

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

**Name and address of submitting body:**

Electronics Sector Skills Council of India

Address: 602,604,608, 6th Floor

Ansal Chambers II

Bhikaji Cama Place, New Delhi-110066

Tel: 011 – 46035050

**NCVET Code**

**2021/EHW/ESSC/04789**

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

**Name:** Mr. Piyush Chakraborty

**Position in the organisation:** Officiating Head

**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 14<sup>th</sup> NSQC Meeting – NCVET – 30<sup>th</sup> December, 2021

### SUMMARY

1	<b>Qualification Title:</b> Battery System Repair Technician
2	<b>Qualification Code, if any:</b> ELE/Q7001
3	<b>NCO code and occupation:</b> NIL
4	<b>Nature and purpose of the qualification (Please specify whether qualification is short term or long term):</b> Responsible for servicing and / or repairing the battery system of Electric Vehicles
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> After Sale Support-EM&B
9	<b>Job description of the occupation:</b> The Battery System Repair Technician is responsible for servicing and repairing of the battery system in an Electric Vehicle. Along with that, s/he tests the battery system after servicing; and takes corrective actions against any malfunction detected.
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> 400 Hours
14	<b>Indicative list of training tools required to deliver this qualification:</b> NA
15	<b>Entry requirements and/or recommendations and minimum age:</b> I.T.I (After 10 <sup>th</sup> )- With one year of relevant Experience OR Diploma (Electrical or Electronics Engineering) OR

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	course of NSQF Level-3 in the domain of EV / Electrical / Mechanical / Automobile (Automotive Service Technician)18 Years			
16	<b>Progression from the qualification (Please show Professional and academic progression):</b> Engineer – Services			
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> Post 16 <sup>h</sup> Dec 2025			
21	<b>Formal structure of the qualification</b> <b>Mandatory components</b>			
(i)	Title of component and identification code/NOSs/Learning outcomes	Estimated size (learning hours)		Level
		Theory	Practical	
1	Introduction Module	4	0	-
2	Identify service-related issues of the customer	24	48	4
3	Repair faulty parts in the Battery System	42	82	4
4	Test the Battery System after service and repair	48	74	4
5	Work effectively at the work place	16	24	4
6	Apply health and safety practices at the workplace	16	24	4
	<b>Total</b>	<b>150</b>	<b>250</b>	

**SECTION 1**

**ASSESSMENT**

1	<p><b>Body/Bodies which will carry out assessment:</b> Electronics Sector Skills Council of India</p>
2	<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>
3	<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.

## **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.*

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**24. Assessment evidences**

**Title of Component:** Battery System Repair Technician

**CRITERIA FOR ASSESSMENT OF TRAINEES**

**Job Role** Battery System Repair Technician

**Qualification Pack** ELE/Q7001

**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.

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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

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>ELE/N7006 Identify service-related issues of the customer</b>				
<i>Interacting with the customers</i>	<b>8</b>	<b>8</b>	-	-
<b>PC1.</b> greet the customers as per company's service policy	2	2	-	-
<b>PC2.</b> inform the customer about company's service policy such as warranty period, service charge etc.	2	2	-	-
<b>PC3.</b> create comfortable environment for the customers in the workshop	2	2	-	-
<b>PC4.</b> communicate in English, Hindi or local language as per convenience of the customer	2	2	-	-
<i>Identifying customer's issues</i>	<b>12</b>	<b>17</b>	-	-
<b>PC5.</b> discuss about customer's issues in the electric vehicle	2	3	-	-
<b>PC6.</b> explain the problem to the customer with possible solutions	2	3	-	-
<b>PC7.</b> assess the type of repair to be performed i.e., front end repair or technical level repair	3	4	-	-
<b>PC8.</b> inform the customer about repairing process, time and cost or inclusion under warranty	3	4	-	-
<b>PC9.</b> seek customer's approval for further service	2	3	-	-
<i>Completing documentation</i>	<b>12</b>	<b>23</b>	-	-
<b>PC10.</b> record details of the customer and the electric vehicle	2	4	-	-
<b>PC11.</b> identify warranty coverage of the item and other terms and conditions	2	4	-	-
<b>PC12.</b> inform warranty policy of the component brand to the customer	2	4	-	-
<b>PC13.</b> prepare invoice towards mutually agreed repair or service activity	2	3	-	-
<b>PC14.</b> seek feedback from the customer about his experience in the workshop	2	4	-	-

