follow adjustment measures accordingly to match output requirement	1	1	-	-
<b>PC29.</b> ensure that the modules are grounded as specified	2	2	-	-
<b>PC30.</b> connect the system and check its functioning	1	1	-	-
<b>PC31.</b> escalate for any issues faced during the functioning of the system	1	2	-	-
<i>Completing the work</i>	<b>5</b>	<b>5</b>	-	-
<b>PC32.</b> remove all the tools, consumables used and clean the work area after completing the installation activity	1	2	-	-
<b>PC33.</b> fill in the job completion form and get the signature of the customer	-	1	-	-
<b>PC34.</b> inform customers about maintenance of solar panels and procedure of solar panels cleaning	1	1	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC35.</b> follow company standards in documentation of installation activities performed	3	1	-	-
<i>Following quality and safety procedures</i>	<b>4</b>	<b>9</b>	-	-
<b>PC36.</b> remove any metals or jewellery to avoid possibility of current shock during installation activity	1	2	-	-
<b>PC37.</b> wear all safety gears such as work shoes, cotton gloves, goggles while carrying out installation activities	1	2	-	-
<b>PC38.</b> take specified precautionary measures while handling electrical system	-	2	-	-
<b>PC39.</b> keep work area clean and organised	1	2	-	-
<b>PC40.</b> adhere to relevant health and safety standards	-	1	-	-
<b>PC41.</b> dispose-off any waste materials in accordance with safe working practices and procedures	1	-	-	-
<b>TOTAL</b>	<b>35</b>	<b>65</b>	-	-
<b>ELE/N9905: Work effectively at the workplace</b>				
<i>Communicate effectively at the workplace</i>	<b>5</b>	<b>13</b>	-	-
<b>PC1.</b> exchange information and instruction with colleagues, and seek clarifications and feedback as necessary	1	3	-	-
<b>PC2.</b> assist colleagues where required	1	3	-	-
<b>PC3.</b> follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)	1	4	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC4.</b> document and share all relevant information with stakeholders in agreed formats and as per agreed timelines	2	3	-	-
<i>Work effectively</i>	6	1 3	-	-
<b>PC5.</b> identify and obtain clarity regarding organisational, team and own goals and targets	1	2	-	-
<b>PC6.</b> prioritise and plan work in order to achieve goals and targets	1	2	-	-
<b>PC7.</b> monitor own and team performance as per agreed plan	1	2	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC8.</b> complete duties accurately, systematically and within required timeframes	1	2	-	-
<b>PC9.</b> express emotions appropriately at the workplace and manage own response to heightened emotions	1	2	-	-
<b>PC10.</b> maintain orderliness and cleanliness in the work area	1	3	-	-
<i>Maintain and enhance professional competence</i>	<b>8</b>	<b>7</b>	-	-
<b>PC11.</b> identify own strengths and weaknesses in relation to goals and targets	1	1	-	-
<b>PC12.</b> adapt self, service, or product to meet success criteria	1	1	-	-
<b>PC13.</b> seek and select opportunities for continuous professional development	1	1	-	-
<b>PC14.</b> formulate a professional development plan to enhance capabilities	2	1	-	-
<b>PC15.</b> build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations	1	1	-	-
<b>PC16.</b> examine developments and trends in field of work and their potential impact on work	1	1	-	-
<b>PC17.</b> take feedback from peers, supervisors and clients to improve own performance and practices	1	1	-	-
<i>Work in a disciplined and ethical manner</i>	<b>11</b>	<b>16</b>	-	-
<b>PC18.</b> perform tasks as per workplace standards, organisational policies and legislative requirements	2	2	-	-
<b>PC19.</b> display appropriate professional appearance at the workplace and adhere to the organisational dress code	1	2	-	-
<b>PC20.</b> demonstrate responsible and disciplined behaviour at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behaviour at all times, adopting environment-friendly practices, etc.	1	2	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution	2	2	-	-
PC22. protect the rights of the client and organisation when delivering services	1	2	-	-
PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs	1	2	-	-
PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities	2	2	-	-
PC25. follow organisational guidelines and legal requirements on disclosure and confidentiality	1	2	-	-
<i>Uphold social diversity at the workplace</i>	<b>10</b>	<b>11</b>	-	-
PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes	2	2	-	-
PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace	2	2	-	-
PC28. use inclusive or neutral language and gestures in all interactions	2	2	-	-
PC29. respect the personal and professional space of others	2	2	-	-
PC30. access grievance redressal mechanisms as per legislations	2	3	-	-
<b>NOS Total</b>	<b>40</b>	<b>60</b>	-	-
<b>ELE/N1002: Apply health and safety practices at the workplace</b>				
<i>Deal with workplace hazards</i>	<b>20</b>	<b>31</b>	-	-
PC1. identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	3	4	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

