NSQF QUALIFICATION FILE
Approved in 14th NSQC Meeting – NCVET – 30th December, 2021

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Automotive Skills Development Council

Leela Building, 153 GF, Okhla Phase III,

Okhla Industrial Area, New Delhi,

Delhi 110020

NCVET Code

2021/AUT/ASDC/04783

Name and contact details of individual dealing with the submission
Name: Arindam Lahiri

Position in the organisation: CEO

Address if different from above: Same as above

Tel number(s): 011-41868090

E-mail address: ceo@asdc.org.in

List of documents submitted in support of the Qualifications File

1. Qualification Pack:- ASC/Q1429
2. Documents related to QP Development (Refer to folder “Common Files”)
   (i) RFP for QP Development
   (ii) Supporting Document from GC meetings
   (iii) Labour Market Survey
   (iv) About the sector
   (v) Occupational Map
   (vi) List of Companies participating in QP Development Process
   (vii) QRC Summary Sheet
   (viii) Model Curriculum

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1	**Qualification Title –** Electric Vehicle Service Technician	
2	**Qualification Code, if any -** ASC/Q1429	
3	**NCO code and occupation -** NCO-2015/ 3115.0602	
4	**Nature and purpose of the qualification (Please specify whether qualification is short term or long term) -** This is a Qualification Pack (QP), corresponding to Level – 4 and includes Six (6) NOSs. Targeted learners: The role entails servicing and repairing of an electric vehicle by using various tools and equipment. Main purpose of the qualification – is to get unemployed people into work and also to up-skilling of Skilled Technicians already in employment and to enable them to take up this role. This is a short-term qualification.	
5	**Body/bodies which will award the qualification**	ASDC
6	**Body which will accredit providers to offer courses leading to the qualification**	ASDC (recommended)
7	**Whether accreditation/affiliation norms are already in place or not , if applicable (if yes, attach a copy)**	ASDC Norms
8	**Occupation(s) to which the qualification gives access**	Technical Service & Repair
9	**Job description of the occupation**	An Electric Vehicle Service Technician is responsible for the repair, routine servicing and maintenance (including electrical and mechanical aggregates) of Electric and Hybrid vehicles and assist the lead technician in identifying the faults.
10	**Licensing requirements**	NA
11	**Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)**	NA
12	**Level of the qualification in the NSQF**	Level 4
13	**Anticipated volume of training/learning required to complete the qualification**	400 Hrs
14	**Indicative list of training tools required to deliver this qualification**	Please refer annexure
15	**Entry requirements and/or recommendations and minimum age**	10th Class (or Certificate NSQF Level 3 ((Two/ Four Wheeler Service Assistant)) with 2 Years of experience of relevant experience OR I.T.I (Mechanic Motor Vehicle/ Mechanic Auto Electrical and Electronics) OR 12th Class with 1 Year of experience of relevant experience and

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		18 years
16	**Progression from the qualification (Please show Professional and academic progression)**	Electric Vehicle Service Lead Technician
17	**Arrangements for the Recognition of Prior learning (RPL)**	NA
18	**International comparability (where known (research evidence to be provided)**	NA
19	**Date of planned review of qualification**	30th December 2024

2	**Formal structure of the qualification** **Mandatory components**		
	Title of component and identification code/NOSs/Learning outcomes	**Estimated size (learning hours)**	**Level**
(i)	Includes 3 NOSs - 1. ASC/N9801: Organize work and resources (Service) 2. ASC/N9802: Interact effectively with colleagues, customers and others 3. ASC/N1449: Carry out routine service or minor repairs on electric vehicle and assist in diagnosis	48 40 Hours 192	4
	Sub Total (A)	**280 Hrs**	**4**
	Elective components		
	Title of component and identification code/NOSs/ Learning outcomes	**Estimated size (learning hours)**	**Level**
	Elective 1: ASC/N1450: Carry out routine service or minor repairs on four wheeler electric/ hybrid vehicle and assist in diagnosis	120 Hrs	4
	Elective 2: ASC/N1451: Carry out routine service or minor repairs on two/three wheeler electric vehicles and assist in diagnosis	120 Hrs	4
	Elective 3: ASC/N1452: Carry out routine service or minor repairs on heavy commercial electric vehicle and assist in diagnosis	120 Hrs	4
	Sub Total (B)	**360 Hrs**	
	Total (A+B)	**640 Hrs**	**4**

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SECTION 1
ASSESSMENT

21	**Body/Bodies which will carry out assessment:** 1. Ace Assessment Pvt. Ltd. 2. Prima Competencies Pvt. Ltd. 3. Trendsetters Skill Assessors Pvt. Ltd 4. GreenArrows Safety Management (P) Ltd. 5. Eduvantage 6. VR Skill & HR Solutions 7. SPIWD 8. Knowlarity Solutions Pvt. Ltd. 9. KAMT India 10. TCS 11. India Skills Pvt. Ltd. 12. TATA Motors
22	**How will RPL assessment be managed and who will carry it out?** The assessment body or employer assessors shall be responsible for RPL assessment. In RPL, the candidate has acquired the skills and knowledge while working and requires assessment and certification only. RPL is the acknowledgement of skills and knowledge obtained through: • formal training • work experience • life experiences The focus of RPL is the competence gained from these experiences; not how, when or where the learning occurred. **Process or steps in RPL assessments** 1. Offering RPL to potential candidates 2. Providing information to the candidate 3. Evidence collation 4. Pre-screening & orientation 5. Self-assessment 6. Assessment and making the decision 7. Feedback to the candidate 8. Documentation of outcomes 9. certification
23	**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.** **Quality Assurance - Assessment & Certification** ASDC Certificate is Auto industry's own certificate and the certificate is expected to carry an assurance of quality. Therefore, the certified candidate should be able to demonstrate all round skills as expected by industry standard ie ASDC NOS/QP.

