



Model Curriculum

QP Name: Automotive Electrician

QP Code: ASC/Q1408

NSQF Level: 3

Automotive Skills Development Council E-113, GF Floor, Okhla Industrial Area, Phase – III , New Delhi – 110020





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Training Parameters

Automotive
Automotive Vehicle Service
Technical Service & Repair
India
3
NCO-2015/7412.0701
10th Class + 2 years ITI (Mechanic Motor Vehicle/Diesel Mechanic/Mechanic Auto Electrical and Electronics) OR 10th Class pass with 2 years relevant experience OR 11th Class Pass OR 12th Class pass with 1 year relevant experience OR Certificate-NSQF (Four Wheeler Service Assistant Level 2.5) with 2 Years of experience
Driving License and Basic Computer Skills
18 Years
20/11/2020
20/11/2025
20/11/2020
20/11/2020
20/11/2025
420 Hours, 0 Minutes
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Program Overview

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

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Analyse the faults in the electrical and electronic systems of a vehicle.
- Perform service and repair of faulty electrical and electronic components in a vehicle.
- Work effectively and efficiently as per schedules and timelines.
- Implement safety practices.
- Optimize the use of resources to ensure less wastage and maximum conservation.
- Communicate effectively and develop interpersonal skills.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Module:1-Introduction to the role ofAutomotive Electrician Bridge Module	05:00	0:00	-	-	05:00
ASC/N9801 - Organize Work and Resources (Service) NOS Version No. 1.0 NSQF Level 3	25:00	30:00	-	-	55:00
Module:2-Work effectively and efficiently	15:00	15:00	-	-	30:00
Module:3- Optimize resource utilization	10:00	15:00	-	-	25:00
DGT/VSQ/N0102 -Employability Skills (60 hours) NOS Version No. – 1.0 NSQF Level – 3	24:00	36:00			60:00
Module 4: Introduction to Employability Skills	0.5:00	1:00			1.5:00
Module 5: Constitutional values - Citizenship	0.5:00	1:00			1.5:00





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Module 6: Becoming a Professional in the 21st Century	1:00	1.5:00			2.5:00
Module 7: Basic English Skills	4:00	6:00			10:00
Module 8: Career Development & Goal Setting	1:00	1:00			2:00
Module 9: Communication Skills	2:00	3:00			5:00
Module 10: Diversity & Inclusion	1:00	1.5:00			2.5:00
Module 11: Financial and Legal Literacy	2:00	3:00			5:00
Module 12: Essential Digital Skills	4:00	6:00			10:00
Module 13: Entrepreneurship	3:00	4:00			7:00
Module 14: Customer Service	2:00	3:00			5:00
Module 15: Getting ready for apprenticeship & Jobs	3:00	5:00			8:00
ASC/N1406 – Carry out service, repair and overhaul of electrical and	85:00	185:00	30:00	-	300:00
electronic aggregates of					





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vehicle NOS Version No. 1.0 NSQF Level 3					
Module:16-Service, repair and overhaulof electrical and electronic faults in a vehicle	85:00	185:00	30:00	-	300:00
Total Duration	139:00	251:00	30:00	-	420:00





Module Details

Module:1-Introduction to the Role of an Automotive Electrician

Bridge Module

Terminal Outcomes:

Discuss how to work as per the defined role and responsibilities of an Automotive Electrician. Discuss the scope of work of an Automotive Electrician.

Duration: <i>05:00</i>	Duration: 0:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
Describe the role and responsibilities of an automotive electrician	
 Outline the workshop structure and role of other people in the workshop with whom the electrician would need to coordinate 	
Explain the basics of driving and parking a four-wheeler vehicle.	
Identify the various parts/components of the vehicle.	
Describe the activities to be performed for maintaining/managing the workshop, including tools and equipment.	
List the standard operating procedures (SOP) w.r.t. handling complaints, allocation of work, invoicing, inspection, diagnosis, repair etc.	
Classroom Aids:	
Laptop, white board, marker, projector	
Tools, Equipment and Other Requirements	





Module:2-Work Effectively and Efficiently

Mapped to NOS ASC/N9804

Terminal Outcomes:

- Employ appropriate ways to maintain a safe and secure working environment.
- Perform work as per the quality standards.

