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MINISTRY OF SKILL DEVELOPMENT
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ASDC™
AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL

Facilitator Guide



Sector
Automotive

Sub-Sector
Automotive Vehicle Service

Occupation
Technical Service & Repair

Reference ID: ASC/Q1429
NSQF LEVEL: 4

Electric Vehicle Service Technician

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Developed by:

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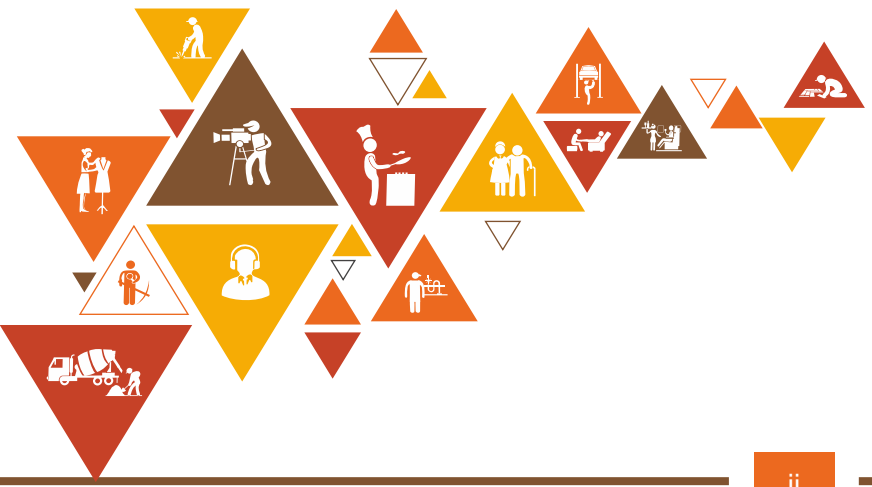


"Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission."

Shri Narendra Modi
Prime Minister of India

Acknowledgements

Automotive Skill Development Council (ASDC) would like to express its gratitude to all the individuals and institutions who contributed in different ways towards the preparation of this “Facilitator Guide". Without their contribution it would not have been completed. Special thanks are extended to those who collaborated in the preparation of its different modules. Sincere appreciation is also extended to all who provided peer review for these modules. The preparation of this Guide would not have been possible without the Automotive Industry's support. Industry feedback has been extremely encouraging from inception to conclusion and it is with their input that we have tried to bridge the skill gaps existing today in the Industry. This handbook is dedicated to the aspiring youth who desire to achieve special skills which will be a lifelong asset for their future endeavours.

About this Book

The Facilitator Guide is designed for the Trainers to enable training for a specific job role and enhance the quality of executing the training program. This particular Facilitator Guide is designed for enabling the training program for the job role of "Electric Vehicle Service Technician" in the Automotive Sector.

This course is aligned to Qualification Pack, Electric Vehicle Service Technician, Reference ID: ASC/Q1429

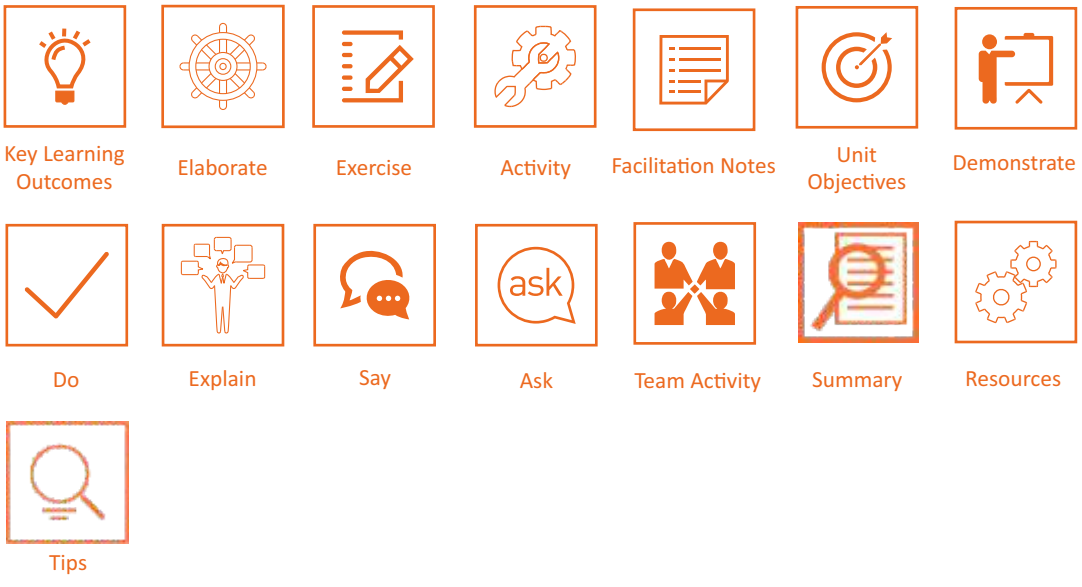
This Qualification pack is developed by Automotive Skill Development Council (ASDC). This course encompasses all 6 National Occupational Standards (NOS).

Each unit starts with learning objectives, followed by relevant activities and corresponding training methodology. Upon successful completion of this course, the participant will be able to:

1. ASC/N9801: Organize Work and Resources (Service)
2. ASC/N1449: Carry out routine service or minor repairs on electric vehicle and assist in diagnosis
3. ASC/N1450: Carry out routine service or minor repairs on four wheeler electric/ hybrid vehicle and assist in diagnosis (Elective NOS)
4. ASC/N1451: Carry out routine service or minor repairs on two/three wheeler electric vehicle and assist in diagnosis (Elective NOS)
5. ASC/N1452: Carry out routine service or minor repairs on electric truck/bus and assist in diagnosis (Elective NOS)

Besides, it has been endeavored to follow the facilitator guide guidelines prescribed by the National Skill Development Corporation.

Symbols Used



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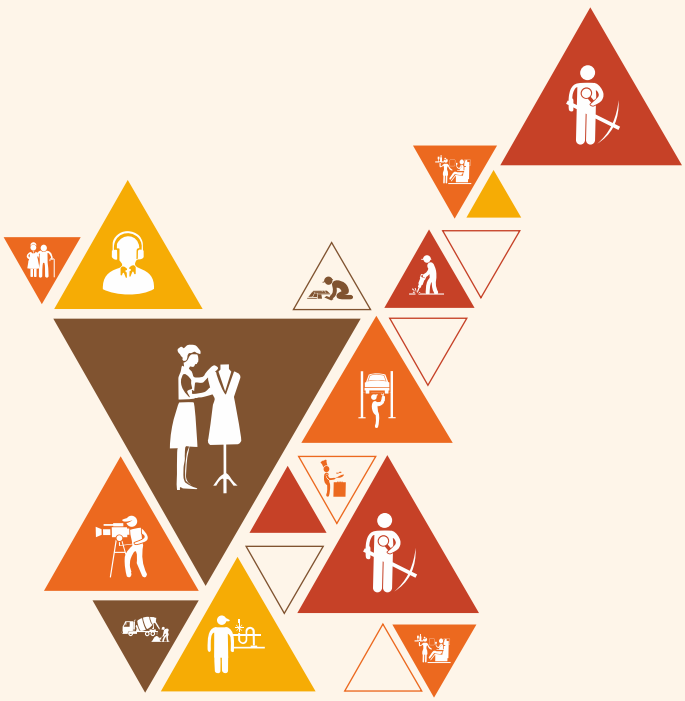
1. Introduction to the Role of an Electric Vehicle Service Technician

Unit 1.1 - Role and Responsibilities of an EVST
Unit 1.2 - EV Manufacturing Market in India
Unit 1.3 - EV- Original Equipment Manufacturers
Unit 1.4 - Workshop Structure
Unit 1.5 - Maintenance Standards



Bridge Module

Key Learning Outcomes

At the end of this module, trainee will be able to:

1. Discuss the role and responsibilities of an Electric Vehicle Service Technician

Unit 1.1 Role and Responsibilities of an EVST

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List the role and responsibilities of an Electric Vehicle Service Technician
2. Discuss the job opportunities for an Electric Vehicle Service Technician in the automobile industry
3. Discuss the job opportunities of an Electric Vehicle Maintenance Technician - Electrical

Resources to be Used

- Participant Handbook
- Paper, Pens, Notepad, Chart paper
- Computer, Projector, Flipchart
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Say

- Start the class by saying, "This training program is developed to impart specific knowledge and skills relevant to the job required to be performed as an "Electric Vehicle Service Technician", in the "Automotive Sector/Industry."
- Talk about the Qualification Pack (QP), and National Occupational Standards (NOS).
- List the compulsory NOSs to the QP "Electric Vehicle Service Technician".
- Say, "Before we start the program let's play a small game".

Activity

Objective	The purpose of this activity is to build rapport with the classmates
Materials required	Color pencil (for choosing)
Steps/procedure	• This is an ice-breaker activity • Welcome the new participants by giving self-introduction • Divide the participants into groups of 4-5. • Inform them about the colored pencil to begin the conversation. Like: a) Red color pencil holds on to self-introduction, b) Yellow color pencil holds onto hobbies, c) Orange color pencil holds on to childhood memories, and, d) Green color pencil holds onto something about their family. • Make the trainees stand in a circle, close enough to the person on each side of them so that they can pass the colored pencil quickly. • Say 'Stop' when it is least expected. At that time, the trainee holding the colored pencil will start the conversation according to the colored pencil. • At last, thank the participants for their participation.
Conclusion / what has been achieved	This activity helps the participants to know each other and also allows them to feel comfortable.

Say

- "I hope you all liked this small activity/game. Now, let's kick off today's session by getting an overview of the automotive industry."

Explain

- Explain the following topics:
  - Introduction to the automotive industry.
  - Roles and responsibilities of an electric vehicle service technician – refer PH fig.1.1.4
  - Job opportunities for an electric vehicle service technician - refer PH fig.1.1.5

Ask

- List down the importance of the automotive industry.
- What are the difference between personal attributes and Health, safety, and security policies and procedures?
- Can anyone tell me two important responsibilities of an electric vehicle technician?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 1.2 EV Manufacturing Market in India

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Explain about Indian EV manufacturing market

Resources to be Used

- Participant Handbook
- Paper, Pens, Notepad, Chart paper
- Computer, Projector, Flipchart
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- “In the last unit, we gained an understanding of the roles and responsibilities of an EVST.”
- “In today's session, we will discuss the overview of the Indian EV manufacturing market.”

Explain

- Explain the following topics:
  - Indian EV manufacturing market
  - Segmentation of the EV market - refer PH fig 1.2.1 and 1.2.2
  - Initiatives to promote EV manufacturing in India

Ask

- What is the significance of the Indian EV manufacturing market?
- Can you name three EV manufacturing companies in India?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 1.3 EV- Original Equipment Manufacturers

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List various types of EVs and different products/ models manufactured by Original Equipment Manufacturers (OEMs)

Resources to be Used

- Participant Handbook
- Paper, Pens, Notepad, Chart paper
- Computer, Projector, Flipchart
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- "In the last unit, we gained an understanding of the Indian EV manufacturing market and the segmentation of the EV market."
- "In today's session, we will discuss various types of EVs and different products/ models manufactured by Original Equipment Manufacturers (OEMs)."