<b>PC3.</b> use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	3	4	-	-
<b>PC4.</b> follow standard safety procedures while handling tool/equipment, hazardous substances and while working in hazardous environments	3	4	-	-
<b>PC5.</b> dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques	2	4	-	-
<b>PC6.</b> avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
<b>PC7.</b> locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)	2	3	-	-
<b>PC8.</b> maintain appropriate posture while handling heavy objects	1	3	-	-
<b>PC9.</b> apply good housekeeping practices at all	2	3	-	-
<i>Apply fire safety practices</i>	4	9	-	-
<b>PC10.</b> take preventive measures to prevent fire hazards	2	3	-	-
<b>PC11.</b> · use appropriate fire extinguishers for different types of fires · Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker	1	3	-	-
<b>PC12.</b> exhibit rescue and first-aid techniques in case of fire or electrocution	1	3	-	-
<i>Follow emergencies, rescue and first-aid procedures</i>	6	13	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.	1	3	-	-
PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,	1	2	-	-
PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work	2	4	-	-
PC16. use correct method to move injured people and others during an emergency	2	4	-	-
<i>Effective waste management/recycling practices</i>	5	12	-	-
PC17. identify recyclable and non-recyclable, and hazardous waste generated	1	3	-	-
PC18. segregate waste into different categories	1	2	-	-
PC19. ensure disposal of non-recyclable waste appropriately	1	2	-	-
PC20. deposit non-recyclable and reusable material at identified location	1	3	-	-
PC21. follow processes specified for disposal of hazardous waste	1	2	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-

<b>DGT/VSQ/N0102: Employability Skills (60 Hours)</b>				
<b>Assessment Criteria for Outcomes</b>	<b>Theory Marks</b>	<b>Practical Marks</b>	<b>Project Marks</b>	<b>Viva Marks</b>
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	2	4	-	-
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development &amp; Goal Setting</i>	1	2	-	-
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	2	2	-	-
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	1	2	-	-
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	2	3	-	-
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	3	4	-	-
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-
<i>Entrepreneurship</i>	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-

**NSQF QUALIFICATION FILE****Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022**

PC28. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	2	3	-	-
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	<b>-</b>	<b>-</b>

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

Outcomes to be assessed/NOSs to be assessed	Assessment criteria for the outcome
Provided in the above section	
<b>Means of assessment 1</b> <ol style="list-style-type: none"><li>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.</li><li>2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.</li><li>3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below.)</li><li>4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on these criteria.</li></ol>	
<b>Means of assessment 2</b> Add boxes as required.	
<b>Pass/Fail</b> <ol style="list-style-type: none"><li>1. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS.</li><li>2. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.</li></ol>	

**SECTION 2**

**25. EVIDENCE OF LEVEL**

<b>Title/Name of qualification/component: Solar Panel Installation Technician</b>			<b>Level: 4</b>
<b>NSQF Domain</b>	<b>Key requirements of the job role</b>	<b>How the job role relates to the NSQF level descriptors</b>	<b>NSQF Level</b>
Process	<p><b>Demands a wide range of specialised technical skill, clarity of knowledge and practice in broad range of activity involving standard and non-standard practices.</b></p> <p>Requires good understanding Equipment installation and problems, Site Topology and equipment location, knowledge of unpacking and positioning the equipment in professional way, and methodically routing the interconnecting cables, power cables and wires.</p> <p>These activities are routine and Predictable in nature and are independent of the customer location.</p>	<p>Based on the problem cited by customer he is free to choose the remedy which works well for the problem</p> <p>and thus, he usually works in situation of clear choice.</p> <p>Hence Level 4</p>	4
Professional knowledge	<p><b>Factual and theoretical knowledge in broad contexts within a field of work or study.</b></p> <p>Requires advanced understanding of the equipment, functionality, and knowledge of site</p>	<p>Factual knowledge from experience in field</p> <p>Hence Level 4</p>	4

**NSQF QUALIFICATION FILE**

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

Title/Name of qualification/component: Solar Panel Installation Technician			Level: 4
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	<p>problems. This requires having knowledge and understanding of the concepts of Cable Technology/related instruments/Signals form.</p> <p>He requires knowledge of Solar lighting, directions, shadow regions.</p>		
Professional skill	<p><b>A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study.</b></p> <p>Work involves installation of Solar Panel at customer site. Good understanding of Customer expectation, advise customer on Operation of equipment.</p> <p>Requires good knowledge of the product, its specifications and suitability to customer requirements.</p>	<p>Requires technical expertise, necessary skill, correct tools and replacement parts to achieve productivity and quality. QP requires utilizing the involved practical skills</p> <p>Hence Level 4</p>	4
Core skill	<p>Needs proficiency in:</p> <p>Requires knowledge of language, good communication skills and documentation skill for collecting information, filling up the forms, issuing Bills, collecting payments and getting endorsement</p>	<p>These requires basic, social, political and environmental skill</p> <p>Hence Level 4</p>	4