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In order to achieve this objective ASDC needed to have an approach that is process driven whereby the outcomes meet the quality objectives and also display consistency.
Certification is the outcome of Assessment Process. The Process in turn is derived from an overall strategy.

ASDC Assessment Strategy

ASDC Assessment Strategy has two components:

1 Broad Guidelines provided by NSDC QRC (*Qualifications Registration Committee*)
2 ASDC's own *sector specific* overarching strategy, covering all job roles.
- Any specific assessment approach relating to a particular job role.

1 Broad Guidelines provided by NSDC QRC (*Qualifications Registration Committee*):

a. Assessment to be conducted by SSC as per competency output defined in the NOS/QP and the assessment criteria provided in the NOS/QP
b. Assessment to be carried out by a third party Assessment Body duly affiliated to the SSC.
c. Practical and face to face Viva evaluations, where applicable, to be carried out only by the SSC approved assessor deployed by the Assessing Body deputed by SSC for the given assessment.
d. Cut off marks for certification could be in the vicinity of 70% level but individual SSC to refine &modify this criteria to suit the sectorial needs.
e. Assessing Body to declare results with due concurrence of the SSC.

2 ASDC's own sector specific strategy covering all job roles :

2.1 ASDC assessments will be comprehensive and cover all aspects of acquired knowledge, practical skills and also basic ability to communicate. Accordingly, evaluation process would include:

i. Theory/Knowledge test
ii. Practical demonstration test
iii. Face to Face Viva

2.2 Theory/Knowledge assessment will be carried out on line through a link provided for each assessment that generates a random paper from a bank of questions available at the back end.
- Exception to an online test in favour of Paper Test would be subject to non-availability of requisite broad band and/or hardware.
- On line test would be conducted in the presence of an ASDC assessor till web enabled proctoring is deployed.

2.3 ASDC assessor would be conducting Practical and Viva as per the criteria provided in the NOS/QP.

2.4 ASDC assessor would be carrying out Practical assessment for job roles such as in sales by way of role playing method.

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2.5 ASDC cut offs for accepting a candidate for certification:
Automotive industry has already attained a level of globalization and is on the way to becoming even more integrated into the global supply chains with a big focus by OEMs on sourcing from India. This translates to expectation of high quality skills. In fact, the global integration process would start putting demands on skill quality standards to be in line with transnational standards.

2.6 Also there is an ever increasing quality demands placed by domestic customers.

2.7 Further, the structuring of our industry is such that the different organizations spread across the OEM, Tier1, 2 manufacturing spectrum are expected to follow common quality standards. Similarly, OEMs and their Dealerships and Service Workshops also require to follow common quality standards. This implies that employees need to follow technical discipline, team work and quality processes.

2.8 ASDC aims to build a quality brand for its certification that clearly meets our industry's expectations.

2.9 The other important consideration is the Level notification by NSQF (National Skills Qualifications Framework) which provides a structure of skills ladder to be followed in the country. This ladder describes the entire skills space to be covered in 10 levels from Level 1 (for mostly menial jobs) and upto Level 10(for mostly strategy level jobs)

2.10 Keeping above points in mind ASDC evolved an acceptance criteria as follows:

- Broadly, overall cut offs to be :
  Level 1 60%
  Level 2 65%
  Level 3 70%
  Level 4-10 75%
- Specific Theory/Practical/Viva cut offs to be as per detailed matrix for each QP.

2.11 In line with international practice there is a provision for moderation of marks to account for borderline cases. This process also covers differential moderation possibility across Theory/ Practical/ Viva.

2.12 Moderation could also be necessitated owing to variation between assessors and strictness in marking. This moderation to be carried out by concerned Assessing Body in consultation with ASDC.

2.13 In addition to recording markings of the candidate evaluation, the Assessor will also be recording general observations for every batch as per ASDC format. This record will be useful in carrying out (2.11-2.12) above.

- Any specific assessment approach relating to a particular job role:
  - ASDC could consider *only* online test for some job roles such as in Design Engineering /Quality

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- ASDC assessment process would also provision a suitable re-evaluation mechanism which would offer a fair chance to the TP/candidates for Obtaining an accurate outcome.
- ASDC assessment process would also provision re assessment of a batch in case the TP has enough reason to opt for this on payment of the due assessment fee.