Explain

- Explain the following topics:
  - Different types of vehicles - refer PH fig 1.3.1
  - Type of propulsion
    - Battery electric vehicle - refer PH fig 1.3.2
    - A hybrid electric vehicle - refer PH fig . 1.3.3
    - A plug-in hybrid electric vehicle - refer PH fig .1.3.4
    - Fuel cell electric vehicle - refer PH fig .1.3.5

Activity

Objective	The purpose of this activity is to understand the different types of propulsion.
Materials required	Laptop/computer
Steps / procedure	• This is a skill practice activity. • Show the image of different types of propulsion through presentation. • Ask the participants to recognize the respective propulsion and explain it. • Ask one by one and give them 1-2 minutes to share their answers. • Appreciate the participants who give correct answers.
Conclusion / what has been achieved	This activity will help them to learn the different types of propulsion.

Ask

- What is the difference between a plug-in hybrid electric vehicle and a fuel-cell electric vehicle?
- Can you name three various segments of EVs based on the type of vehicle?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate on the following topics:
  - Original equipment manufacturer(OEM)
  - Products manufactured by OEM
  - Various EVs components manufacturers in India(Table 1.3.1)
  - OEM models manufactured in India (Table 1.3.2, 1.3.3 and 1.3.4)

Ask

- Explain any two basic components of EVs.
- Can anyone name three companies that manufacture basic components of EVS?
- List three manufacturers of approved Three-wheeler models by FAME II?
- Name two manufacturers of approved Four-wheeler models by FAME II

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 1.4 Workshop Structure

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Illustrate the workshop structure
2. Describe role and responsibilities of different people in the workshop

Resources to be Used

- Participant Handbook
- Paper, Pens, Notepad, Chart paper
- Computer, Projector, Flipchart
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- “In the last unit, we gained an understanding related to various types of EVs and different products/ models manufactured by Original Equipment Manufacturers (OEMs).”
- “In today's session, we will discuss the structure of the workshop.”
- Start the session by saying, " An automobile workshop or service station is a place where service, maintenance, and repair work of automobiles is carried out”.
- " There are many smaller private workshops as well as servicing multiple models of vehicles."

Explain

- Explain the following topics:
  - Structure of the workshop - refer PH fig 1.4.1
  - Role and responsibilities of the following people in the workshop
    - EV Workshop manager - refer PH fig 1.4.2
    - EV service manager - refer PH fig . 1.4.3
    - EV service supervisor - refer PH fig .1.4.4
    - EV Bodyshop is in-charge - refer PH fig .1.4.5
    - EV spare parts in charge - refer PH fig .1.4.6

Ask

- What is the difference between an EV service manager and an EV service supervisor?
- Can you name three operations of an EV workshop manager?
- Define the structure of a typical EV workshop.
- What is the responsibility of an EV body paint technician?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 1.5 Maintenance Standards

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Discuss the maintenance standards and procedures followed in organisation
2. Identify the standard checklists and schedules recommended by OEM

Resources to be Used

- Participant Handbook
- Paper, Pens, Notepad, Chart paper
- Computer, Projector, Flipchart
- Whiteboard, Marker, and Duster

Say

- "In the previous unit, we learned about the workshop's structure as well as the roles and responsibilities of the workshop's employees."
- “In today's session, we will discuss the organization's maintenance standards and procedures.”
- Start the session by saying, " Maintenance Standard Operation Procedures (SOP) is a document consisting of step-by-step instructions to be followed for maintenance the workers/technicians need to follow during the maintenance of vehicles”.

Explain

- Explain the following topics:
  - Organization's maintenance standards and procedures
  - Tasks/processes for which maintenance SOPs are prepared - refer PH fig 1.5.1
  - Specific details that should be part of maintenance SOPs - refer PH fig 1.5.2

Ask

- Define the organization's maintenance standards and procedures.
- Can you name three tasks/processes for which maintenance SOPs are prepared?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate on the following topics:
  - Standard checklists and schedules recommended by OEM
  - Standard checklist and schedules recommended by hero electric for bikes(Fig.1.5.3)
  - VRLA battery service matrix recommended by hero electric for bikes(Fig 1.5.4)

Ask

- Define the standard checklists and schedules recommended by OEM.
- What type of vehicles requires more frequent maintenance than ICE vehicles?
- What helps in avoiding breakdowns and costly repairs?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Exercise

- Instruct the trainees to open their Participant Handbook and complete the exercise given in Module 1.
- Ensure that the participants have opened the correct page for the activity.
- Give them 20 minutes to complete the exercise.
- Exercise Hints:
  - Answers to Question I
    1. Hint – Refer to section 1.1.2
    2. Hint – Refer to section 1.3.1.1

Scan the QR Code to watch the related video

www.youtube.com/watch?v=Pou7qc_BzU8
Introduction to Automotive Industry

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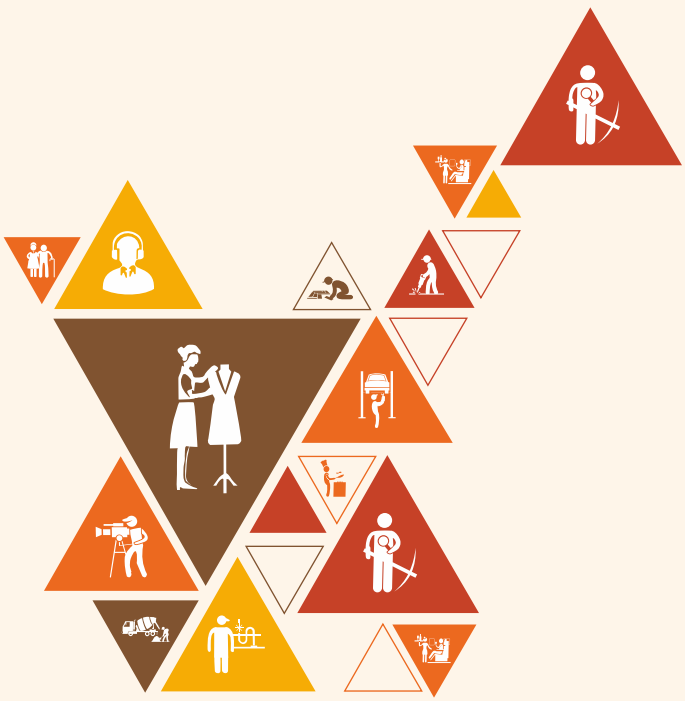
2. Work Effectively and Efficiently

Unit 2.1 - Safe Working Practices

Unit 2.2 - Emergency, Rescue and First-aid Procedures

Unit 2.3 - Workplace Quality Standards

Unit 2.4 - Health and Hygiene During an Epidemic and Pandemic



ASC/N9801

Key Learning Outcomes

At the end of this module, trainee will be able to:

1. List the potential workplace related risks and hazards, their causes and preventions
2. Identify safety measures during work
3. Display the correct way of wearing and removing PPE such as face masks, hand gloves, face shields, PPE suits, etc.
4. Show how to deal with a fire accident
5. Demonstrate how to evacuate the workplace in case of an emergency
6. Demonstrate basic first aid techniques during electric shock, burns and choking
7. State the methods to keep the work area clean and tidy
8. Perform routine cleaning of tools, equipment and machines
9. Apply basic housekeeping practices to ensure that the work area is clean, such as mopping spills and leaks, cleaning grease stains etc.
10. Discuss how to complete the given work within the stipulated time period
11. Discuss ways to maintain a proper balance between team and individual goals
12. Discuss epidemics and pandemics and their impact on society at large
13. Explain the significance of following prescribed rules and guidelines during an epidemic or a pandemic
14. Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol-based hand sanitizers
15. Show how to sanitize and disinfect one's work area regularly
16. Demonstrate the correct way of washing hands using soap and water
17. Demonstrate the correct way of sanitizing hands
18. Demonstrate appropriate social and behavioural etiquette (greeting and meeting people, spitting/coughing/sneezing, etc.)
19. Discuss the ways of dealing with stress and anxiety during an epidemic or a pandemic

Unit 2.1 Safe Working Practices

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Elaborate importance of safety at workplace
2. List the potential workplace related risks and hazards, their causes and preventions
3. Identify safety measures during work
4. Display the correct way of wearing and removing PPE such as face masks, hand gloves, face shields, PPE suits, etc.

Resources to be Used

- Available objects such as white board, marker pens, duster, PPE.
- PC with LCD Projector or Flip Chart
- Participant Handbook

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Welcome and greet the participants.
- Revise the learnings of the previous sessions and ask them if they have any doubts.

Say

- Start the session by saying, "The health and safety of employees are crucial since it affects economic and social factors. "Workplace safety plays an important role in the organization as it boosts productivity."
- "If the workers in the organization feel safe, they can work with their full capabilities and potential, and it also reflects positivism in the working environment."

- "Measures need to be taken to eliminate risks at work and ensure a safe and comfortable environment for the employees."

Ask

- What are the important aspects of safety in automobile industry?
- List essential elements necessary for safety.
- What are the good safety practices?
- What they think about safety in automobile service industry?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Explain

- Explain the following topics:
  - Importance of safe & secure working place
  - The condition of the work place environment e.g., means of access, physical safety, housekeeping, and safe place of work etc.
  - The training and competence of the employees which include ability to understand apply and respond to safe systems of work
  - Preventative procedures need to follow
  - Responsibilities of the employers and employees for maintaining safe workplace

Say

- "A hazard is something that has the potential to cause injury, disease, or death in a workplace."
- "Aspects for the development of a safe workplace environment are development policies, the consultative process, hazard identification, and control."
- “Always follow the safety signage to ensure safety at the workplace and ensure the control measures.”

Ask

- List different types of hazards.
- Can anyone name three hazard warning signs?
- What are the most common hazards in a vehicle service and repair workshop?

Elaborate

- Elaborate on the following topics:
  - Hazard
  - Categories of hazard
  - Types of hazards
    - Physical hazard
    - Chemical hazard
    - Biological hazard
    - Psychological hazard
    - Electrical hazard
  - Common causes of hazard

Do

- Conduct a group activity in the class to learn all about hazard warning sign and their differences with help of signage chart or .
- Ask the various techniques to avoid and control from hazards.
- Give trainees some time to think about effects of hazard on our body.

Activity

Objective	The purpose of this activity is to learn about hazards signage and its importance at workplace.
Materials required	Hazard signage chart
Steps / procedure	1. Divide the participants into groups of 4-5. 2. Ask the students to assemble together. 3. Explain the hazard and the types of hazards.

Steps / procedure	4. Show the hazard signage chart to trainees and tell them to identify hazard signage one by one. 5. Call each student one by one and ask him/her to identify the name of hazard sign showing on the chart. 6. The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them to learn the different types of propulsion.

Say

- "There are safe practices that need to be considered for avoiding general workshop hazards."
- "Use of personal protective equipment is the first step towards safety."
- "Personal protective equipment serves as the last resort for controlling hazards and is one, but not the only, ancillary or temporary measure."

Ask

- What are the safe practices for avoiding general shop hazards?
- List type of PPE is required for a vehicle servicing technician?
- What are the benefits of PPE at workplace?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate on the following topics:
  - Safe practices to avoid automobile workshop hazards
  - Safe practices while using tools and power tools
  - Personal protective equipment and their use - refer PH fig .2.1.1

Do

- Show them the PPE.
- Demonstrate the use and requirement of PPE.

Field Visit

- Plan a visit in the industry and show PPE used and safe working practices followed in the industry.