**NSQF QUALIFICATION FILE**Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

Title/Name of qualification/component: Solar Panel Installation Technician			Level: 4
NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	<p>from customer.</p> <p>Interacting with superior briefing them on status of work-completion and pending targets, new customer requirements and alternate strategies.</p> <p>Maintain good peer group relation and capability of learning from their technical and behavioural experiences.</p>		
Responsibility	<p>Responsibility of completing the work assigned and reporting the same as per standards.</p> <p>In his routine activities of Normal Installation and Repair he is not under any kind of supervision.</p>	<p>The individual on the job is responsible for own work and fully responsible for other's work and learning. Hence Level 4</p>	4

**SECTION 3**

**EVIDENCE OF NEED**

<b>26</b>	<b>What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?</b>		
	<b>Basis</b>	<b>In case of SSC</b>	<b>In case of other Awarding Bodies (Institutes under Central Ministries and states departments)</b>
	<p><b>Need of the qualification</b> The Indian electronics industry is one of the largest and fastest-growing industries in the world. This sector comprises majorly consumer electronic products manufacturing and servicing.</p> <p>Indian electronic market is expected to reach a turnover of US\$ 400 billion in 2022, up from US\$ 69.6 billion in 2012.</p> <p>According to an Indian Brand Equity Foundation (IBEF) report, the market is projected to grow at a compound annual growth rate (CAGR) of 29.4</p>	<p>The SSC would undertake market study and would enclosed demand forecast for the proposed job role both on short-term and long-term basis to substantiate the requirement of the Qualification proposed. The SSC can produce the data from primary or authorized secondary sources as well.</p>	<p>The Submitting Body would produce any reputable and reliable research reports, such as labour market information reports; occupational mapping or similar research carried out by Ministry/State/Any other authentic source forecasting the demand for the proposed qualification</p>

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

	per cent during the period 2015-2020		
	Industry Relevance We are in the process of taking industry validation.	The SSC would undertake validation of the job roles with actual end-user industry where such employment are going to be generated and absorbed instead of generic validation of industry. The SSC would submit the endorsements from users/intended users of the qualification clearly supporting or otherwise the need for trained people against specific job role. <i>(The industry validation format to be used)</i>	The Submitting Body would submit the list of industry participation while preparation of the curriculum/ course content of the qualifications. These could include minutes of the meeting/ reports of these consultations
	Usage of the qualification: This Qualification Pack will be used across PDA device servicing industry which is organised	The SSC would submit details of the employment generated (wherever applicable) and realised by virtue of training in the Qualifications of the sector earlier submitted for NSQF alignment.  In case of unorganized sector, case studies or evidences may be given	The submitting body would submit the details of trained and placed data in the proposed qualification (if an existing qualification is being proposed for NSQF alignment) Information about the success of the qualification should be given (e.g. uptake figures, examples of use in recruitment and placement rates (if known) should be given. However, many of the bodies that do not have placement tracking mechanism established in place

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

			<p>would provide necessary endorsements by the state/ ministry stating that a tracking mechanism would be institutionalized and placement records shall be provided annually or later, depending on length of qualification.</p>
	<p>Estimated uptake</p> <p>The electronics products segment contributed 82% to the overall market in 2015, while the rest comprised electronic components.</p> <p>The Electronic Products industry in India was valued at \$ 61.8 bn in 2015.</p> <p>One of the largest electronics markets in the world anticipated reaching \$ 400 bn by 2025</p> <p>The Consumer Electronics and Appliances Industry in India is expected to become the fifth largest in the world by 2025.</p> <p>The electronics market is projected to grow at a CAGR of</p>	<p>The SSC would submit the estimated uptake of the qualification and What steps were carried out to test the likely uptake of the qualification? The basis of this estimate should include data about the number of jobs or places in courses of learning which will be available to people who are awarded the qualification.</p>	<p>The Submitting Body should submit the estimated uptake by reflecting the number of the takers for this qualification for at least two years from submission of the qualification</p>

## NSQF QUALIFICATION FILE

Approved in 15<sup>th</sup> NSQC Meeting – NCVET – 27<sup>th</sup> January, 2022

	17% during 2014-2020.		
27	<b>Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences</b>  N/A		
28	<b>What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification</b>  This is the first time that this Qualification is being made. The national qualification register as well as the Qualification Packs with NSDC have been checked		
29	<b>What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated? Specify the review process here</b> <ul style="list-style-type: none"><li>• Agencies have been appointed by the SSC to interact with training providers to gather feedback in implementation.</li><li>• Monitoring of results of assessments</li><li>• Employer feedback will be sought post-placement</li><li>• A formal review is scheduled in a year</li></ul>		

Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

**SECTION 4**

**EVIDENCE OF PROGRESSION**

30

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

**Show the career map here to reflect the clear progression**

1. Discussing the growth trajectory within each occupation after studying organisational charts of various industry players across small, medium and large scale organizations.
2. Exploring various lateral career opportunities for the discussed qualification
3. Ensuring that there is a clear role up in terms of performance criteria qualification experience and skill requirement from lower NSQF Level to higher levels in the hierarchy.