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<b>PC15.</b> perform stock management, spare parts ordering etc. using interactive system	2	4	-	-
<i>Achieving productivity and quality</i>	<b>8</b>	<b>12</b>	-	-
<b>PC16.</b> perform repair or service activity as per Service Level Agreement (SLA)	2	4	-	-
<b>PC17.</b> demonstrate 100% customer satisfaction after replacement and repair services	3	4	-	-
<b>PC18.</b> demonstrate non-repetition of the problem or any further escalation	3	4	-	-
<b>NOS Total</b>	<b>40</b>	<b>60</b>	-	-
<b>ELE/N7002 Repair faulty parts in the Battery System</b>				
<i>Preparing for the service and repair</i>	<b>8</b>	<b>17</b>	-	-
<b>PC1.</b> review troubleshooting instructions sheets	1	2	-	-
<b>PC2.</b> select relevant tools, 100% approved and verified field replaceable part as per SOP	1	2	-	-
<b>PC3.</b> inspect electrical connections, circuits, terminals and earthing to avoid electrical shock	1	2	-	-
<b>PC4.</b> inspect entire battery system / battery pack for various defects	1	2	-	-
<b>PC5.</b> inspect battery monitoring integrated circuit (IC) for proper functioning	1	2	-	-
<b>PC6.</b> inspect passive cell balancing up to 1.3 A per cell and voltage of single cell (0.1 - 5.0 V, resolution 1 MV)	1	2	-	-
<b>PC7.</b> measure single cell internal resistance for implementing under / over voltage protection	1	2	-	-
<b>PC8.</b> decide the replacement or repair of modules on field or at the company's workshop	1	3	-	-
<i>Repairing or replacing faulty parts after diagnosis</i>	<b>14</b>	<b>35</b>	-	-
<b>PC9.</b> apply the required current of the controller for measuring voltage of each cell	2	4	-	-
<b>PC10.</b> practice isolation of the battery pack between current and charger for estimating state of charge (SOC)	2	5	-	-
<b>PC11.</b> practice connection of the battery system with positive and negative cells	2	5	-	-



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<b>PC12.</b> perform fixing of common problems faced with ICs, MOSFAT, plugs and wiring of the devices	2	5	-	-
<b>PC13.</b> disassemble and re-assemble the system for removal and replacement of any faulty parts	2	4	-	-
<b>PC14.</b> communicate with technical helpdesk to seek any assistance at site	1	3	-	-
<b>PC15.</b> conclude the task as per standard operating procedure and quality benchmark of the company	1	3	-	-
<b>PC16.</b> inform customer about the service / repairing activity been undertaken	1	3	-	-
<b>PC17.</b> Instruct customer on procedures to be followed for operating the battery	1	3	-	-
<i>Reporting to the superior</i>	<b>8</b>	<b>18</b>	-	-
<b>PC18.</b> inform on the workload and completion status	2	4	-	-
<b>PC19.</b> report work status through proper documentation as per organizational standards	1	3	-	-
<b>PC20.</b> intimate about the problem that cannot be resolved at field with reasons	1	3	-	-
<b>PC21.</b> report 100% on time completion of service, repair or part replacement with reference to agreed target and time or reasons for not meeting target	2	4	-	-
<b>PC22.</b> prepare the feedback form on customer satisfaction level	2	4	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-
<b>ELE/N7001 Test the Battery System after service and repair</b>				
<i>Testing the battery system thoroughly</i>	<b>12</b>	<b>26</b>	-	-
<b>PC1.</b> review standard procedures for battery cell and module testing	2	4	-	-
<b>PC2.</b> locate the connectors and release them to remove the wirings from the battery pack	2	4	-	-
<b>PC3.</b> use recommended tools to open the battery pack for testing	2	5	-	-
<b>PC4.</b> test battery cells and modules for various performance parameters	2	5	-	-
<b>PC5.</b> comply with globally accepted regulatory standards for technical specifications while testing	2	4	-	-