Summarize

- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

Unit 2.2 Emergencies, Rescue and First Aid Procedures

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Discuss the causes of the fire on the shop floor
2. Demonstrate steps of emergency procedures
3. Demonstrate steps to evacuate in an emergency situation
4. Demonstrate basic first aid techniques

Resources to be Used

- Available objects such as white board, marker pens, duster, different types of fire extinguisher, fire alarm, PPE, sample emergency plan and first-aid kit
- PC with LCD Projector or Flip Chart
- Participant Manual

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Welcome and greet the participants.
- Revise the learnings of the previous sessions and ask them if they have any doubts.

Say

- "Fire is defined as a self-sustaining combustion process in which a substance (fuel) combines with oxygen in the air to produce immense heat and light."
- "Fire hazards pose threats to life and property."
- "There are four classes of fire, i.e., Class A, Class B, Class C, and Class D."
- "A fire extinguisher is an active fire protection device used to extinguish or control small fires, often in emergencies."

Ask

- What is fire?
- What are the common types of fire safety equipment used in industry?
- What is fire extinguisher and how you can use it?

Explain

- Explain the following topics:
  - Fire and types of fire
  - Ways and effects of fire hazard
  - Emergency instructions in case of fire

Elaborate

- Elaborate on the following topics:
  - Ways for fire prevention
  - Fire-fighting equipment and fire extinguisher
  - Types of fire extinguisher, their color codification and classification according to classes of fire
  - Use of fire extinguisher

Do

- Tell them about the fire-fighting equipment.
- Show them the equipment and explain their use.
- Demonstrate them the use of fire extinguisher.
- Explain them about different types of fire extinguishers.

Field Visit

- Take the trainees into the workshop.

Demonstrate

- Demonstrate the steps of using fire extinguisher - refer PH fig .2.2.1.

Activity

Objective	The purpose of this activity is to understand how a fire extinguisher works.
Materials required	Fire extinguisher, PPE
Steps / procedure	1. This is a class practical activity. 2. Ask the students to assemble together. 3. Provide each participant with a PPE kit one by one. 4. Provide, one by one, a fire extinguisher to each trainee. 5. Explain the process/instructions to use the fire extinguisher. 6. Support them in using a fire extinguisher properly. 7. Go around and make sure they are doing it properly. 8. Each team had to demonstrate the use of fire extinguishers one by one. 9. After this, the facilitator will sum up the activity by demonstrating how to use an extinguisher.
Conclusion / what has been achieved	This activity will help them to learn about the use of fire extinguishers.

Say

- "Every workplace has an emergency plan for dealing with emergencies. You should be instructed about plan through refresher training or fire drills time to time."

Elaborate

- Elaborate the following topics:
  - Emergency plan during emergencies
  - Emergency service number
  - Medical emergency procedures
  - Evacuation procedures for workers & visitors in case of emergency

Explain

- Explain the following topics:
  - How to follow emergency procedures during and emergency
  - Need of attending training or fire drills organized by organization

Do/Demonstrate

- Take the trainees into the workshop and demonstrate how to follow emergency and evacuation procedures during an emergency.

Activity

Objective	The purpose of this activity is to understand emergency procedures during accidents and hazards.
Materials required	Fire extinguisher, PPE
Steps / procedure	1. This is a class activity. 2. Make 5 groups of trainees. 3. Ask the students to assemble together. 4. Give each group a different emergency situation and tell them to do a role play and demonstrate how to follow emergency procedures in it. 5. Support them in preparing the role play. 6. Allow each group one by one to present their play. 7. Praise them after completion of play. 8. After this, the Facilitator will sum up by summarizing the activity.
Conclusion / what has been achieved	This activity will help them to learn about how to follow emergency procedures.

Say

- "It is extremely important to report accidents and incidents right away, no matter how minor they may be."
- "Reporting of incidents and accidents is required under the Work Health and Safety (WHS) legislation."
- "Always report an accident to management immediately. There should be a form at each workplace that you (or the person involved) and any witnesses can fill out, where possible; otherwise, it can be completed by a health and safety representative (HSR) if necessary."

Elaborate

- Elaborate the following topics:
  - Hazard reports can take a number of different forms:
    - The standard hazard report used by workers for all hazards
    - Reports of infections
    - Near-miss incident reports
    - Reports of damage and faulty tools, equipment and machines
    - Routine inspection reports
  - Structure of an accident report:
    - Description of the occurrence
    - Nature of injury or disease
    - Injury or disease happened as a result of the occurrence?
    - First aid, medical treatment or hospital admission
    - Part of the body affected
    - Source of injury
    - Probable cause or causes of injury
    - Investigation
    - Notification checklist
    - Preventative action
    - Witness details

Ask

- What are the areas covered in accident report?
- Why reporting and documentation is necessary?
- What are the important things to remember filling reports and documents?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Activity

Objective	The purpose of this activity is to learn how to report fire accident at workplace.
Materials required	Checklist
Steps / procedure	1. This is a class activity. 2. Ask the students to assemble together. 3. Make pairs of students. 4. Tell them to imagine a fire accident and prepare a fire accident reports. 5. Provide them a fire hazard situation for making report. 6. Go around and make sure they are doing it properly. 7. Share your inputs and insight to encourage the trainees and add onto what they are doing. 8. After this, the Facilitator will sum up by summarizing the activity.
Conclusion / what has been achieved	This activity will help them to prepare a fire accident report at workplace.

Say

- "If you suspect someone has received an electric shock, proceed with extreme caution and administer basic first aid to save the victim's life."

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Do/Demonstrate

- Trainer can make a group of few trainees to demonstrate the steps of first-aid in following situations:
  - Free a person from electrocution
  - Bleeding and Wounds
  - Burns
    - Chemical or Compressed Gas Burns
    - Heat or Electrical Burns
  - Choking
  - Basic techniques of banding
  - Artificial respiration and the CPR Process
  - Correct method to move injured people during an emergency

Activity

Objective	The purpose of this activity is to understand and learn about first-aid practices in workplace.
Materials required	Mannequin, first-aid box
Steps / procedure	1. This is a class activity. 2. Ask the students to assemble together. 3. Tell them to divide into six groups. 4. Tell them to prepare a role play of an accident and demonstrate the first-aid steps need to perform for saving the victim. 5. Support the teams in preparation of role play. 6. Praise their effort during the demonstration. 7. After this, the Facilitator will sum up by summarizing the activity.
Conclusion / what has been achieved	This activity will create awareness about first-aid practices.

Field Visit

- Plan a visit to any of the industry and show the firefighting equipment.
- With the help of field visit show the trainees where we need to various firefighting equipment and how to use them.
- Show them fire drill session. With the help of field visit explain them the importance of fire drill for safety.

Summarize 

- Summarize the main points of the session with the participants.
- Ask them if they have any query pertaining to the topics taught in the session.
- Encourage them to ask questions and answer their queries satisfactorily.

Unit 2.3 Workplace Quality Standards

Unit Objectives

At the end of this unit, the trainee will be able to:

1. State the methods to keep the work area clean and tidy
2. Apply basic housekeeping practices to ensure that the work area is clean, such as mopping spills and leaks, cleaning grease stains etc
3. Perform routine cleaning of tools, equipment and machines
4. Discuss how to complete the given work within the stipulated time period
5. Discuss ways to maintain a proper balance between team and individual goals

Resources to be Used

- Available objects such as white board, marker pens, duster, cleaning equipment
- PC with LCD Projector or Flip Chart

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Before starting the session ask them do they have any doubts pertaining to the previous unit.
- Capture their responses on board and share them wherever necessary.
- Tell them that they will learn about housekeeping practices, organization policies and procedure, time management and team work.

Say

- "Housekeeping includes keeping work areas tidy and arranged; keeping floors free of slip and trip accidents; clearing of waste materials and other fire hazards."
- " Good housekeeping is a basic step for preventing accidents and fire hazards. Poor housekeeping and hiding hazards can cause frequent accidents, which can cause injuries. The great majority of all work accidents are caused during the handling of goods or materials, and by people falling, being hit by falling objects, or striking against objects in the workplace. All these causes can be reduced by good housekeeping practices. "
- "Examples of housekeeping are excessive material, waste or chips in the working area, congested aisles, tools left on machines, waste containers overflowing, lockers and workrooms in disorder, acids in open containers, broken glass, etc."

Explain

- Explain the following topics:
  - Principle of housekeeping
  - Benefits of housekeeping
  - Checklist of housekeeping program

Elaborate

- Elaborate the following topics:
  - Elements of housekeeping program checklist are:
    - Buildings
    - Floors
    - Aisles
    - Machinery and equipment
    - Stock and material
    - Tools
    - Grounds
    - Waste disposal

Ask

- What are the housekeeping concerns in the automobile industry?
- What are the areas and objects that need to be taken care of under an effective housekeeping program in an industry?

Field Visit

- Arrange a visit to any of the servicing center and show the housekeeping program following there. With the help of field visit you could show the benefits and importance of housekeeping.

Say

- "Most of the organizations usually formulate a set of policies, principles, and guidelines to achieve long-term goals."
- "The policies and procedures are designed by the organization to control and establish decisions. This helps the organization to take corrective action and activities within the organization take place within the set boundaries."
- "A policy is a set of procedures which define the guidelines for dealing with human resource management issues in the organization. It communicates an organization's values and the organization's expectations of an employee's behaviors and performance."

Ask

- What is the need for organizational policies and procedures?
- List general policies and procedures followed in the automobile industry.

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate the following topics:
  - Benefits of organizational policies & procedure
  - Common workplace policies
  - How to work in line with organization policies & procedures

Say

- "Time management" is the process of planning and practicing control over the time given to a specific task, especially to increase effectiveness, efficiency, and productivity. It is an activity to increase the overall advantage of a set of activities within the limited conditions of a limited time.
- Certain strategies must be considered for better time management. Time management does not mean working harder or for a longer period, but it helps us work smartly so that we can finish our work easily and quickly.
- "In this session, we will learn how to manage time smartly and effectively."

Ask

- What is the need for time management?
- List factors that need to consider for time management.

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate the following topics:
  - Benefits of time management
  - Obstacles to effective time management
  - Ways to resolve obstacles

Explain 

- Explain the following topics:
  - Various obstacles of effective time management.
  - Ways to resolve obstacles and manage time effectively.

Say 

- "To accomplish many things in your time of office, first you have to define your targets and ensure your struggles are always absorbed toward their accomplishment."

Ask 

- What is the need of time management?
- List factors need to consider for time management.

Notes for Facilitation 

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate 

- Elaborate the following topics:
  - Effective goals should be SMART i.e.
    - Specific
    - Measurable
    - Achievable
    - Realistic
    - Time-based

Explain

- Explain how to set SMART goals.

Say

- "Now, to manage the time you have to prioritize the task. It is always good and safe to clarify that you cannot do everything, thus it is important to make a list of tasks periodically that confront you and prioritize them."

Ask

- What is the need of prioritizing tasks?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate the following topics:
  - Techniques for prioritizing tasks are:
    - Do
    - Delegate
    - Delay until another time
    - Delete
  - Ways to prioritize task:
    - Address the urgent
    - Accomplish what you can do early
    - Attach deadlines to things you delay

Explain

- Explain techniques for prioritizing tasks

Say

- “After prioritizing tasks and setting deadlines, now you have to organize your plans and actions.”
- “Some time we use paper and pencil to organize our plans, now in today's environment we can use planner as it includes calendar and enough space to make notes.”

Ask

- What is the need of organizing tasks?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Explain

- Explain ways to organize tasks and prepare planners.