Assessment Process

- ASDC Training Partner will intimate ASDC for readiness of a batch for assessment preferably 15 days before the intended assessment.
- Within 3 working days ASDC will finalize an Assessing Partner for carrying out the assessment
- Assessing Partner will deploy one or more ASDC approved assessor For carrying out the assessment.
- Theory/Knowledge test of the approximate duration of 30-60 minutes will be conducted online for which the online link will be generated by the ASDC Technology Partner and shared with Assessment Partner.
- Online test will be conducted in the presence of ASDC assessor.(*ASDC is encouraging development of technology enabled proctoring and when this is ready, the online test could be conducted without requiring human proctoring*)
- Exception to an online test in favour of Paper Test would be subject to non-availability of requisite broad band and/or hardware device. Moreover, this could be allowed only after ascertain genuinity of request.
- ASDC assessor would be conducting Practical and Viva as per the criteria provided in the NOS/QP.
- ASDC Assessment Partner will ensure that the assessor to be deployed has complete understanding of the ASDC Assessment Process and the QP/NOS relevant to the assessment.
- Assessor would be reaching the venue well in time and review and on the ground verify the batch information already provided by TP.
- Assessor will then proceed to conduct the assessment as per ASDC Format starting with the attendance.
- Assessor would be capturing Viva and Practical marks on a device that has ASDC assessment link. Technology systems deployed in ASDC assessment process have provision for instantly capturing assessor evaluations in only the standard NOS/QP aligned format.
- In addition to recording markings of the evaluation, the Assessor will also be recording general observations for every batch as per ASDC format as appended below. This record will be useful in carrying out result review process.

Result Processing

- ASDC Assessment Partner responsible for Technology Platform will convert the assessment data captured by Assessor on the device into result matrix and share the same with ASDC

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- ASDC Assessment cell will view the results for compliance to process and / or need for moderation in consultation with the Assessing Partner to arrive at final result for the batch as per ASDC acceptance Criteria.
- Assessing Partner will publish finalized results on data base for viewing of the Training Partner
- ASDC would issue a certificate after due verifications of candidate authenticity by way of a unique identification number such as Aadhaar.
- Certificates will be shared preferably in digital form with Training Partners
- Training Partners would be authorized to distribute certificate to candidates after printing them on a standard sheet as per ASDC template.

Re-evaluation of batch result

- Results once published will be treated as final. However, as per ASDC Assessment Strategy, there is need for provisioning a re-evaluation of results if desired by a TP essentially to cover a case where the TPs internal assessments are at large variance with the results.
- Re-evaluation will be done batch wise.
- ASDC Assessment cell will carry out re-evaluation in two steps:
  - Check for totalling error, if any
  - Use statistical tools where required to establish a pattern and extent of borderline cases.
  - Refer to the Assessor feedback form for the given batch
  - Use a weightage reference table to establish priority of type of assessment e.g. Theory or Practical or Viva
  - Where required, share the findings with Assessment Partner for review and concurrence.
  - Establish a modified range of acceptance based on above
  - In case of need for moderation based on assessor level variation, to consult the Assessing Partner/Assessor and facilitate moderated values.
  - Re do the results based on above process
  - Share the revised results with TP

Quality Assurance & Audit

While the Assessment Process based on a well-defined strategy as above, does have an in built quality assurance, ASDC also has a plan that augments assurance. This entails a Quality Audit process as defined below :

There will be a 2 tier Audit of the assessment process:

Tier 1 Audit

1 ASDC Assessor will be required to submit a report for each assessment carried out. This report will be as per ASDC format as described in the Assessment Process. The format of the report aims to capture details of the Training Delivery process, soft & hard infrastructure, Training of Trainer, industry connect and overall approach to training delivery vis a vis expectations of ASDC QP/NOS.

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	2 Each Assessment Partner is required to carry out and submit Tier 1 audit reports as per a plan and frequency agreed with ASDC. 3 ASDC will continuously review the Tier 1 audit reports for any alarming observation or trend. 4 ASDC will develop and execute a suitable action plan to redress the situation as deemed necessary for a given case. **Tier 2 Audit** 1 ASDC to carry out a Tier 2 level Audit as per a plan being developed. a. Tier 2 audit will be carried out by a third party contracted by ASDC for the purpose. b. Tier 2 audit will provide adequate coverage for variables such as Assessing Partner, Assessor, TP and geographical variations. 2 ASDC Assessment cell to review audit findings at least once every month or on sos basis. 3 Based on review findings as in 2 above, ASDC to decide on a suitable corrective action plan and execute the same. ASDC to record directional needs for refinement of Assessment process specially for incorporation of Technology that could enhance reliability and speed of assessments.

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.