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<b>PC6.</b> maintain test records in a logbook	2	4	-	-
<i>Rectifying the malfunctions, if any</i>	<b>18</b>	<b>44</b>		
<b>PC7.</b> review the test results as per standards specified in the supplier's manual	2	6	-	-
<b>PC8.</b> inspect passive & active cell balancing and rated capacity of the battery pack	3	6	-	-
<b>PC9.</b> summarize test results in the prescribed format	2	6	-	-
<b>PC10.</b> identify cause of the problem, if test results diverge from specifications	3	6	-	-
<b>PC11.</b> seek technical assistance from supervisor / engineers on faults that cannot be fixed	2	5	-	-
<b>PC12.</b> apply correct techniques to rectify malfunctions as per standard operating procedure	2	5	-	-
<b>PC13.</b> retest the battery system to ensure that design specifications are met	2	5	-	-
<b>PC14.</b> report rectification activities to superiors for future reference	2	5	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-
<b>ELE/N9905 Work effectively at the workplace</b>				
<i>Communicate effectively at the workplace</i>	<b>4</b>	<b>13</b>	-	-
<b>PC1.</b> Exchange information and instructions with others at the workplace clearly, accurately and within agreed timelines	1	3	-	-
<b>PC2.</b> Seek clarification to obtain complete information and confirm understanding while receiving communications	0	2	-	-
<b>PC3.</b> Display helpful behaviour by assisting others in performing tasks where required	1	2	-	-
<b>PC4.</b> Follow communication etiquette while working to convey politeness, assertiveness, care and professionalism	1	3	-	-
<b>PC5.</b> Share all relevant information with stakeholders in agreed formats and as per agreed timelines	1	3	-	-
<i>Work in an effective manner</i>	<b>5</b>	<b>13</b>		
<b>PC6.</b> Identify and obtain clarity regarding organisational, team and own goals and targets	1	3	-	-

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<b>PC7.</b> Prioritise and plan work in order to achieve goals and targets	1	3	-	-
<b>PC8.</b> Monitor own and team performance as per agreed plan	1	3	-	-
<b>PC9.</b> Complete duties accurately, systematically and within required timeframes	1	2	-	-
<b>PC10.</b> Maintain orderliness and cleanliness in the work area	1	2	-	-
<i>Maintain and enhance professional competence</i>	<b>6</b>	<b>6</b>		
<b>PC11.</b> Identify own strengths and weaknesses in relation to goals and targets	1	1	-	-
<b>PC12.</b> Select opportunities for continuous learning and maintaining currency of professional practice	1	1	-	-
<b>PC13.</b> Develop a professional development plan to enhance professional capabilities	1	1	-	-
<b>PC14.</b> Examine developments and trends in field of work and potential impact on work	1	1	-	-
<b>PC15.</b> Invite peers and others to observe, and provide feedback, on own performance and practices	1	1	-	-
<b>PC16.</b> Use feedback from colleagues and clients to identify and introduce, improvements at work	1	1	-	-
<i>Work in a disciplined and ethical manner</i>	<b>7</b>	<b>10</b>		
<b>PC17.</b> Perform tasks as per workplace standard and in compliance with organisational policies and legislative requirements	0	1	-	-
<b>PC18.</b> Display appropriate professional appearance for the workplace while adhering to organisational policy for dress code	1	1	-	-
<b>PC19.</b> Demonstrate responsible and disciplined behaviours in the workplace. Disciplined behaviours: e.g. punctuality; completing tasks as per given time and standards; using professional behaviour at all times, adopting environment-friendly practices, etc	1	1	-	-
<b>PC20.</b> Identify the cause of conflict and options for resolution when faced with situations of conflict	1	1	-	-