Say

- "In your daily routine, you have to manage many activities, and you cannot cut yourself from this fact. There is no way around this fact. But you have to keep in mind and concentrate completely on the current task."
- "Concentration can be difficult when you have a lot on your mind. But there are ways we can also manage this."

Elaborate

- Elaborate the following topics:
  - Ways for concentrating on your tasks.
  - How to focus on goals and avoid interruptions.

Activity

Objective	The purpose of this activity is to help you appreciate and educate about time management.
Materials required	Lemon, balloon etc
Steps / procedure	1. This is an outdoor activity. 2. Ask the students to assemble in groups of 9-10 in ground. 3. Organize a race with multiple stages, such as a lemon race, one-leg race, and balloon race. 4. Ask the team members to decide among themselves who will do what. 5. The team that would be able to complete the task within a time of 4mins/ at the earliest would be the winner. 6. On the basis of the activity, discuss the factors that caused the team members lag behind and which factors enabled them to carry it within the assigned time. 7. Relate it to the wider arena- that is to time management (when more than 1 person is involved) in general sense. 8. After this, the Facilitator will sum up the activity by summarizing the main topic.
Conclusion / what has been achieved	This activity will focus on the importance of time management.

Ask

- What is the need and importance of teamwork?
- List advantages of teamwork

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Say

- The current trend of working in an organization is to work in form of teams. While working in an organization they have to support and guide other team members also."
- A good team is the one that motivates its members to have a positive attitude and perform better."
- Teamwork is a very important part of working life. They can have a big impact on the profitability of an organization, team and individual performance, company reputation, etc."
- The three important determinants of teamwork are leadership, and the building of the right kind of groups or teams for better productivity."

Do

- Read the following paragraph to the class and elaborate on the following story:

Say

- **Lessons from the Geese:**
- "At work, teams are far more effective than individuals. Let's look at an example from Mother Nature to learn how an effective team works. "
- "The geese fly in a group on their long flight of migration."
- "The flapping of the geese that are in front of the formation creates a draught for the geese at the rear, reducing air resistance. This indicates their true sense of responsibility towards their fellow beings. "
- "When the leader of the flock of geese becomes tired, it returns to the rear, and another goose steps forward to lead the flock of geese. So, these geese have no fixed leadership or hierarchy. "
- "No goose wants to fly out of formation because it gets tired quickly. Even if it does fly out of formation, it quickly comes back to its place. So, geese have amazing team sense! "
- "Geese also make a lot of noise while they fly. But it's interesting to note that the noise is not made by the geese leading the formation, but by the geese in the back of the formation, which serve to support and keep everyone going. Isn't that the unique voice of support? "
- If one goose becomes ill and falls out of formation, a few others stay with it until it recovers or dies. Now, that's what we call "team spirit!"
- "Geese are a one-of-a-kind team. The team behaves as a cohesive whole, with a common goal of

reaching a particular destination in mind. Team members help each other because they can achieve much more collectively than they can individually. As with the geese, as humans, if we share a common set of directions and have considered our community, we can move quickly and achieve our goal in a shorter period because we move with trust in each other. We are willing to accept help from others and offer our help to others. "

- “It is beneficial to take turns doing difficult tasks and to share leadership. As with geese, people are interdependent on their skills, capabilities, and unique arrangements of gifts, talents, and resources.”
- "We need to make sure we are encouraging each other in the team. In teams where there is encouragement, the production is much higher. "
- “If we have as much sense as geese, we will stand by each other in difficult times as well as when we are strong. Now, what do you say to that? "

Explain

- Explain the following topics:
  - Teamwork checklist need to follow at the workplace
  - Advantages of teamwork

Activity

Objective	The purpose of this activity is to help the students to understand the importance and educate themselves about time management.
Materials required	Newspaper, gum, cello tapes
Steps / procedure	1. Divide students into teams and give them equal amounts of newspaper, gum, cello tapes – no scissors or blade should be used. Ask them to construct a castle in 30 mins. Best team will be identified based upon the following criteria. 1. Which team can build the tallest, structurally-sound castle? 2. Which team can build a castle the fastest? 2. Go around and make sure they are doing it properly. 3. Praise them for their efforts. 4. Examine a student's work. 5. Give feedback based on the student's work.

Steps / procedure	6. After this, the Facilitator will sum up by summarizing the activity.
Conclusion / what has been achieved	This activity will highlight the significance of time management.

Say

- "Conflict can be defined as a serious disagreement or argument."
- "Conflict exists in almost all organizations and sometimes it is also considered positive as it helps in the healthy exchange of ideas and creativity."
- "Unsolved problems may lead to increased levels of bitterness and frustration. By deciding not to say something that would make you sound aggressive or frustrated, you can avoid unnecessary conflicts."
- "Conflicts take place when people are rigid and are not willing to cooperate."

Elaborate

- Elaborate the following topics:
  - Different steps to use to resolve conflicts in a team
  - Methods for depersonalizing conflicts
  - Do's and don'ts to resolve complaints
  - Do's and don'ts to respond to a Transactional Crisis

Notes for Facilitation

- Select a student at random and ask them to describe an event in which they had a dispute with a buddy that caused more issues at school and became a source of emotional stress.

Explain

- Explain the importance of resolving conflicts for a person's mental peace, maintaining order, and a healthy environment in the workplace.

Summarize

- Summarize the main points of the session with the participants.
- Ask them if they have any query pertaining to the topics taught in the session.
- Encourage them to ask questions and answer their queries satisfactorily.

Unit 2.4 Health and Hygiene During an Epidemic and Pandemic

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Discuss epidemics and pandemics and their impact on society at large
2. Elaborate the significance of following prescribed rules and guidelines during an epidemic or a pandemic
3. Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol-based hand sanitizers
4. Show how to sanitize and disinfect one's work area regularly
5. Demonstrate the correct way of washing hands using soap and water
6. Demonstrate the correct way of sanitizing hands
7. Demonstrate appropriate social and behavioural etiquette (greeting and meeting people, spitting/coughing/sneezing, etc.)
8. Discuss the ways of dealing with stress and anxiety during an epidemic or a pandemic

Resources to be Used

- Available objects such as white board, marker pens, soap, sanitizer, water etc.
- PC with LCD Projector or Flip Chart

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Before starting the session ask them do they have any doubts pertaining to the previous unit.
- Capture their responses on board and share them wherever necessary.

Say

- "As we are all facing a pandemic of coronavirus, we need to follow certain procedures while working in the workshop for the safety of ourselves and others."
- "In this session, we will discuss safety procedures related to health and hygiene to keep everyone safe and secure and manage stress during an epidemic and pandemic."

Ask

- What are an epidemic and pandemics?
- What are the safety practices that need to follow during an epidemic and pandemic?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate the following topics:
  - Difference between epidemic and pandemic
  - Safety protocols during an epidemic and pandemic at workplace
  - Workplace hygiene
  - Importance of hygiene at workplace
  - How to maintain hygiene in the workplace
  - Personal grooming
  - Differentiate between hygiene and sanitization
  - Workplace and personal sanitization

Do

- Show how to follow safety protocols during an epidemic or pandemic.
- Give some tips to maintain personal hygiene at workplace.
- Give some tips to slow the spread of germs specifically through cleaning and disinfecting.

- Show how to maintain personal sanitization.
- Show how to clean hands properly by soap or sanitizer.

Say

- "During an epidemic or pandemic, mostly people face mental problems due to Fear and worry about their health and the health of their loved ones, financial situation or job, or loss of support services you rely on."
- "So, there are some ways which can support us in managing mental stress during an epidemic or pandemic."

Elaborate

- Elaborate the following topics:
  - Effect of stress on our mental health and daily life
  - Ways to handle stress

Notes for Facilitation

- Select a few trainees at random.
- Ask them to describe instances of the coronavirus pandemic that have caused them emotional stress and how it has affected their lives.
- Look for additional similar incidents in their life.

Explain

- Explain the importance and ways of managing stress for mental peace, maintaining order and healthy environment in workplace on the basis of their experiences shared in activity.

Summarize

- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

Exercise

- Instruct the trainees to open their Participant Handbook and complete the exercise given in Module 5.
- Ensure that the participants have opened the correct page for the activity.
- Give them 20 minutes to complete the exercise.
- Exercise Hints:
  - Answers to Question I
    1. a
    2. a
    3. b
    4. a
    5. d
    6. d
    7. b
    8. b
    9. b
    10. b
    11. a
    12. c
    13. c
    14. b
    15. b
    16. True
    17. As discussed during training
    18. As discussed during training

Scan the QR Code to watch the related video

www.youtube.com/watch?v=88PGRvB-Scs

Workplace etiquettes

www.youtube.com/watch?v=QGHBq5OEsBM

Effective communication at workplace

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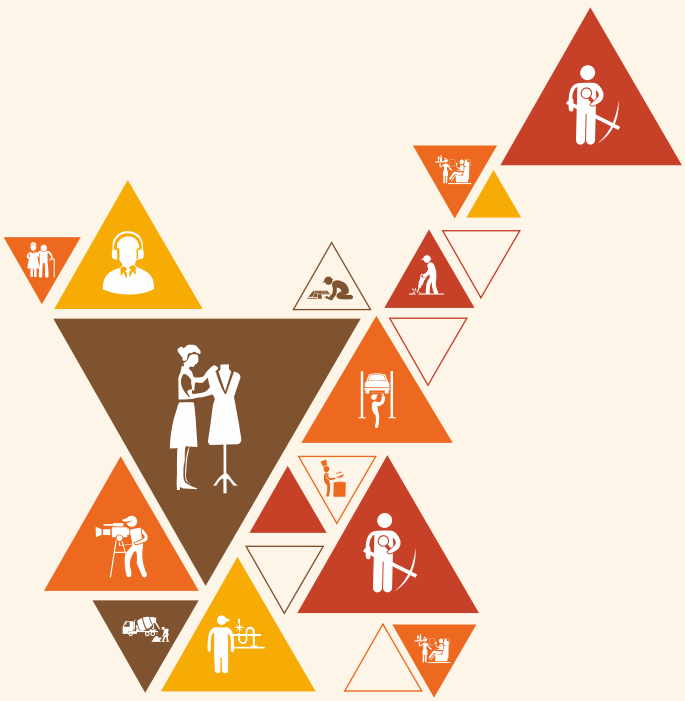
3. Optimize Resource Utilization

Unit 3.1 - Resource Optimization

Unit 3.2 - Waste Management



ASC/N9801

Key Learning Outcomes

At the end of this module, trainee will be able to:

1. List the ways to optimize usage of resources. Identify safety measures during work
2. Employ ways for efficient utilization of material and water
3. Use energy efficient electrical appliances and devices to ensure energy conservation
4. Discuss various methods of waste management and its disposal
5. List the different categories of waste for the purpose of segregation
6. Differentiate between recyclable and non-recyclable waste
7. State the importance of using appropriate colour dustbins for different types of waste
8. Demonstrate different disposal techniques depending upon different types of waste

Unit 3.1 Resource Optimization

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List the ways to optimize usage of resources
2. Employ ways for efficient utilization of material and water
3. Use energy efficient electrical appliances and devices to ensure energy conservation

Resources to be Used

- Available objects such as white board, marker pens, duster
- PC with LCD Projector or Flip Chart
- Participant Manual

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Welcome and greet the participants.
- Revise the learnings of the previous sessions and ask them if they have any doubts.

Say

- "In today's world, every automobile organization is aiming to reduce production costs without any change in the quality of the product, customer satisfaction, and safety of the passengers in their automobiles."
- "Energy efficiency is crucial to reduce pollutant emissions into the atmosphere, and automakers find it challenging to increase the output of their products by adhering to energy efficiency practices."