24. Assessment evidences Title of Component:

Criteria for Assessment of Trainees

Job Role : Electric Vehicle Service Technician

Qualification Pack ASC/Q1429

Sector Skill Council Automotive

Guidelines for Assessment

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1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS

ASC/Q9801

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain safe and secure working environment	**8**	**4**	**-**	**3**
PC1. organise work as per organisation's current health, safety and security policies and procedures	-	2	-	1
PC2. report any identified breaches in health, safety,and security policies and procedures to the designated person	3	1	-	-
PC3. identify the risks and hazards associated with work activities, their causes and prevention	5	1	-	2
Perform work as per quality standards	**12**	**8**	**-**	**6**
PC4. ensure work area is clean and tidy	4	2	-	-
PC5. ensure that work is accomplished as per the requirements within the specified timeline	6	4	-	2
PC6. ensure team goals are given preference over individual goals	2	2	-	4
Health and hygiene	**12**	**8**	**-**	**5**

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PC7. sanitize workstation and equipment regularly	2	2	-	2
PC8. clean hands with soap, alcohol-based sanitizerregularly	2	1	-	-
PC9. avoid contact with ill people and self-isolate in asimilar situation	2	1	-	-
PC10. wear and dispose PPEs regularly and appropriately	2	2	-	1
PC11. report advanced hygiene and sanitation issuesto appropriate authority	2	2	-	2
PC12. follow stress and anxiety management techniques	2	-	-	-
Material/energy conservation practices	**10**	**4**	**-**	**3**
PC13. identify ways to optimise usage of material invarious tasks/activities/processes	2	-	-	1
PC14. use resources, including water, in aresponsible manner	2	-	-	-
PC15. check for spills/leakages in various tasks/activities/processes	-	1	-	-
PC16. plug spills/leakages and escalate to appropriate authority if unable to rectify	-	1	-	1
PC17. carry out routine cleaning of tools, machinesand equipment	2	-	-	-
PC18. check if the equipment/machine is functioningnormally before commencing work and rectify wherever required	-	1	-	1
PC19. report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment	2	1	-	-
PC20. ensure electrical equipment and appliances are properly connected and turned off when not inuse	2	-	-	-
Effective waste management practices	**8**	**6**	**-**	**3**
PC21. identify recyclable and non-recyclable, and hazardous waste generated	2	-	-	1
PC22. segregate waste into different categories	-	2	-	-
PC23. dispose non-recyclable waste appropriately	2	2	-	1

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PC24. deposit recyclable and reusable material at identified location	2	1	-	-
PC25. follow processes specified for disposal of hazardous waste	2	1	-	1
NOS Total	**50**	**30**	**-**	**20**

ASC/Q9802

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Communicate effectively with colleagues, customers and others	**36**	**11**	**-**	**14**
PC1. maintain clear communication with colleagues, customers and others, wherever needed, through all means i.e. face-to-face, telephonic or written	8	-	-	4
PC2. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity	8	-	-	-
PC3. work in a way that shows respect for colleagues and others	7	4	-	3
PC4. follow the organisation's policies and procedures while working in a team	7	4	-	3
PC5. respect personal space of colleagues and customers	6	3	-	4
Interact with supervisor or superior	**14**	**19**	**-**	**6**
PC6. identify work requirements by receiving instructions from reporting supervisor	7	4	-	-
PC7. escalate problems to supervisors that cannot be handled including repairs and maintenance of machine	-	5	-	3
PC8. report the completed work	7	5	-	-
PC9. rectify errors as per feedback	-	5	-	3
NOS Total	**50**	**30**	**-**	**20**

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ASC/Q1449

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare to carry out routine service or minor repair andelectric diagnosis	**5**	**14**	**-**	**6**
PC1. review the job card and understand work to becarried out on the electric vehicle	-	1	-	1
PC2. identify the auto components related to thevarious aggregates in the vehicle	1	2	-	1
PC3. ensure no HV (High Voltage) activity is beingconducted around workstation prior to commencement of work	1	1	-	-
PC4. collect workshop tools/measuring devices/equipment required to carry out job on electric vehicle and check their condition/calibration	1	2	-	1
PC5. prepare the electric vehicle according to natureof job to be performed: general and mechanical job on the vehicle/electrical work in non-live state/troubleshoot and replace parts in live state of HV system	-	1	-	-
PC6. mark the electric vehicle and safeguard the working area during electrical work	-	1	-	-
PC7. wear PPE according to nature of job to beperformed on electric vehicle	1	1	-	1
PC8. conduct visual inspection on the electric vehicleto identify defects in HV components and identify indirect faults in electrical/electronic aggregate dueto other system/component	-	2	-	1
PC9. assess mechanical aggregates such as steeringgear, suspension, axle, brakes, etc. of the electric vehicle for any external impact/bend/leak/incorrect level/wear & tear	1	2	-	1
PC10. report the malfunctions/repairs in the electric vehicle beyond own scope to the concerned person	-	1	-	-
Perform routine service and minor repairs	**12**	**18**	**-**	**5**