uration: 15:00	Duration: 15:00
heory – Key Learning Outcomes	Practical – Key Learning Outcomes
Outline the organizational structure to be followed to report about health, safety and security breaches to the concerned authorities. List the potential workplace related risks and hazards, their causes and preventions. State the methods to keep the work area clean and tidy. Discuss how to complete the given work within the stipulated time period. Explain how to maintain a proper balance between team and individual goals. Discuss epidemics and pandemics and their impact on society at large. Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol-based hand sanitizers. Discuss the use of proper PPE for maintaining health and hygiene at workplace and the process of wearing/discarding them. Define self-quarantine or self-isolation. Discuss the importance of identifying and reporting symptoms to the concerned authorities. Explain the significance of following prescribed rules and guidelines during an epidemic or a pandemic. Discuss organizational hygiene and sanitation guidelines and ways of reporting breaches/gaps if any. Discuss the ways of dealing with stress and anxiety during an epidemic or a pandemic. Discuss alternate ways of carrying out different tasks in everyday life (use of e-payment gateways/online learning/virtual meetings, etc.).	 Perform routine cleaning of tools, equipment and machines. Employ various techniques for checking mafunctions in the equipment as per Standar Operating Procedure (SOP). Apply basic housekeeping practices to ensure that the work area is clean, such a mopping spills and leaks, cleaning great stains etc. Demonstrate how to evacuate the work place in case of an emergency. Show how to sanitize and disinfect one work area regularly. Demonstrate the correct way of washin hands using soap and water. Demonstrate the correct way of sanitizin hands using alcohol-based hand rubs. Display the correct way of wearing and removing PPE such as face masks, hand gloves face shields, PPE suits, etc. Demonstrate appropriate social and behavioural etiquette (greeting and meeting people, spitting/coughing/sneezing, etc.). Prepare a list of relevant hotline/emergency numbers.





Classroom Aids:

White board/black board marker/chalk, duster, computer or Laptop attached to LCD projector

Tools, Equipment and Other Requirements

Personal Protection Equipment: safety glasses, head protection, rubber gloves, safety footwear, warning signs and tapes, fire extinguisher and first aid kit Sanitization kit, disinfectants, alcohol-based sanitizers, different types of face masks, shields, suits,





Module:3-Optimize Resource Utilization

Mapped to NOS ASC/N9804

Terminal Outcomes:

- Use the resources efficiently.
- Apply conservation practices at the workplace.

Duration: 10:00	Duration: 15:00		
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes		
 Explain the ways to optimize usage of resources. Discuss various methods of waste management and its disposal. List the different categories of waste for the purpose of segregation Differentiate between recyclable and non-recyclable waste State the importance of using appropriate colour dustbins for different types of waste. Discuss the common sources of pollution and ways to minimize it. 	 Perform basic checks to identify any spills and leaks and that need to be plugged /stopped. Demonstrate different disposal techniques depending upon different types of waste. Employ different ways to check if equipment/machines are functioning as per requirements and report malfunctioning, if observed. Employ ways for efficient utilization of material and water Use energy efficient electrical appliances and devices to ensure energy conservation 		
Classroom Aids:			
White board/black board marker/chalk, duster, computer or Laptop attached to LCD projector			

Tools, Equipment and Other Requirements

Different type of waste bins to collect and segregate waste for disposal





Module 4: Introduction to Employability Skills Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Discuss about Employability Skills in meeting the job requirements

Duration : <0.5:00>	Duration : <1:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
Discuss the importance of Employability Skills in meeting the job requirements	 List different learning and employability related GOI and private portals and their usage
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 5: Constitutional values - Citizenship Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Discuss about constitutional values to be followed to become a responsible citizen

Duration : <0.5:00>	Duration : <1:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.	Show how to practice different environmentally sustainable practices
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	





Module 6: Becoming a Professional in the 21st Century Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Demonstrate professional skills required in 21st century

Duration : <1.5:00>	
earning Outcomes	
st century skills like Self- Behavior Skills, time nt, critical and adaptive problem-solving, creative ocial and cultural awareness, awareness, learning to learn onal or professional life.	

Module 7: Basic English Skills Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Practice basic English speaking.

Duration : <4:00>	Duration : <6:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Describe basic communication skills Discuss ways to read and interpret text written in basic English 	 Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone Read and interpret text written in basic English Write a short note/paragraph / letter/e - mail using basic English
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	





Module 8: Career Development & Goal Setting Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Demonstrate Career Development & Goal Setting skills.

Duration : <1:00>	Duration : <1:00>			
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes			
Discuss need of career development plan	 Demonstrate how to communicate in a well-mannered way with others. Create a career development plan with well-defined short- and long-term goals 			
Classroom Aids:				
Whiteboard, marker pen, projector				
Tools, Equipment and Other Requirements				

Module 9: Communication Skills Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Practice basic communication skills.

Duration: <2:00>	Duration : <3:00>	
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes	
 Explain the importance of active listening for effective communication Discuss the significance of working collaboratively with others in a team 	Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette	
Classroom Aids:		
Whiteboard, marker pen, projector		
Tools, Equipment and Other Requirements		





Module 10: Diversity & Inclusion Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Describe PwD and gender sensitisation.

Duration : <1:00>	Duration : <1.5:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
Discuss the significance of reporting sexual harassment issues in time	 Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 11: Financial and Legal Literacy Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Describe ways of managing expenses, income, and savings.