Ask

- What do you understand by the term energy?
- What is energy conservation?
- What is the need for energy conservation?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Elaborate

- Elaborate the following topics:
  - Energy conservation
  - Ways of conserving energy
    - Energy management programs and systems followed in industry
    - Efficient HVAC measures to conserve energy
    - Need and ways of maintenance check
    - Environment friendly design and structure of automobile
    - Ways to leaks in equipment, compressor and pipes
    - Need of upgrading equipment
    - Need of installation of energy-efficient lighting
    - Need of reducing power consumption by the equipment
    - Improvement in process heating

Say

- "Like energy conservation, it is also necessary to conserve water to avoid a water crisis in the future."

Elaborate

- Elaborate the following topics:
  - Water conservation
  - Need of water conservation
  - Ways of water conservation

Explain

- Explain the need and ways of energy conservation and water conservation to avoid crisis of energy and water in future.

Field Visit

- Arrange a visit to any of the automobile industry and show them the ways implemented by them to conserve energy and water.
- With the help of field visit you could show the benefits and importance of energy and water conservation.

Summarize

- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

Unit 3.2 Waste Management

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Discuss various methods of waste management and its disposal
2. List the different categories of waste for the purpose of segregation
3. Differentiate between recyclable and non-recyclable waste
4. State the importance of using appropriate colour dustbins for different types of waste
5. Demonstrate different disposal techniques depending upon different types of waste

Resources to be Used

- Available objects such as white board, marker pens, duster
- PC with LCD Projector or Flip Chart

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

Say

- "Waste management is the collection, transport, processing, recycling or disposal of waste materials."
- "Waste may be classified as garbage, rubbish, industrial wastes, mining wastes etc."
- "Industrial waste can be of the following types: liquid waste, solid waste, organic waste, recyclable rubbish, and hazardous waste."

Ask

- What are the elements of waste management strategy?
- What are the different methods of waste management?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the board.

Explain

- Explain the following topics:
  - Different types of industrial waste
  - Different methods of waste management segregation, composting, landfill and recycling

Field Visit

Arrange a visit to any of the automobile industry and show the waste management system and how they do the segregation of waste.

Summarize

- Summarize the main points.
- Ask participants if they have any doubts.
- Share your inputs and insight to encourage the trainees.
- Wrap the session up after summarizing the key points and answering questions.

Exercise

- Instruct the trainees to open their Participant Handbook and complete the exercise given in Module 5.
- Ensure that the participants have opened the correct page for the activity.
- Give them 20 minutes to complete the exercise.
- Exercise Hints:

- Answers to Question I
  1. Using stair case
  2. c
  3. True
  4. b
  5. c
  6. b

Scan the QR Code to watch the related video

www.youtube.com/watch?v=42UHIRVwxec

Waste management and its disposal

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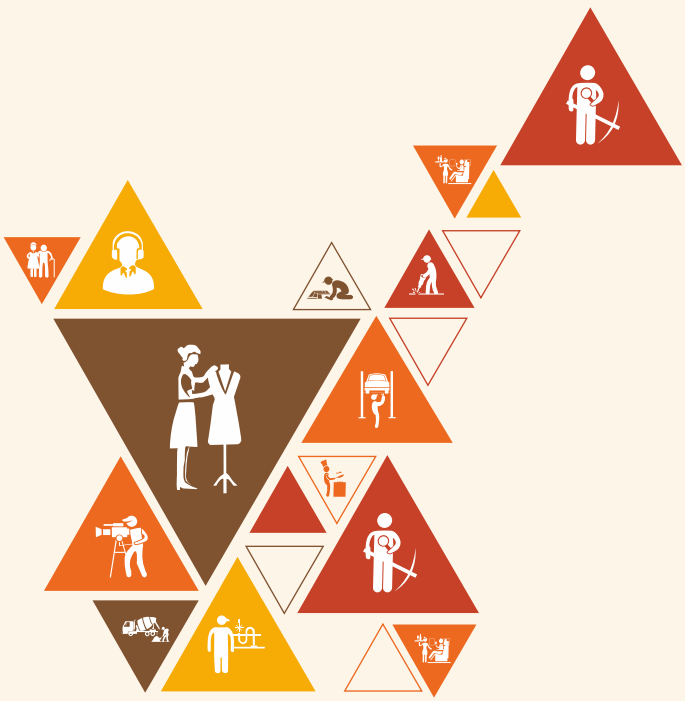
4. Perform Routine Service and Repair of an Electric Vehicle (EV)

Unit 4.1 - Prerequisites for Service and Repair of Electric Vehicles

Unit 4.2 - Prepare to Carry out Routine Service or Minor Repair

Unit 4.3 - Perform Routine Service or Minor Repair



ASC/N1449

Key Learning Outcomes

At the end of this module, trainee will be able to:

1. Identify tools and equipment required for servicing and repairing
2. Demonstrate preparatory activities for diagnosing faults and repairing of an EV
3. Demonstrate how to use different techniques for diagnosing faults and repairing the an EV

Unit 4.1 Prerequisites for Service and Repair of Electric Vehicles

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Discuss the safety precautions need to follow during servicing and repairing of an EV
2. Describe five safety rules for electrical work on HV systems before starting the work
3. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis
4. Describe organizational/professional code of ethics and standards of practice
5. Explain legal regulations that need to be taken into account for handling electric vehicles
6. List the types of tools and equipment used in different processes of an EV maintenance
7. Recall fundamental terms, laws and principles of electricity used in EV
8. Describe various symbols, units and terms used in wiring diagrams associated with electrical/electric systems/components of an EV
9. Describe various electrical and electronic signals such as electrical inputs, outputs, voltage, pulse-width modulation, digital signal (including infra-red and fiber optics) etc.
10. List various components /aggregates and the manufacturer's specifications of an EV
11. Discuss basic technology used, functioning and interconnections of various systems and components of an EV

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- "In our previous sessions, we have discussed the communication skills required for the job of an electric vehicle technician. Today, we will start with the introduction of electric vehicles."

Ask

- Are you familiar with electric vehicles?
- When was the first electric vehicle introduced?

Notes for Facilitation

- Note down the responses on the Whiteboard given by the students.

Explain

- Explain the following topics of gender sensitivity:
  - An introduction of electric vehicles
  - Evaluation of electric vehicles - refer pH fig 4.1.1
  - Electric vehicle market - refer to PH fig 4.1.2
  - Classification of EVs - refer to PH fig 4.1.3 and 4.1.4
  - Safety practices in the service and repair of electric vehicles
  - Common risk in EV workshop - refer to PH fig 4.1.5

Activity

Objective	The purpose of this activity is to identify common risks in the EVs workshop and acquire safety measures to avoid risks in the workshop
Materials required	Cards/Thick paper, pencil, pen, Whiteboard, common risks on EVs workshop

Steps / procedure	1. Divide the participants into groups of two. 2. Ask the participants to refer to common risks in the EVs workshop and develop safety measures to prevent those risks. 3. Give them enough time to come up with a list. 4. Instruct the groups to choose one representative to come to the board and present the list.
Conclusion / what has been achieved	This activity helps the participants to understand the different risks and their safety measures.

Ask

- When did the electric vehicle journey begin?
- What factors have contributed to the revival of electric vehicles?
- Which segment dominates the Indian electric vehicle market?
- What are the components of electric vehicles?
- What should you keep in mind when working with electrical systems?
- What type of wires is always orange in color?

Elaborate

- Elaborate the following topics:
  - Protection devices (Fig 4.1.6 and 4.1.7)
  - Safety measures to be taken for various work categories (Fig 4.1.9)
  - Safety measures to be taken while working on EVs end HV systems (Fig 4.1.10)
  - Health and safety measures to be taken concerning equipment and component (Fig 4.1.11)
  - Professional code of ethics and SOPs (Fig 4.1.12 to 4.1.15)
  - Documentation (Fig 4.1.16)

Ask

- What kind of surface should all electrical components be placed on?
- List three professional codes of ethics and conduct.
- What type of gloves should the technician wear when inspecting for air leakage and swelling?
- List three types of PPE used when working on HV systems.
- Who develops health and safety policies for each organization?
- What are the guiding principles that guide the organization's behavior and decisions?
- What are the benefits of SOPs?
- What are the five safety precautions to take when working on high-voltage systems?

Explain

- Explain the following topics:
  - Tools and equipment used in the maintenance, servicing, and repairing of EVs - refer to PH table 4.1.1 to 4.1.3
  - Electrical and electronic principles
  - Electron and conventional current flow - refer to PH fig 4.1.19
  - Effects of current flow Fundamental – refer to PH fig 4.1.20
  - Quantities used in electrical and electronic principles - refer to PH table 4.1.4
  - Electrical circuits and short circuits - refer to PH fig 4.1.21
  - High resistance
  - Conductors, insulators, and semiconductors - refer to PH fig 4.1.23

Activity

Objective	The purpose of this activity is to learn about different hand tools and testing equipment used in four-wheeler EVs.
Materials required	Tools/equipment chart
Steps / procedure	1. Instruct the students to form a circle. 2. Explain the tools and equipment found in four-wheeler EVs. 3. Show the tools and equipment to trainees and tell them to identify tools one by one. 4. Call each student one by one and ask him/her to identify the names of tools shown on the chart.

Steps / procedure	5. The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them identify different hand tools and testing equipment used in four-wheeler EVs.

Ask

- What are hand tools?
- What are spanners, hammers, screwdrivers, etc. used for basic operations?
- What are the most common types of spanners?
- What is used for holding hexagon bolts and nuts?
- What is used to measure the inner and outer dimensions of objects?
- What do electrical devices convert to other forms of energy like heat, light, etc?
- Electrical devices generally work on what type of AC?
- What are examples of electrical and electronic devices?
- What is a central nucleus made up of?
- What is the flow of electrons around a circuit?
- What do electrons flow from in conventional current flow?
- What is the opposite of conventional current flow?

Elaborate

- Elaborate the following topics:
  - Resistors
  - Circuit networks
  - Magnetism and electromagnetism
  - Electromagnetic and mutual induction
  - Definitions and laws related to electricity
  - Electronic components and principle used in EVs - refer to PH table 4.1.5
  - Electrical and electronic signals - refer to PH fig 4.1.33
  - Basics of EV anatomy (fig 4.1.37)

Ask

- What is used to control the current flow in a circuit?
- What type of resistance are Resistors made with?
- What types of circuits are connected end to end forming a single path for the current flow?
- What type of magnet can be created by a parallel circuit?
- What is magnetism?
- What is the name of the tiny units created by magnetic fields?
- What two poles do each magnet have?
- Which poles repel each other?
- What does the strength of the magnetic field depend on?
- What is obtained if the number of turns of wire on the secondary coil is less than the primary coil?

Explain

- Explain the following topics:
  - Battery pack – refer to PH fig 4.1.38
  - Electric motor/generator and is different types - refer PH fig 4.1.39 and 4.1.40
  - Battery management system (BMS) - refer to PH fig 4.1.45
  - Control unit and thermal management system
  - Charging unit and charging system
  - Heating, ventilating, and air conditioning (HVAC)
  - Breaks and their types - refer to PH fig 4.1.51
  - Steering system and its various parts – refer to PH fig 4.1.52 and 4.1.53

Demonstrate

- Demonstrate the types of the electric motor of four-wheeler EVs with the help of a youtube link:
  https://www.youtube.com/watch?v=6H5vtu5_SF4

Ask

- What is the most common battery technology used in EVs?
- What is the capacity of a battery given in terms of?
- What is the capacity of a battery in an EV?
- What is the typical voltage of a battery in a pure EV?
- What types of motors can be classified as EVs?
- What is a rotary electrical motor that converts DC electrical energy into mechanical energy?
- List three types of breaks.