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PC11. take precautions to avoid damage to the electric vehicle and its components while working onvarious aggregates	1	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. use appropriate tools, equipment, and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organization	1	2	-	1
PC13. perform task on the HV system as per followingstages: general and mechanical tasks on the electric vehicle which do not require isolation of the HV systems, mechanical work in non live state of the HV systems and replace parts in live state of the HV system	2	2	-	-
PC14. test electric vehicle's electrical/electronic components performance wherever applicable as perOEM SOP	2	3	-	2
PC15. remove parts relevant to various mechanicalaggregates of electric vehicle and place them securely as specified by OEM	1	2	-	-
PC16. clean and condition dismantled mechanical andelectrical components of electric vehicle prior to assembly	1	1	-	-
PC17. perform minor repair/replacement/calibration/of mechanical system/aggregate such as steering gear, suspension, axle, brakes etc. including HVAC, wherever applicable	2	3	-	1
PC18. refill/replace, as required quantity and appropriate grade of brake fluid or other lubricant/fluids in the engine aggregates as per OEMguidelines	1	2	-	1
PC19. maintain the documentation related to inspection, servicing and minor repair performed onthe electric vehicle	1	1	-	-
Assist lead technician in diagnosis or troubleshootingthe faults	**8**	**10**	**-**	**5**
PC20. conduct test drive of the electric vehicle to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow lead technician instructions to chooseand use the appropriate device/equipment to inspect/test electric vehicle/system/component performance to diagnose defect or faults in the electric vehicle	2	2	-	2
PC22. carry out inspection or test on electric vehicle mechanical and electrical systems according to leadtechnician instructions	2	2	-	2
PC23. interpret and compare results of diagnostic inspections/tests with vehicle specifications and regulatory requirements	2	2	-	1
PC24. maintain the documentation related to inspections and troubleshooting performed on the electric vehicle	1	1	-	-
PC25. report the results to lead technician and seek assistance if further tests or inspections are requiredto conclude the diagnosis or troubleshooting	1	1	-	-
Perform post service/repair/diagnostic activities	**5**	**8**	**-**	**4**
PC26. check the performance of electric vehicle/aggregate post repair and report to supervisor/service advisor if further inspection isrequired by another specialist	2	3	-	2
PC27. ensure completeness of tasks assigned beforereleasing the electric vehicle for the next procedure	1	2	-	1
PC28. dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization'spolicies	1	2	-	1
PC29. return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned	1	1	-	-
NOS Total	**30**	**50**	**-**	**20**

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare to carry out routine service or minor repairand assist in fault diagnosis	**5**	**14**	**-**	**6**
PC1. review the job card and understand work to becarried out on the four wheeler electric or hybrid vehicle	-	1	-	1
PC2. identify the auto components related to the various aggregates in the four wheeler electric orhybrid vehicle	1	2	-	1
PC3. ensure no HV (High Voltage) activity is beingconducted around workstation prior to commencement of work on electric vehicle	1	1	-	-
PC4. collect workshop tools/measuring devices/equipment required to carry out job on the four wheeler electric or hybrid vehicle and check theircondition/calibration	1	2	-	1
PC5. prepare the four wheeler electric or hybrid vehicle according to nature of job to be performed: general and mechanical job on the vehicle/electricalwork in non-live state/troubleshoot and replace partsin live state of HV system	-	1	-	-
PC6. mark the four wheeler electric or hybrid vehicle and safeguard the working area during electrical work	-	1	-	-
PC7. wear PPE according to nature of job to be performed on the four wheeler electric or hybrid	1	1	-	1
PC8. conduct visual inspection of the four wheelerelectric or hybrid vehicle to identify defects in HVcomponents and identify indirect faults in electrical/electronic aggregate due to other system/component	-	2	-	1
PC9. assess mechanical aggregates such as engine,transmission, axles, brakes etc. of the four wheelerelectric or hybrid vehicle for any external impact/bend/leak/incorrect level/wear & tear	1	2	-	1
PC10. report the malfunctions/repairs in the four wheeler electric or hybrid vehicle beyond own scopeto the concerned person	-	1	-	-

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Perform routine service and minor repairs	**12**	**18**	**-**	**5**

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. take precautions to avoid damage to the four wheeler electric or hybrid vehicle and its componentswhile working on various aggregates	1	2	-	-
PC12. use appropriate tools, equipment, and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organization	1	2	-	1
PC13. perform task on the HV system as per followingstages: general and mechanical tasks on the four wheeler electric or hybrid vehicle which do not require isolation of the HV systems, mechanical work in non live state of the HV systems and replace parts in live state of the HV system	2	2	-	-
PC14. test the four wheeler electric or hybrid vehicle'selectrical/electronic components performance wherever applicable as per OEM SOP	2	3	-	2
PC15. remove parts relevant to various mechanical aggregates of the four wheeler electric or hybrid vehicle and place them securely as specified by OEM	1	2	-	-
PC16. clean and condition dismantled mechanical andelectrical components of the four wheeler electric or hybrid vehicle prior to assembly	1	1	-	-
PC17. perform minor repair/replacement/calibration/ of mechanical system/aggregate of the four wheeler electric or hybrid vehicle such as drive line, running systems, etc. including HVAC, power assisted braking& steering systems	2	3	-	1
PC18. refill/replace, as required quantity and appropriate grade of coolants, engine oil, other lubricant/fluids in the engine aggregates as per OEMguidelines	1	2	-	1
PC19. maintain the documentation related to inspection, servicing and minor repair performed onthe four wheeler electric or hybrid vehicle	1	1	-	-
Assist lead technician in diagnosis or troubleshooting thefaults	**8**	**10**	**-**	**5**