Duration : <2:00>	Duration : <3:00>		
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes		
 List the common components of salary and compute income, expenditure, taxes, investments etc. Discuss the legal rights, laws, and aids 	 Outline the importance of selecting the right financial institution, product, and service Demonstrate how to carry out offline and online financial transactions, safely and securely 		
Classroom Aids:			
Whiteboard, marker pen, projector			
Tools, Equipment and Other Requirements			





Module 12: Essential Digital Skills Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Demonstrate procedure of operating digital devices and associated applications safely.

Duration : <4:00>	Duration: <6:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Describe the role of digital technology in today's life Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely 	 Show how to operate digital devices and use the associated applications and features, safely and securely Create sample word documents, excel sheets and presentations using basic features Utilize virtual collaboration tools to work effectively
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 13: Entrepreneurship Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Describe opportunities as an entrepreneur.

Duration : <3:00>	Duration : <4:00>				
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes				
 Explain the types of entrepreneurship and enterprises Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement 	Create a sample business plan, for the selected business opportunity				





Classroom Aids:
Whiteboard, marker pen, projector
Tools, Equipment and Other Requirements

Module 14: Customer Service Mapped to DGT/VSQ/N0102

Terminal Outcomes:

• Describe ways of maintaining customer.

Duration : <2:00>	Duration : <3:00>		
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes		
 Explain the significance of identifying customer needs and addressing them. Explain the significance of identifying customer needs and responding to them in a professional manner. Discuss the significance of maintaining hygiene and dressing appropriately. 	Demonstrate how to maintain hygiene and dressing appropriately.		
Classroom Aids:			
Whiteboard, marker pen, projector			
Tools, Equipment and Other Requirements			

Module 15: Getting ready for apprenticeship & Jobs *Mapped to DGT/VSQ/N0102*

Terminal Outcomes:

• Describe ways of preparing for apprenticeship & Jobs appropriately.

Duration : <3:00>	Duration: <5:00>
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
 Discuss the significance of maintaining hygiene and confidence during an interview List the steps for searching and registering for apprenticeship opportunities 	 Create a professional Curriculum Vitae (CV) Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively Perform a mock interview
Classroom Aids:	





Whiteboard, marker pen, projector

Tools, Equipment and Other Requirements

$\begin{tabular}{ll} \textbf{Module:16-Service, Repair and Overhaul of Electrical and Electronic Faults in a Vehicle} \\ \textit{Mapped to NOS ASC/N1406} \end{tabular}$

Terminal Outcomes:

Demonstrate how to perform service and repair of faulty electrical and electronic systems in a vehicle.

Duration. 85.00	Practical – Key Learning Outcomes		
Duration: 85:00	Duration : 185:00		





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Discuss the work requirements mentioned in the job card

Describe the basic electronics and electrical concepts including common symbols, units and terms used in wiring diagrams associated with vehicle 's electrical/electric systems/components

Describe the operation of electrical and electronic systems and different types of faults/failures in

engine/components/systems

List specifications related to the various systems/components/aggregates in the vehicle.

Discuss the working of various systems such as different types of engine management system, body control system, electronic hydraulic control system and cooling systems, active & passive safety system, air conditioning system etc. for the vehicle.

Differentiate between the different sources of information for assessing service and repair requirements of the vehicle Explain the process of checking the condition of tools and equipment, calibration status, and procedure to report the defects, if any.

Outline the safety precautions to be taken while working with various tools and equipment for repairing/servicing and replacement of components

Describe how to diagnose direct and indirect faults in electrical/electronic aggregate caused due to other system/component

Discuss how to protect the vehicle, it

systems and other parked vehicles from any damage.

Apply basic maintenance techniques to ensure that the tools and equipment are functioning as per standard operating procedures (SOP)

Demonstrate how to do a test drive of the vehicle for assessment of work requirement w.r.t. calibration, repair etc.

Show how to use tools and equipment such as organic light emitting displays, measuring equipment, electrical and electronic testing equipment, hand tools, power tools, computer based diagnostic tools/equipment, etc. as per SOP. Perform visual inspection to identify the direct or indirect faults and their precise location in the electrical and electronic systems of a vehicle.

Demonstrate how to dismantle and reassemble the components as per SOP. Perform the steps to analyse the faults in the components to identify the components to be repaired or replaced Demonstrate the steps to service/repair/overhaul/test electrical and electronic systems as per SOP Apply suitable techniques for cleaning and conditioning the dismantled aggregates Demonstrate how to repair indirect faults in electrical/electronic aggregate caused due to other system/component Employ various precautions and safety measures to ensure that no damage is caused to the vehicle during work

Perform necessary checks before releasing the vehicle for next procedure and other post-repair activities such as returning tools etc.