Elaborate

- Elaborate the following topics:
  - Suspension and its various parts (fig 4.1.54, 4.1.55, and 4.1.56)
  - Drive train
  - Wheel and tires
  - Chassis and body
  - Telematics and its benefits (fig 4.1.60)
  - Multimedia and infotainment
  - Active and passive safety systems
  - Interconnection between various components in electric vehicles (fig 4.1.61)

Ask

- What are the main components of a suspension system?
- What is the name of the different parts of a steering system?
- Where are the wheels of a vehicle mounted?
- What is the outer edge of a wheel that helps to hold the tyre?
- What type of tyres are used in modern cars?
- What is the body of a vehicle attached to the chassis?
- What do Telematics systems do?
- What kind of apps allows drivers to remotely control features while they are away from the car?

Summarize

- Summarize the session by asking questions on the topics covered in the class.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 4.2 Prepare to Carry out Routine Service or Minor Repair

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Discuss the importance of no HV (High Voltage) activity is being conducted around workstation prior to commencement of work
2. Elucidate SOP for receiving vehicles, opening job card, allocation of work, invoicing, vehicle delivery, handling complaints, etc.
3. Discuss standard schedules and checklists recommended by the OEM/auto component manufacturer for servicing of electric vehicles

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- "In our previous sessions, we have discussed the prerequisites for the service and repair of electric vehicles.
- Today, we will cover the importance of no HV (High Voltage) activity being conducted around the workstation before the commencement of work, SOP for receiving vehicles, opening job cards, allocation of work, invoicing, vehicle delivery, handling complaints, etc., and standard schedules

and checklists recommended by the OEM/auto component manufacturer for servicing of electric vehicles."

Explain

- Explain the following topics of gender sensitivity:
  - Avoiding HV activity around the workstation before the commencement of work
  - Handling of HV systems
  - HV components in EV – refer PH fig 4.2.1

Elaborate

- Elaborate the following topics:
  - EV service process (fig 4.2.2)
  - Standard checklist and schedules recommended by OEM (fig 4.2.4)
  - VRLA battery service metrics (fig 4.2.5)

Activity

Objective	The purpose of this activity is to understand how to fill out the job card for repairing and servicing EVs.
Materials required	Pen and paper
Steps / procedure	• This is a skill practice activity. • Ask the participant to fill the job card. • Participants can use the sample template of job card which is available in the Participant Handbook (Fig 4.2.3). • Give 5-10 minutes to complete the activity. • Ask the participants to show their answers to the class.
Conclusion / what has been achieved	This activity will help them to learn how to fill out job cards to document the EV service record.

Ask

- What type of system should be trained to ensure the safety of the people working on the shop floor?
- Accidents like collisions may take place because of what?
- What does a high voltage HV electrical system require proper training to ensure?
- How should all high-voltage electrical systems be handled?
- What is the range of electric four-wheelers in an EV?
- List five HV components in EV.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 4.3 Perform Routine Service or Minor Repair

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Discuss various sources of information available for assessing service and repair requirements of the vehicle
2. Elaborate ways to work on the HV systems which do not require isolation, troubleshooting and replacing parts on the active HV system
3. List the activities need to perform for preparing an EV for fault identification and repairing work
4. Discuss the symptoms of technical faults, their causes and rectification procedures in EV
5. Discuss the documents to be maintained w.r.t inspection, troubleshooting and diagnosis of faults

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- "In the previous session, we learned how to prepare to carry out routine service or minor repair."
- "Today we will gain the understanding of how to perform routine service or minor repair."
- "Please concentrate on this topic and keep your questions ready, as this is of paramount importance to an electric vehicle service technician."

Explain

- Explain the following topics of gender sensitivity:
  - Steps to be taken before commencing work – refer to PH fig 4.3.1
  - Various sources of technical information – refer to PH fig 4.3.2
  - The de-energization process by manual and OEM scan tool – refer to PH fig 4.3.3 and 4.3.4
  - Maintenance of EVs – refer to PH fig 4.3.5
  - Precautions to prevent damage to other parts while repairing
  - Inspection of EV before commencing work – refer to PH fig 4.3.7, 4.3.8 and 4.5.9
  - Remove and replace various components in an EV

Demonstrate

- Demonstrate the maintenance of EVs with the help of a youtube link:

  https://www.youtube.com/watch?v=XLBr5gq4jME

Ask

- What is done to see if there are any major damages, problems, or issues with the vehicle?
- What is a manual de-energization process performed only if the OEM-specific diagnostic tool is not available?
- What are metal parts prone to?
- What is the first precaution to be taken to check the procedures to be followed?
- What type of switch can affect other systems if it gets disconnected by mistake?

Elaborate

- Elaborate the following topics:
  - After the completion of work (fig 4.3.18)
  - Re-energizing the EV after completing of work (fig 4.3.19)
  - Documenting results and recommendations (fig 4.3.20)
  - Roadside assistance repairs and recovery (fig 4.3.21 and 4.3.22)
  - Assist EVSLT in the diagnosis of faults

Ask

- What should be updated for the seniors at work?
- Where are manufacturers of EVs available for free?
- What should EVSLT help in diagnosing a fault?
- What should EVSLT help in diagnosing a fault?
- What are some of the problems associated with a vehicle?
- List five documenting results and recommendations.

Explain

- Explain the following topics of gender sensitivity:
  - Steps to the diagnosis of faults and check vehicle performance – refer to PH fig 4.3.23 and 4.3.24
  - Visual inspection of EV for diagnosis of faults
  - Types of faults – refer to PH fig 4.3.26 and 4.3.27
  - Software issues – refer to PH table 4.3.1
  - Test ride after completion of work – refer to PH fig 4.3.28

Activity

Objective	The purpose of this activity is to understand how to fill out the EV inspection checklist for inspecting EVs.
Materials required	Pen and paper
Steps / procedure	• This is a skill practice activity. • Ask the participant to fill out the EV inspection checklist for inspecting EVs. • Participants can use the sample template of the inspection checklist which is available in the Participant Handbook (Fig 4.3.25). • Give 5-10 minutes to complete the activity. • Ask the participants to show their answers to the class.
Conclusion / what has been achieved	This activity will help them to learn how to fill out an inspection checklist of EVs.

Ask

- What does a Brake test use to check the performance of brakes?
- What test is used to check for the alignment of headlights and the functioning of indicators?
- What is displayed when a fault occurs in a vehicle on the display panel?
- How many types of faults?
- What are the steps to carry out a test ride after completion of work?

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Exercise

- Instruct the class to open their Participant Handbook and complete the exercise given in Module 4.
- Ensure that the participants have opened the correct page for the exercise.
- Give the class 20 minutes to complete the exercise.
- Exercise Hints:
  - Answers to Question I
    1. Hint - Refer to section 5.3.7
    2. Hint - Refer to section 5.1.2

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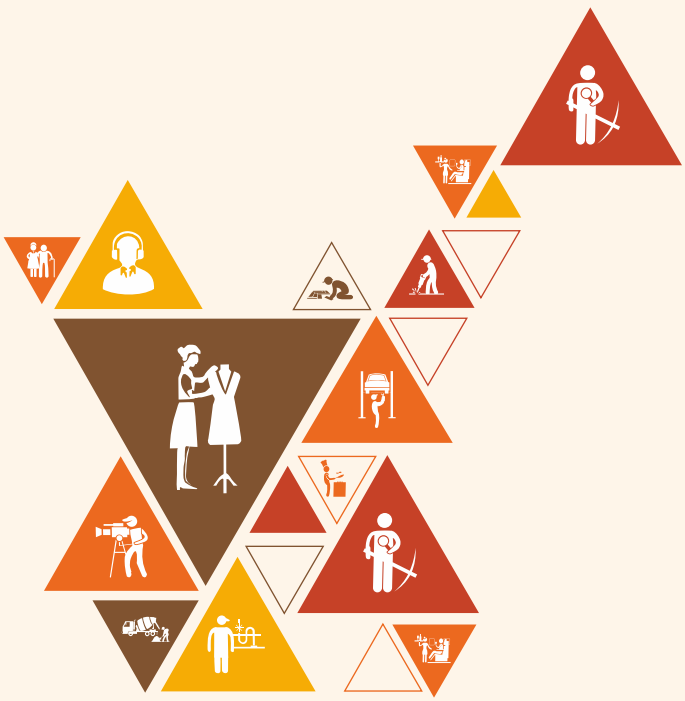
5. Perform Routine Service and Repairs of a Four Wheeler EV

Unit 5.1 - Basics of a 4-Wheeler EV

Unit 5.2 - Routine Service and Repairs of a 4-Wheeler EV



ASC/N1450

Key Learning Outcomes

At the end of this module, trainee will be able to:

1. Demonstrate preparatory activities for diagnosing faults and repairing of a four wheeler EV
2. Demonstrate how to use different techniques for diagnosing faults and repairing the four wheeler vehicle

Unit 5.1 Basics of a Four-Wheeler EV

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List various components /aggregates and the manufacturer's specifications of a four wheeler EV
2. Discuss basic technology used, functioning and interconnections of various systems and components of a four wheeler EV

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- “In the last unit, we have covered how to perform routine service or minor repair”.
- “In this session, we discuss various components /aggregates and the manufacturer's specifications of a four-wheeler EV and basic technology used, functioning and interconnections of various systems and components of a four-wheeler EV.”

Explain

- Explain the following topics:
  - Components of electric and hybrid four-wheeler vehicles.
  - Main mechanical and electric components in electric and hybrid four-wheeler vehicles – refer PH Table.5.1.1 and 5.1.2

Demonstrate

- Demonstrate the working of an electric car, its parts & functions video for better understanding. Refer to the following link:

  https://www.youtube.com/watch?v=tJfERzrG-D8

Activity

Objective	The purpose of this activity is to understand the EV's parts and subsystems.
Materials required	Pen, Paper
Steps / procedure	• This is a skill practice activity. • Ask the participant to draw the block diagram of a pure-electric four-wheeler vehicle subsystem in the notebook. • Participants can take the help from Participant Handbook (refer to Fig 5.1.2). • Give 5-10 minutes to complete the activity. • Ask the participants to show their answers to the class.
Conclusion / what has been achieved	This activity will help them to learn EVs' parts and their subsystems.

Elaborate

- Elaborate on the following basic technology of electric four-wheeler vehicles:
  - Pure electric four-wheeler vehicle (Fig 5.1.1 and 5.1.2)
  - Hybrid four-wheeler vehicle (Fig 5.1.3 to 5.1.6)
  - Plug-in hybrid four-wheeler vehicle (Fig 5.1.7 and 5.1.8)
  - Fuel cell electric four-wheeler vehicle (Fig 5.1.9 and 5.1.10)

Demonstrate

Demonstrate the difference between Hybrid vs. Electric vs. Plug-In Hybrid for better understanding. Refer to the following link:

https://www.youtube.com/watch?v=o6lPDOf-wEs

Ask

- Can you name three main mechanical components in electric and hybrid four-wheeler vehicles?
- Define components of electric and hybrid four-wheeler vehicles.
- What is the difference between the plug-in and hybrid four-wheeler vehicles?
- Define block diagram of parallel hybrid four-wheeler vehicle subsystems.
- Define the basic technology of fuel-cell electric four-wheeler vehicles.