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PC20. conduct test drive of the four wheeler electricor hybrid vehicle to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow lead technician instructions to choose and use the appropriate device/equipment to inspect/test the four wheeler electric or hybrid vehicle/system/component performance to diagnosedefect or faults in the electric/hybrid vehicle	2	2	-	2
PC22. carry out inspection or test on the four wheelerelectric or hybrid vehicle mechanical and electrical systems according to lead technician instructions	2	2	-	2
PC23. interpret and compare results of diagnostic inspections/tests with vehicle specifications and regulatory requirements	2	2	-	1
PC24. maintain the documentation related to inspections and troubleshooting performed on thefour wheeler electric or hybrid vehicle	1	1	-	-
PC25. report the results to lead technician and seek assistance if further tests or inspections are requiredto conclude the diagnosis or troubleshooting	1	1	-	-
Perform post service/repair/diagnostic activities	**5**	**8**	**-**	**4**
PC26. check the performance of four wheeler electricor hybrid vehicle/aggregate post repair and report tosupervisor/service advisor if further inspection is required by another specialist	2	3	-	2
PC27. ensure completeness of tasks assigned beforereleasing the four wheeler electric or hybrid vehicle for the next procedure	1	2	-	1
PC28. dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization'spolicies	1	2	-	1
PC29. return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned	1	1	-	-
NOS Total	**30**	**50**	**-**	**20**

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare to carry out routine service or minor repair andassist in fault diagnosis	**5**	**14**	**-**	**6**
PC1. review the job card and understand work to becarried out on two/three wheeler electric vehicle	-	1	-	1
PC2. identify the auto components related to the various aggregates in the two/three wheeler electricvehicle	1	2	-	1
PC3. ensure no HV (High Voltage) activity is being conducted around workstation prior to commencement of work on two/three wheeler electricvehicle	1	1	-	-
PC4. collect workshop tools/measuring devices/equipment required to carry out job on two/three wheeler electric vehicle and check their condition/calibration	1	2	-	1
PC5. prepare two/three wheeler electric vehicle according to nature of job to be performed: generaland mechanical job on the 2/3 wheeler vehicle/electrical work in non-live state/troubleshoot and replace parts in live state HV system	-	1	-	-
PC6. mark the two/three wheeler electric vehicle andsafeguard the working area during electrical work	-	1	-	-
PC7. wear PPE according to nature of job to be performed on the two/three wheeler electric vehicle	1	1	-	1
PC8. conduct visual inspection of the two/three wheeler electric vehicle to identify defects in HVcomponents and identify indirect faults in electrical/electronic aggregate due to other system/component	-	2	-	1
PC9. assess mechanical aggregates such as brakes,suspension, axles etc. of the two/three wheeler electric vehicle for any external impact/bend/leak, incorrect level, wear & tear	1	2	-	1
PC10. report the malfunctions/repairs in the two/threewheeler electric vehicle beyond own scope to the concerned person	-	1	-	-
Perform routine service and minor repairs	**12**	**18**	**-**	**5**

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. take precautions to avoid damage to the two/three wheeler electric vehicle and its componentswhile working on various aggregates	1	2	-	-
PC12. use appropriate tools, equipment, and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organisation	1	2	-	1
PC13. perform task on the HV system as per followingstages: general and mechanical tasks on the vehicle which do not require isolation of the HV systems, mechanical work in non-live state of the HV systems and replace parts in live state of the HV system	2	2	-	-
PC14. test the two/three wheeler electric vehicle's electrical/electronic system functioning of 2/3 wheeler vehicle wherever applicable as per OEM SOP	2	3	-	2
PC15. remove parts relevant to various mechanical aggregates of two/three wheeler electric vehicle and place them securely as specified by OEM	1	2	-	-
PC16. clean and condition dismantled mechanical andelectrical components of two/three wheeler electric vehicle prior to assembly	1	1	-	-
PC17. perform minor repair/replacement/calibration ofmechanical components/aggregates of the two/three wheeler electric vehicle such as brake pedal/lever free play adjustment, headlight beam alignment, etc.	2	3	-	1
PC18. refill/replace, as required quantity and appropriate grade of brake or other fluid/lubricant in the two/three wheeler electric vehicle as per OEM guidelines	1	2	-	1
PC19. maintain the documentation related to inspection, servicing and minor repair performed onthe two/three wheeler electric vehicle	1	1	-	-
Assist lead technician in diagnosis or troubleshootingthe faults	**8**	**10**	**-**	**5**

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PC20. conduct test drive of the two/three wheelerelectric vehicle to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow lead technician instructions to choose and use the appropriate device/equipment to inspect/test the two/three wheeler electric vehicle/system/component performance to diagnosedefect or faults in 2/3 wheeler vehicle	2	2	-	2
PC22. carry out inspection or tests on the two/threewheeler electric vehicle mechanical and electrical systems according to lead technician instructions	2	2	-	2
PC23. interpret and compare results of diagnostic inspections/tests with vehicle specifications or regulatory requirements	2	2	-	1
PC24. maintain the documentation related to inspections and troubleshooting performed on the two/three wheeler electric vehicle	1	1	-	-
PC25. report the results to lead technician and seek assistance if further tests or inspections are requiredto conclude the diagnosis or troubleshooting	1	1	-	-
Perform post service/repair/diagnostic activities	**5**	**8**	**-**	**4**
PC26. check the performance of the two/three wheeler electric vehicle/aggregate post repair andreport to lead technician/supervisor if further inspection is required by another specialist	2	3	-	2
PC27. ensure completeness of tasks assigned beforereleasing the two/three wheeler electric vehicle for the next procedure	1	2	-	1
PC28. dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization'spolicies	1	2	-	1
PC29. return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned	1	1	-	-
NOS Total	**30**	**50**	**-**	**20**