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<b>PC21.</b> Escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict	1	1	-	-
<b>PC22.</b> Protect the rights of the client and organisation when delivering services	1	1	-	-
<b>PC23.</b> Ensure services are delivered equally to all clients regardless of personal and cultural beliefs	0	1	-	-
<b>PC24.</b> Operate within an agreed ethical code of practice	0	1	-	-
<b>PC25.</b> Recognise unethical conduct and report to an appropriate person	1	1	-	-
<b>PC26.</b> Follow organisational guidelines and legal requirements on disclosure and confidentiality	1	1	-	-
<i>Respect gender and ability differences</i>	<b>7</b>	<b>7</b>		
<b>PC27.</b> Ensure personal behavior and conduct taking gender and disability of the person into consideration	1	1		
<b>PC28.</b> Adjust communication styles to reflect gender sensitivity and sensitivity towards person with disability	1	1		
<b>PC29.</b> List the different types of disabilities with their respective issues	1	1		
<b>PC30.</b> Help PwD to overcome the challenges	1	1		
<b>PC31.</b> Use inclusive language irrespective of the disability and the gender of the person	1	1		
<b>PC32.</b> Ensure equal treatment for all clients, colleagues and co-workers	1	1		
<b>PC33.</b> Respect personal space of colleagues and co-workers	1	1		
<i>Adopt learning and self-direction</i>	<b>3</b>	<b>3</b>		
<b>PC34.</b> Understand importance of skill level advancement in the industry and develop mastery	1	1		
<b>PC35.</b> Adapt product/service to meet the success criteria	1	1		
<b>PC36.</b> Understand accountability for timely completion of tasks	1	1		
<i>Develop system thinking in problem solving</i>	<b>2</b>	<b>2</b>		

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<b>PC37.</b> Analyze the problem accurately and communicate different possible solutions to the problem	1	1		
<b>PC38.</b> Analyze the cause of the problem and validate	1	1		
<i>Manage the emotions</i>	<b>3</b>	<b>3</b>		
<b>PC39.</b> Manage to express emotions in appropriate ways at workplace and understand the cause for the emotions	1	1		
<b>PC40.</b> Manage response to employees' heightened emotions	1	1		
<b>PC41.</b> Understand the transient nature of emotions	1	1		
<i>Set Organizational Culture</i>	<b>3</b>	<b>3</b>		
<b>PC42.</b> Plan to build a knowledge base about the problems faced and their solutions for the organization	1	1		
<b>PC43.</b> Plan to create and emotionally intelligent organizational culture	1	1		
<b>PC44.</b> Plan to set appropriate organizational culture for effective communication, collaboration and team work	1	1		
<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>21</b>	<b>39</b>	-	-
<b>PC1.</b> Identify job-site hazardous work and state possible causes of risk or accident in the workplace	2	3	-	-
<b>PC2.</b> Carry out safe working practices while dealing with hazards to ensure the safety of self and others	3	4	-	-
<b>PC3.</b> Use appropriate personal protective equipment (PPE) Appropriate PPE: For specific tasks and work conditions; as per type of contaminant (concentration w.r.t air); as per severity of hazard; conformity to Indian/International standards; in line with organizational policy	2	3	-	-
<b>PC4.</b> Follow standard safety procedures while handling tools and equipment	2	3	-	-
<b>PC5.</b> Follow standard safety procedures while handling hazardous substances or working in hazardous environments	1	3	-	-

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<b>PC6.</b> Dispose electronic waste as per industry approved techniques Electronic waste: toxins; metals such as lead, cadmium, barium; flame-retardant plastics, welding slag etc.	2	3	-	-
<b>PC7.</b> Avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	1	3	-	-
<b>PC8.</b> Follow methods of accident prevention in the work environment of the job role Methods of accident prevention: training in health and safety procedures; using health and safety procedures; use of equipment and working practices (such as safe carrying procedures); safety notices, advice; instruction from colleagues and supervisors	1	2	-	-
<b>PC9.</b> Lift heavy objects safely using correct procedures	1	2	-	-
<b>PC10.</b> Identify location of general health and safety equipment in the workplace General health and safety equipment: fire extinguishers; first aid equipment; safety instruments and clothing; safety installations (e.g. fire exits, exhaust fans)	2	3	-	-
<b>PC11.</b> Identify the name and location of people responsible for health and safety in the workplace	1	2	-	-
<b>PC12.</b> Identify the names and location of documents that refer to health and safety in the workplace	1	3	-	-
<b>PC13.</b> Apply good housekeeping practices at all times	1	3	-	-
<b>PC14.</b> Identify common hazard signs displayed in various areas Various areas: on chemical containers; equipment; packages; inside buildings; in open areas and public spaces, etc	1	2	-	-
<i>Apply fire safety practices</i>	<b>4</b>	<b>13</b>		