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 5.2 Routine Service and Repairs of a Four-Wheeler EV

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List the types of tools and equipment used in different processes of a four wheeler EV maintenance
2. List the activities need to perform for preparing a four wheeler EV for fault identification and repairing work
3. Discuss the symptoms of technical faults, their causes, and rectification procedures in a four-wheeler EV
4. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Do

- Begin the session with a brief recapitulation of the previous session.

Say

- "In the last unit, we have covered the basic technology of electric four-wheeler vehicles."
- "Now, we will try to understand how to perform routine service and repairs of a four-wheeler EV."
- "Let us study in detail."

- "Before taking up any practical work on an EV, all rules and regulations related to safety and security have to be followed. The job card has to be obtained and the work that needs to be done has to be analyzed and understood."

Explain

- Explain the following topics:
  - Preparation to perform routine service and repairs on a four-wheeler EV
  - Guidelines for service/repair of four-Wheeler EVs - refer PH fig 5.2.1
  - Tools and equipment used in the maintenance, servicing, and repairing of EVs with the help of Table.5.2.1
  - Specification of the vehicle with the help of 5.2.2
  - Different types of electric vehicles

Activity

Objective	The purpose of this activity is to learn about different tools and equipment used in the maintenance, servicing, and repairing of EVs.
Materials required	Tools/equipment chart
Steps / procedure	1. Instruct the students to form a circle. 2. Explain the tools and equipment which are used for repairing and maintenance of four-wheeler EVs. 3. Show the tools and equipment to trainees and tell them to identify tools one by one. 4. Call each student one by one and ask him/her to identify the names of tools shown on the chart. 5. The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them identify different tools and types of equipment used in four-wheeler EVs.

Ask

- Define measuring equipment.
- What is the difference between pressure gauges and workshop equipment?
- Can you name any two guidelines for the service/ repair of four-wheeler EVs?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Elaborate

- Elaborate on the following basic technology of electric four-wheeler vehicles:
  - Visual inspection of four-wheeler EVs (Table 5.2.2)
  - Identification of faults/troubleshooting (Fig 5.2.3)
  - Steps to follow while using the DTC check method (Fig5.2.4)
  - Symptom simulation test to find out faults
  - Warning lights in four-wheeler EVs (Fig 5.2.8)

Demonstrate

- Demonstrate the different inspections to be carried out after manufacturing a vehicle with the help of a youtube link:

  https://www.youtube.com/watch?v=6gJLaou9NkU

Activity

Objective	The purpose of this activity is to learn about warning lights for EVS and their importance.
Materials required	Warning lights chart
Steps / procedure	1. Divide the participants into groups of 4-5. 2. Ask the students to assemble. 3. Explain the warning lights and the types of warning lights.

Steps / procedure	4. Show the warning light chart to trainees and tell them to identify warning lights one by one. 5. Call each student one by one and ask him/her to identify the name of the warning light showing on the chart. 6. The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them to identify different warning lights for EVs.

Ask

- Define any two parts of the visual inspection of four-wheeler EVs.
- List down the first three steps of a flowchart for the identification of faults.
- Can you name any four steps to follow while using the DTC check method?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Elaborate

- Elaborate on the following basic technology of electric four-wheeler vehicles:
  - Visual inspection of four-wheeler EVs (Table 5.2.2)
  - Identification of faults/troubleshooting (Fig 5.2.3)
  - Steps to follow while using the DTC check method (Fig5.2.4)
  - Symptom simulation test to find out faults
  - Warning lights in four-wheeler EVs (Fig 5.2.8)

Activity

Objective	The purpose of this activity is to understand how to fill out the record order form for EVs.
Materials required	Pen and paper
Steps / procedure	• This is a skill practice activity. • Ask the participants to use the sample template to document the servicing and repairing work for EVs which is available in the Participant Handbook (Fig 5.2.10). • Give 5-10 minutes to complete the activity. • Ask the participants to show their answers to the class.
Conclusion / what has been achieved	This activity will help them to learn how to carry out service or repair work for EVs.

Ask

- Define problem symptoms chart.
- What is the purpose of the following warning lights charging indicator, blinking, and state of charge (SoC)?
- Can you name any two motor compartments of four-wheeler EVs?
- Define health and safety measures.
- List down the steps to carry out vehicle inspection of four-wheeler EVs
- Can you name any two common faults observed in four-wheeler EVs?
- What is the difference between a suspension system and a brake system?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Exercise

- Instruct the trainees to open their Participant Handbook and complete the exercise given in Module 5.
- Ensure that the participants have opened the correct page for the exercise.
- Give the class 20 minutes to complete the exercise.
- Exercise Hints:
  - Answers to Question I
    1. Hint - Refer to section 5.1.2
    2. Hint - Refer to section 5.2.4

www.youtube.com/watch?v=XtWvIEDQXLA
Disconnecting High Voltage in Electric/Hybrid vehicles

www.youtube.com/watch?v=nqD32G6gUQI
Insulation Testing on Hybrid Vehicles

www.youtube.com/watch?v=t_jDdsC5UBc
Working on high voltage vehicles

www.youtube.com/watch?v=FeK_ZpkIxn8
What does an EV Service look like?

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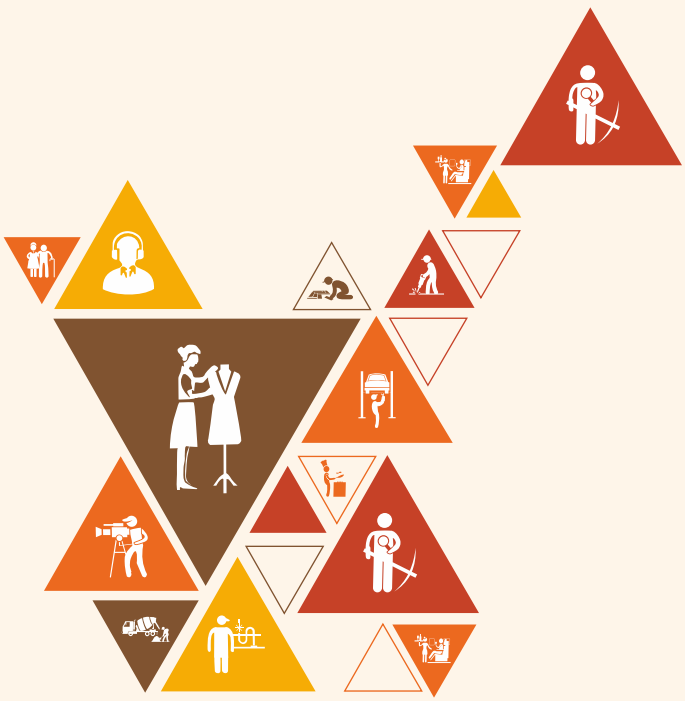
6. Perform Routine Service and Repairs of a 2/3-Wheeler EV

Unit 6.1 - Basics of Electric 2/3-Wheeler Vehicle

Unit 6.2 - Routine Service and Repairs on a 2/3-Wheeler EV



ASC/N1451

Key Learning Outcomes

At the end of this module, trainee will be able to:

1. Demonstrate preparatory activities for diagnosing faults and repairing of a 2/3 wheeler EV
2. Demonstrate how to use different techniques for diagnosing faults and repairing the 2/3 wheeler vehicle

Unit 6.1 Basics of 2/3-Wheeler EV

Unit Objectives

At the end of this unit, the trainee will be able to:

1. Demonstrate preparatory activities for diagnosing faults and repairing of a 2/3 wheeler EV
2. Demonstrate how to use different techniques for diagnosing faults and repairing the 2/3 wheeler vehicle

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Say

- "In the last module, we have covered how to perform routine service or minor repair."
- "Now, we will try to understand the preparatory activities for diagnosing faults and repairing a 2/3 wheeler EV and how to use different techniques for diagnosing faults and repairing the 2/3 wheeler vehicle."
- "Let's start this session by understanding the basics of 2/3-wheeler EVs anatomy."
- "Electric 2/3-wheelers are plug-in electric vehicles with two or three wheels. The electricity is stored in a rechargeable battery that drives one or more motors. Most of these EVs are powered by Lithium-ion batteries and they can be charged by plugging into ordinary wall outlets."

Explain

- Explain the following topics:
  - Basics of 2/3-wheeler EVs anatomy
  - Main mechanical components in a 2/3-wheeler EV – refer to PH fig 6.1.1
  - Main electrical components in a 2/3-wheeler EV – refer to PH table 6.1.1
  - Basic technology of 2/3-wheeler EVs - – refer to PH fig 6.1.12
  - Interconnections of various components in 2/3-wheeler EVs – refer to PH fig 6.1.13 to 6.1.16

Activity

Objective	The purpose of this activity is to learn about the different main mechanical components in a 2/3-Wheeler EV.
Materials required	Mechanical components chart
Steps / procedure	1. Instruct the students to form a circle. 2. Explain the mechanical components in a 2/3-Wheeler EV. 3. Show the components to trainees and tell them to identify components one by one. 4. Call each student one by one and ask him/her to identify the names of tools shown on the chart. 5. The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them identify different main mechanical components in a 2/3-Wheeler EV.

Ask

- What is the capacity of a rechargeable battery?
- What kind of batteries power the majority of EVs?
- What does a 2 3-Wheeler EV's chassis bear?
- What exactly is the suspension system?
- How does the rear wheel suspension system aid the driver in vehicle control and turning?
- What kind of rod is used to operate drum brakes on two-wheelers and three-wheelers?
- Where are a vehicle's wheels mounted?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 6.2 Routine Service and Repairs on a 2/3-Wheeler EV

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List the types of tools and equipment used in different processes of a 2/3 wheeler EV maintenance
2. List the activities need to perform for preparing a 2/3 wheeler EV for fault identification and repairing work
3. Discuss the symptoms of technical faults, their causes and rectification procedures in a 2/3 wheeler EV
4. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Say

- "In the last session, we discussed the preparatory activities for diagnosing faults and repairing a 2/3 wheeler EV and how to use different techniques for diagnosing faults and repairing the 2/3 wheeler vehicle."
- “Today, we will cover routine service and repairs on a 2/3-wheeler EV.”
- “Let's start today's session, with how to prepare to perform routine service and repairs on a 2/3-wheeler EV.”
- “Before taking up any practical work on an EV, all rules and regulations related to safety and security must be followed. The job card must be obtained and the work that needs to be done has to be analyzed and understood. All the technical data required should be obtained from OEM manuals

and the Lead Technician.."

- "Let us study in detail."

Explain

- Explain the following topics:
  - Prepare to perform routine service and repairs on a 2/3-wheeler EV
  - Guidelines for service/repair of 2/3 wheeler EVs – refer to PH fig 6.2.1
  - Specifications of the vehicle – refer to PH fig 6.2.2 to 6.2.6
  - Various tools and equipment used in the maintenance, servicing, and repairing of EVs – refer to PH table 6.2.1
  - Visual inspection of 2/3-wheeler EVs – refer to PH table 6.2,2
  - Steps to carry out inspection – refer to PH fig 6.2.7

Activity

Objective	The purpose of this activity is to learn about different tools, measuring devices, and workshop equipment used in 2/3-wheeler EVs.
Materials required	Tools/equipment chart
Steps / procedure	1. Instruct the students to form a circle. 2. Explain the tools and equipment used for 2/3-wheeler EVs. 3. Show the tools and equipment to trainees and tell them to identify tools one by one. 4. Call each student one by one and ask him/her to identify the names of tools shown on the chart. 5. The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them identify different tools, measuring devices, and workshop equipment used in 2/3-wheeler EVs.