Employ appropriate methods to dispose replaced defective components properly.





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Explain how to perform repair/replacement of electrical/electronic components. Discuss the procedure to seek approval for technically and economically infeasible repairs

Discuss the procedure to escalate repair issues beyond one's scope to the supervisor.

Discuss the importance of completing the assigned task before releasing vehicle for the next procedure.

Explain the importance of proper disposal of replaced defective components. List the documents to be maintained pertaining to the repairs of the components.

Demonstrate how to maintain records anddocumentation of the repair process.

Classroom Aids:

Laptop, white board, marker, projector

Tools, Equipment and Other Requirements

Vehicle, various body parts, engine, tools and equipment, material, mechanical and electrical components / aggregates, lubricants, grease, oil, refrigerant, etc.

Feeler gauges, torque wrench, multimeter, engineering rule (scale), battery charger, tester, hydrometer, tachometer etc. Fuel pressure testers, manifold gauge sets, oil pressure gauges, tire pressure gauges etc., and ball joint separators, bearing pullers, gear puller tools, slide hammers etc.

DC motors and alternators, Battery, Organic light emitting displays, pressure indicators, specialitywrenches, measuring equipment, electrical and electronic testing equipment, hand tools, power tools, lifting and jacking equipment.





Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
	Years	Specialization	Years	Specialization		
ITI	Mechanic Motor Vehicle	3	Four Wheeler Service	1	Four Wheeler Service	NA
ITI	Mechanic Motor Vehicle	4	Four Wheeler Service	0	Four Wheeler Service	NA
Diploma	Automobile Engi- neering/ Mechan- ical Engineering	2	Four Wheeler Service	1	Four Wheeler Service	NA
Diploma	Automobile Engi- neering/ Mechan- ical Engineering	3	Four Wheeler Service	0	Four Wheeler Service	NA
Certificate- NSQF L6	Four Wheeler Master Techni- cian	2	Four Wheeler Service	1	Four Wheeler Service	NA

Trainer 0	Certification
Domain Certification	Platform Certification
"Automotive Electrician", QP: "ASC/Q1408", minimum accepted score is 80%	Recommended that the trainer is certified for the job role "Trainer (VET and Skills)", Mapped to Qualification Pack: MEP/Q2601, V2.0" Minimum accepted score is 80%





Assessor Requirements

			Assessor Prerequisit	es		
Minimum Edu- cational Quali-	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
fication		Year s	Specialization	Y e a r	Specialization	
ITI	Mechanic Mo- tor Vehicle	4	Four Wheeler Service	1	Four Wheeler Service	NA
ITI	Mechanic Mo- tor Vehicle	5	Four Wheeler Service	0	Four Wheeler Service	NA
Diploma	Automobile Engineering/ Mechanical Engineering	3	Four Wheeler Service	1	Four Wheeler Service	
Diploma	Automobile Engineering/ Mechanical Engineering	4	Four Wheeler Service	0	Four Wheeler Service	
Certificate- NSQF L6	Four Wheeler Master Techni- cian	3	Four Wheeler Service	1	Four Wheeler Service	NA

Assessor Certification	
Domain Certification	Platform Certification
"Automotive Electrician", QP: "ASC/Q1408", minimum accepted score is 80%	Recommended that the Accessor is certified for the job role "Assessor (VET and Skills)", Mapped to Qualification Pack: MEP/Q2701, V2.0" Minimum accepted score is 80%.



Assessment Strategy

- 1. Assessment System Overview:
 - Batches assigned to the assessment agencies for conducting the assessment on SDMS/SIP or email
 - Assessment agencies send the assessment confirmation to VTP/TC looping SSC
 - Assessment agency deploys the ToA certified Assessor for executing the assessment
 - SSC monitors the assessment process & records

2. Testing Environment:

The assessor should:

- Confirm that the centre is available at the same address as mentioned on SDMS or SIP
- Check the duration of the training.
- Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment
- Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
- Confirm the number of TABs on the ground are correct to execute the Assessment
- Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels/Framework:

- Question papers are created by the Subject Matter Experts (SME)
- Question papers created by the SME are verified by the other subject Matter Experts
- Questions are mapped with NOS and PC
- Question papers are prepared considering that level 1 to 3 are for the unskilled & semiskilled individuals, and level 4 and above are for the skilled, supervisor & higher manage-
- Assessor must be ToA certified & trainer must be ToT Certified
- Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme specific branding
- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:

- Surprise visit to the assessment location
- Random audit of the batch
- Random audit of any candidate





- 6. Method for assessment documentation, archiving, and access
 - Hard copies of the documents are stored
 - Soft copies of the documents & photographs of the assessment are uploaded/accessed from Cloud Storage
 - Soft copies of the documents & photographs of the assessment are stored in the Hard Drives