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<b>PC15.</b> Use the various appropriate fire extinguishers on different types of fires correctly 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 panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no longer receiving electricity); Class D: combustible metals such as magnesium, titanium, and sodium	1	4	-	-
<b>PC16.</b> Demonstrate rescue techniques applied during fire hazard	1	4	-	-
<b>PC17.</b> Take preventive measures in order to prevent fire hazards	1	3	-	-
<b>PC18.</b> Demonstrate the correct use of a fire extinguisher	1	2	-	-
<i>Follow emergencies, rescue and first-aid procedures</i>	<b>5</b>	<b>8</b>	-	-
<b>PC19.</b> Demonstrate how to free a person from electrocution	1	1	-	-
<b>PC20.</b> Administer appropriate first aid to victims were required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.	0	1	-	-
<b>PC21.</b> Demonstrate basic techniques of bandaging	1	1	-	-
<b>PC22.</b> Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases	1	2	-	-
<b>PC23.</b> Participate in emergency procedures Emergency procedures: raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work	1	1	-	-
<b>PC24.</b> Demonstrate correct method to move injured people and others during an emergency	1	2	-	-
<i>Effective waste management/recycling practices</i>	<b>5</b>	<b>5</b>		

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<b>PC25.</b> Identify recyclable and non-recyclable, and hazardous waste generated	1	1		
<b>PC26.</b> Segregate waste into different categories	1	1		
<b>PC27.</b> Ensure disposal of non-recyclable waste appropriately	1	1		
<b>PC28.</b> Deposit non-recyclable and reusable material at identified location	1	1		
<b>PC29.</b> Follow processes specified for disposal of hazardous waste	1	1		
<b>NOS Total</b>	<b>35</b>	<b>65</b>	<b>-</b>	<b>-</b>

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<b>Outcomes to be assessed/NOSs to be assessed</b>	<b>Assessment criteria for the outcome</b>
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>	

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**SECTION 2**  
**EVIDENCE OF LEVEL**

<b>Title/Name of qualification/component: Battery System Repair 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> <ul style="list-style-type: none"> <li>• Determine the problem and perform front and repair</li> <li>• Follow the standard repair procedures</li> <li>• Diagnose the problem and fix the malfunctions</li> <li>• Repair / replace the faulty module / devices</li> </ul>	<p>A Battery System Repair Technician is responsible for servicing and / or repairing the Battery electric vehicle System of Electric Vehicles. The job also demands the testing of the battery system and replacing faulty parts, if necessary, after servicing and fixing up any malfunction detected.</p>	4
Professional knowledge	<p><b>Factual and theoretical knowledge in broad contexts within a field of work or study.</b></p> <ul style="list-style-type: none"> <li>• Knowledge of a Service Level Agreement (SLA) and quality standards to be followed</li> <li>• Knowledge of how to assemble and disassemble battery System</li> <li>• Concept of basic electrical and electronics engineering</li> <li>• Standard Operating Procedure (SOP) and their application</li> <li>• Common problems and their remedies</li> </ul>	<p>A Battery System Repair Technician is responsible for servicing and / or repairing the battery electric vehicle System of Electric Vehicles. The job also demands the testing of the battery system and replacing faulty parts, if necessary, after servicing and fixing up any malfunction detected. Hence Level 4</p>	4
Professional skill	<p><b>A range of cognitive and practical skills required to generate solutions to specific</b></p>	<p>A Battery System Repair Technician should know the basic knowledge of how to assemble the battery pack and battery system and tools</p>	4