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare to carry out routine service or minor repair andassist in fault diagnosis	**5**	**14**	**-**	**6**
PC1. review the job card and understand work to becarried out on heavy commercial electric vehicle	-	1	-	1
PC2. identify the auto components related to the various aggregates in the heavy commercial electricvehicle	1	2	-	1
PC3. ensure no HV (High Voltage) activity is being conducted around workstation prior to commencement of work on the heavy commercialelectric vehicle	1	1	-	-
PC4. collect workshop tools/measuring devices/equipment required to carry out job on the heavy commercial electric vehicle and check their condition/calibration	1	2	-	1
PC5. prepare the heavy commercial electric vehicle according to nature of job to be performed: general and mechanical job on the vehicle/electrical work in non-live state/troubleshoot and replace parts in livestate HV system	-	1	-	-
PC6. mark the heavy commercial electric vehicle andsafeguard the working area during electrical work	-	1	-	-
PC7. wear PPE according to nature of job to be performed on the heavy commercial electric vehicle	1	1	-	1
PC8. conduct visual inspection of the heavy commercial electric vehicle to identify defects in HVcomponents and identify indirect faults in electrical/electronic aggregate due to other system/component	-	2	-	1
PC9. assess mechanical aggregates such as brakes, suspension, axles, transmission, steering etc. of theheavy commercial electric vehicle for any external impact/bend/leak, incorrect level, wear & tear	1	2	-	1

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PC10. report the malfunctions/repairs in the heavy commercial electric vehicle beyond own scope to theconcerned person	-	1	-	-
Perform routine service and minor repairs	**12**	**18**	**-**	**5**

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. take precautions to avoid damage to the heavy commercial electric vehicle and its components whileworking on various aggregates	1	2	-	-
PC12. use appropriate tools, equipment, and consumables as per nature of job and Standard Operating Procedure (SOP) recommended by the organisation	1	2	-	1
PC13. perform task on the HV system as per followingstages: general and mechanical tasks on the heavy commercial electric vehicle which do not require isolation of the HV systems, mechanical work in non- live state of the HV systems and replace parts in live state of the HV system	2	2	-	-
PC14. test the heavy commercial electric vehicle's electrical/electronic system functioning of heavy commercial vehicle wherever applicable as per OEMSOP	2	3	-	2
PC15. remove parts relevant to various mechanical aggregates of heavy commercial electric vehicle andplace them securely as specified by OEM	1	2	-	-
PC16. clean and condition dismantled mechanical andelectrical components of heavy commercial electric vehicle prior to assembly	1	1	-	-
PC17. perform minor repair/replacement/calibration on heavy commercial electric vehicle systems such asdrive line, mechanical/air suspension systems, air brakes & steering systems etc. including HVAC, etc.	2	3	-	1
PC18. refill/replace, as required quantity and appropriate grade of fluid/lubricant in the heavy commercial vehicle as per OEM guidelines	1	2	-	1
PC19. maintain the documentation related to inspection, servicing and minor repair performed onthe heavy commercial electric vehicle	1	1	-	-
Assist lead technician in diagnosis or troubleshootingthe faults	**8**	**10**	**-**	**5**

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PC20. conduct test drive of the heavy commercialelectric vehicle to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow lead technician instructions to choose and use the appropriate device/equipment to inspect/test heavy commercial electric vehicle system/component performance to diagnose defector faults in electric vehicle	2	2	-	2
PC22. carry out inspection or test on vehicle mechanical and electrical systems of heavy commercial electric vehicle according to lead technician instructions	2	2	-	2
PC23. interpret and compare results of diagnostic inspections/tests with heavy commercial electric vehicle specifications or regulatory requirements	2	2	-	1
PC24. maintain the documentation related to inspections and troubleshooting performed on the heavy commercial electric vehicle	1	1	-	-
PC25. report the results to lead technician and seek assistance if further tests or inspections are requiredto conclude the diagnosis or troubleshooting	1	1	-	-
Perform post service/repair/diagnostic activities	**5**	**8**	**-**	**4**
PC26. check the performance of heavy commercialelectric vehicle/aggregate post repair and report tolead technician/supervisor if further inspection is required by another specialist	2	3	-	2
PC27. ensure completeness of tasks assigned beforereleasing the heavy commercial electric vehicle for the next procedure	1	2	-	1
PC28. dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization'spolicies	1	2	-	1
PC29. return leftover consumable/parts, tools/equipment, and report if any malfunctions are observed to the person concerned	1	1	-	-
NOS Total	**30**	**50**	**-**	**20**

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Means of assessment 1 The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria. The assessment papers for theory and practical are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Packs. Tests are administered and marks for theory paper and practical's demonstrating the selling techniques, handling of jewellery and retail sales counter. All the components and the performance criteria are covered during the test.
Means of assessment 2 The assessments for theory is carried out in Offline mode (TAB) and the practical assessments is carried out with the availability of the equipment at the TC, as predefined for the job role.
Pass/Fail **The minimum total marks to be achieved for being competent are 70% in total.**