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	<p><b>problems in a field of work or study.</b></p> <ul style="list-style-type: none"> <li>● Communicate with customer, team and supervisor to understand the work requirement</li> <li>● Identify the errors in orders</li> <li>● Maintain test results and processes</li> <li>● Complete the documentation of servicing and testing records</li> </ul>	<p>requirement. Concept of basic electronics Hence Level 4</p>	
Core skill	<p>Reasonably good in:</p> <ul style="list-style-type: none"> <li>● Knowledge of electric vehicle and their mechanism</li> <li>● Knowledge of basic procedures of power conversion and equipment/ gadgets required</li> <li>● Standard Operating Procedure (SOP) and their application</li> <li>● Common problems and their remedies</li> </ul>	<p>A Battery System Repair Technician should know the basic knowledge of how to assemble the battery system and tools requirement. Concept of anode, cathode, positive and negative terminals.  Hence Level 4</p>	4
Responsibility	<p>Responsibility of completing the work assigned and reporting the same as per standards.</p> <ul style="list-style-type: none"> <li>● Understand the job role and follow the organisational policy</li> <li>● Record and report about the work status</li> <li>● Follow safety regulations at work place</li> <li>● Work along with colleagues and supervisors</li> </ul>	<p>A Battery System Repair Technician should know the basic knowledge of how to assemble the battery pack and battery system and tools requirement. Concept of basic electronics  Hence Level</p>	4

**SECTION 3**

**EVIDENCE OF NEED**

<b>1</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.</p> <p>The market growth of E-Mobility &amp; Battery is expected to be at a CAGR of 50% over the forecast period (2019-26)</p>	<p>The SSC would undertake market study and would enclose 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>
<p><b>Industry Relevance</b> We are in the process of taking industry validation.</p>	<p>The SSC would undertake validation of the job roles with actual end-user industry where such employment is 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</p>	<p>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</p>	

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		trained people against specific job role. ( <i>The industry validation format to be used</i> )	
	Usage of the qualification: This Qualification Pack will be used across E-Mobility & Battery industry which is organised as well as unorganised	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 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.
	Estimated uptake The dynamics in the electric vehicle market are expected to	The SSC would submit the estimated uptake of the qualification and What steps were carried out to test the likely	The Submitting Body should submit the estimated uptake by reflecting the number of the takers for this

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	change as the electrification of road transport is expected to move into top gear by the second half of the 2020s	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.	qualification for at least two years from submission of the qualification
2	<p><b>Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences</b></p> <p>Ministry of Electronics and Information Technology, Government of India (MeitY)</p>		
3	<p><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></p> <p>This is the first time that this Qualification is being made. The national qualification registers as well as the Qualification Packs with NSDC have been checked.</p>		
4	<p><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></p> <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's time i.e. 2020</li> </ul>		

**SECTION 4**  
**EVIDENCE OF PROGRESSION**

1	<p><b>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</b></p> <ol style="list-style-type: none"> <li>1. Discussing the growth trajectory within each occupation after studying organisational charts of various industry players across small, medium and large-scale organizations.</li> <li>2. Exploring various lateral career opportunities for the discussed qualification</li> <li>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.</li> </ol> <p>Career pathway has been identified as illustrated below (Annexure 1)</p> <p><b>Annexure 1: Career Map of Battery System Repair Technician</b></p> <pre>             graph TD                 A[Remote Helpdesk Technician] --&gt; B[Battery System Repair Technician]                 A --&gt; C[Motor and Controller Repairing Technician]                 B --&gt; D[Engineer - Battery Pack &amp; Motor Repairing]                 C --&gt; E[Engineer - EV Components (Controller / Charger / Transmission / Harness etc.)]                 D --&gt; F[Manager - Services / Workshop Operation]                 E --&gt; F                 F --&gt; G[Head - Services / Workshop]                 B --- NSQF5[NSQF 5]                 C --- NSQF5                 D --- NSQF6[NSQF 6]                 E --- NSQF6                 F --- NSQF7[NSQF 7]                 G --- NSQF7                 </pre>
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