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SECTION 2

25. EVIDENCE OF LEVEL

OPTION A

Title/Name of qualification/component: Electric Vehicle Service Technician		**QP Code: ASC/Q1429**	**Level: 4**
NSQF Domain	**Outcomes of the Qualification/Component**	**How the job role relates to the NSQF level descriptors**	**NSQF Level**
Process	The individual on the job needs perform servicing and repairing of an electric vehicle.	The individual on the job is responsible for own work and learning. Work in vehicle servicing and repairing work environment.	4
Professional knowledge	The individual on the job needs to have factual knowledge of: ● Components of an electric vehicle. ● Different types of tools and equipment required and their identification. ● Servicing and repairing activities. ● Inspection and trial check of vehicle	Factual knowledge of troubleshooting and repairing methods and use of different tools and equipment required.	4
Professional skill	Recall and demonstrate practical skill to routine and repetitive applications: ● Troubleshooting and repairing methods. ● Inspection of functionality of electric vehicle ● Recognise a workplace problem or a potential problem and take action.	Recall and demonstrate practical skill, routine and repetitive in wide range of application, using appropriate rule and tool, using quality concepts.	4
Core skill	The user individual on the job needs to have written and oral communication skills like: ● Read and interpret job card. ● Read engineering drawings, sketches.	Language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic understanding of social political and natural environment.	4

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Responsibility	The individual on the job needs to know their own responsibility of servicing and repairing of an electric vehicle.	The individual on the job is responsible for own work and fully responsible for other's work and learning.	4

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SECTION 3 EVIDENCE OF NEED

26. **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?**

Need of the qualification?

ASDC carried out comprehensive skill gap study and collected feedback from industry with respect to roles for which qualification packs development are required. The occupational map was finalised accordingly. The need of this particular qualification was revalidated during the comprehensive interaction with Industry in the process of seeking their input for QP/NOS development.

Industry relevance?

Yes, NSDC QRC process has been adhered to. This includes minimum 30 validations for the QP from employers in the sector. This has been across small, medium and large companies.

ASDC undertaken validation from the industry players and also industry endorsement from 60 end user industry which are mix of 16 large (lease sized over 200 hectares) companies, 11 medium lease (more than 50 and less than 200 hectare) companies and 10 small leases (less than 50 hectare) companies.

List of industries involved in the Validation process for the QP

S No.	Large scale industries	Medium scale industries	Small scale industries
1			
2			
3			
4			
5			
6			
7			
8			
9			

Uses of Qualifications and industry uptake

Skill GAP analysis carried out by a reputed research agency provided a broad estimate of demand. The report can be referred in the Common Files. ASDC is taking initiative to develop a labour market information database that would peg the demand more accurately- job role wise as well as based on geographical spread. Key enabler segments for the core segments of the Automotive Industry include Auto Insurance, Financiers, Mechanics, and Auto Dealers etc.

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Based on the current growth profile in the Indian auto Industry, it is expected that an additional 2~2.5 million employment opportunities per annum will be created in the Indian auto industry over the next decade. The details below provide the manpower requirement at various levels:

- Skill Level 1 – 4, people, Demand for such manpower is expected to be around 15 – 18 lakh per annum.
- Skill Level 5 -6 people working as supervisors on the shop floor. Demand for such manpower if expected to be around 4 lakh per annum.
- Skill Level 5- 7 people includes primarily engineers (B.E., M. Tech., MS), working in managerial grade, and demand for such manpower is expected to be around 1 lakh per annum.

Skill Level 6-10 people are executives, including engineers and doctorates, and demand for such manpower is expected to be around0.5 lakh per annum.

27. **Recommendation from the concerned Line Ministry of the Government/Regulatory Body**

Data to be provided by ASDC

28. What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

- NSDC list of Approved and Under-Development QPs were checked prior to commissioning the work.
- NSDC QRC team also confirmed the same.
- Qualifications Registration Committee's (QRC) diligence process ensures no duplication

29. 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?

- ASDC Review committee will review all QP/NOS at regular periodicity or as per NSDC guidelines.
- Review will be based on –
  a) Revalidation of minimum requisites to perform in a Job role from pan India industry partners.
  b) Any change in technology and process relevant to the particular QP and Job roles.

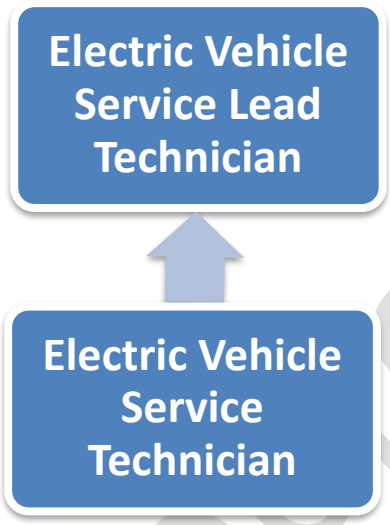
Please attach most relevant and recent documents giving further information about any of the topics above.

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

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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*** Occupational and career maps indicating horizontal and vertical mobility have been created and are being used. 

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.

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