Ask

- What must be followed before taking up any practical work on an EV?
- What must be obtained before taking up practical work on an EV?
- What can be done by training workers in safe work practices?
- What is used to provide grip while applying torque to nuts and bolts?
- What are the most common types of spanners?
- Which tool is used to remove and install screws?
- What are used to hold wires, bend wires, loops, and attach wires?
- Where are bearing pullers used to remove components like gears, pulleys, bearings, etc.?
- What are Multimeters also known as?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Elaborate

- Elaborate on the following basic technology of electric four-wheeler vehicles:
  - Perform routine service and repairs on a 2/3-wheeler EV
  - Dismantle all the external parts of a 2/3-wheeler vehicle
  - Diagnosis of faults in a 2/3-wheeler EV (fig 6.2.8)
  - Causes and remedies for some important faults (table 6.2.3)
  - Post routine service and repairs on a 2/3-wheeler EV – refer PH fig 6.2.9
  - Documentation
  - Health and safety measures

Activity

Objective	The purpose of this activity is to understand how to fill out the record order form for 2/3 wheeler EVs.
Materials required	Pen and paper

Steps / procedure	• This is a skill practice activity. • Ask the participants to use the sample template to document the servicing and repairing work for 2/3 wheeler EVs which is available in the Participant Handbook (Fig 8.2.14). • Give 5-10 minutes to complete the activity. • Ask the participants to show their answers to the class.
Conclusion / what has been achieved	This activity will help them to learn how to carry out service or repair work for 2/3 wheeler EVs.

Ask

- What should be made after inspecting the vehicle?
- What should the service technician wear while performing routine service and repairs on a 2/3-wheeler EV?
- What is the first step to performing servicing and repair work?
- What does the battery compartment lock cable remove?
- What is the name of the part that should be removed after inspecting the vehicle?
- Who should analyze the reason for faults or failure?
- What are the most common reasons for a part failure?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Exercise

- Instruct the trainees to open their Participant Handbook and complete the exercise given in Module 6.
- Ensure that the participants have opened the correct page for the exercise.
- Give the class 20 minutes to complete the exercise.
- Exercise Hints:
  - Answers to Question I
    1. Hint - Refer to section 6.1.2
    2. Hint -Refer to section 6.2.4

Scan the QR Code to watch the related video

www.youtube.com/watch?v=j4cqOHUV22I&t=509s

How To Service & Maintain Tunwal Bikes

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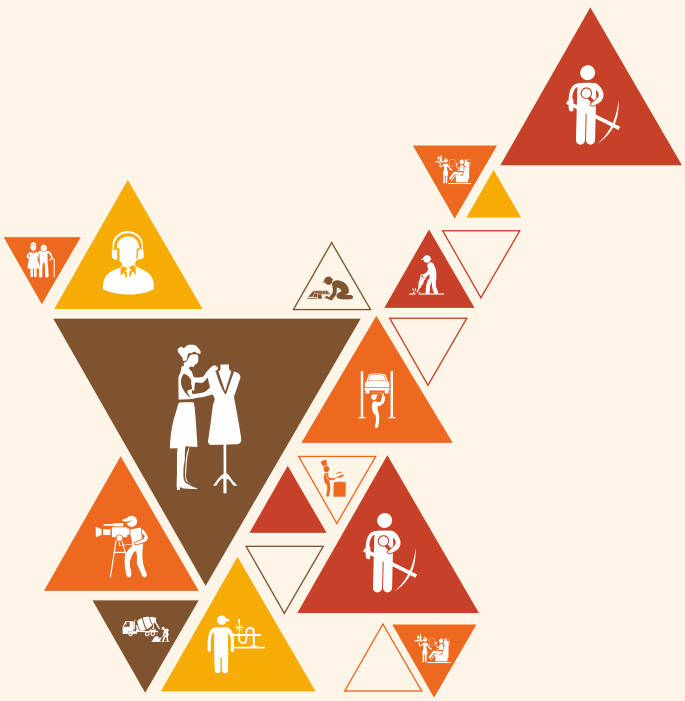
7. Perform Routine Service and Repairs of a Truck/Bus Electric Vehicle

Unit 7.1 - Basics of Truck/Bus Electric Vehicle

Unit 7.2 - Routine Service and Repairs on a Truck/Bus Electric Vehicle



ASC/N1452

Key Learning Outcomes

At the end of this module, trainee will be able to:

1. Demonstrate preparatory activities for diagnosing faults and repairing of a truck/bus electric vehicle
2. Demonstrate how to use different techniques for diagnosing faults and repairing the truck/bus electric vehicle

Unit 7.1 Basics of Truck/Bus Electric Vehicle

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List various components /aggregates and the manufacturer's specifications of a truck/bus EV
2. Discuss basic technology used, functioning and interconnections of various systems and components of a truck/bus EV

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Say

- "In the last unit, we have covered the routine service and repairs on a 2/3-wheeler EV."
- "In this session, we discuss various components /aggregates and the manufacturer's specifications of a truck/bus EV and basic technology used, functioning and interconnections of various systems and components of a truck/bus EV."

Explain

- Explain the following topics:
  - Basics of truck/bus EV
  - Main mechanical components in an EV truck/bus – refer to PH fig 7.1.1
  - Acronyms used in EV truck/bus - refer to PH table 7.1.1

Activity

Objective	The purpose of this activity is to learn about the different main mechanical components in an EV Truck/Bus.
Materials required	Mechanical components chart
Steps / procedure	1. Instruct the students to form a circle. 2. Explain the mechanical components in an EV Truck/Bus. 3. Show the components to trainees and tell them to identify components one by one. 4. Call each student one by one and ask him/her to identify the names of tools shown on the chart. 5. The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them identify different main mechanical components in an EV Truck/Bus.

Elaborate

- Elaborate on the following basic technology of electric four-wheeler vehicles:
  - Main components of EV truck/bus – refer to PH table 7.1.2
  - The basic technology of truck/bus EV - refer to PH fig 7.1.11 and 7.1.12
  - Interconnections of various components in truck/bus EV - refer PH fig 7.1.13 and 7.1.14

Activity

Objective	The purpose of this activity is to understand the various components of truck/bus EVs.
Materials required	Pen, Paper
Steps / procedure	• This is a skill practice activity. • Ask the participant to draw the block diagram of a hybrid electric truck/bus in the notebook. • Participants can take the help from Participant Handbook (refer to Fig 7.1.13). • Give 5-10 minutes to complete the activity. • Ask the participants to recognize the respective truck/bus EVs components.

Steps / procedure	• Ask the participants to recognize the respective truck/bus EVs components. • Appreciate the participants who give correct answers. • The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them to learn the components of truck/bus EVs.

Ask

- What is the minimum voltage required to run an electric truck or bus?
- What is the name of the main mechanical components in an EV?
- What are the main components of the suspension system?
- What types of brakes are widely used in trucks and buses?
- What is used in air brakes?
- Where are the tyres mounted?
- List five main electrical components in an EV truck/bus.
- What is the full form of ECU and TM?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Unit 7.2 Routine Service and Repairs on a Truck/Bus EV

Unit Objectives

At the end of this unit, the trainee will be able to:

1. List the types of tools and equipment used in different processes of a truck/bus EV maintenance
2. List the activities need to perform for preparing a truck/bus EV for fault identification and repairing work
3. Discuss the symptoms of technical faults, their causes and rectification procedures in a truck/bus EV
4. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis

Resources to be Used

- Participant Handbooks
- Paper, Pens, Notepad, Chart paper
- Computer, Projector
- Whiteboard, Marker, and Duster

Notes for Facilitation

- Enter the class ten minutes before the session begins.
- Welcome and greet the students.
- Take the daily attendance.
- Maintain the record of assessment scores.

Say

- "In the last unit, we have covered various components /aggregates and the manufacturer's specifications of a truck/bus EV and basic technology used, functioning and interconnections of various systems and components of a truck/bus EV."
- "Now, we will try to understand how to perform routine service and repairs on a truck/bus EV."

Explain

- Explain the following topics:
  - Prepare to perform routine service and repairs on truck/bus EV
  - Guidelines for service/repair of truck/bus EV – refer to PH fig 7.2.1
  - Specifications of the vehicle – refer to PH fig 7.2.2 to 7.2.6
  - Various tools and equipment used in the maintenance, servicing, and repairing of EVs – refer to PH table 7.2.3
  - Visual inspection of truck/bus EVs – refer to PH table 7.2.4
  - Inspect truck/bus EV – refer to PH fig 7.2.11

Activity

Objective	The purpose of this activity is to learn about different tools, measuring devices, and workshop equipment used in truck/bus EVs.
Materials required	Tools/equipment chart
Steps / procedure	• Instruct the students to form a circle. • Explain the tools and equipment used for truck/bus EVs. • Show the tools and equipment to trainees and tell them to identify tools one by one. • Call each student one by one and ask him/her to identify the names of tools shown on the chart. • The Facilitator will sum up the activity within 20 minutes.
Conclusion / what has been achieved	This activity will help them identify different tools, measuring devices, and workshop equipment used in truck/bus EVs.

Ask

- What must be followed before taking up any practical work on an EV?
- What must be obtained before taking up practical work on an EV?
- What can be done by training workers in safe work practices?
- What are the standard test conditions for a CMVR?
- What is used to provide grip while applying torque to nuts and bolts?
- What are the most common types of spanners?

- Which tool is used to remove and install screws?
- What are used to hold wires, bend wires, loops, and attach wires?

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Elaborate

- Elaborate on the following basic technology of electric four-wheeler vehicles:
  - Preventive maintenance of truck/bus EV
  - Perform routine service and repairs on a 2/3-wheeler EV
  - Dismantle all the external parts of a 2/3-wheeler vehicle (fig 7.2.10)
  - Diagnosis of faults in a 2/3-wheeler EV (fig 7.2.16)

Ask

- How long did the bearings be lubricated after?
- What are the components to be checked during monthly preventive maintenance?
- What is the DC-DC converter?
- What type of cable should be checked once every six months?
- What type of fluid should be checked once every six months?
- What is an auxiliary power distribution box?
- What is the first step to performing servicing and repair work?
- Who should analyse the reason for faults or failure?

Explain

- Explain the following topics:
  - Causes and remedies for some important faults (table 7.2.5)
  - Post routine service and repairs on truck/bus EV (7.2.17)

- Documentation
- Health and safety measures

Ask

- What type of nuts are used in a Truck Bus EV?
- What is used to test a vehicle?
- How does Documentation help in keeping track of all the work carried out?
- What is the cause and remedy of wheels vibrating

Notes for Facilitation

- Allow one or two students to answer the questions.
- Write down the correct answer on the whiteboard.

Summarize

- Summarize the session.
- Prepare a list of participants' doubts if they have any. Encourage them to ask questions.
- Answer their queries.

Exercise

- Instruct the trainees to open their Participant Handbook and complete the exercise given in Module 7.
- Ensure that the participants have opened the correct page for the exercise.
- Give the class 20 minutes to complete the exercise.
- Exercise Hints:
  - Answers to Question I
    1. Hint - Refer to section 7.1.2
    2. Hint -Refer to section 7.2.4

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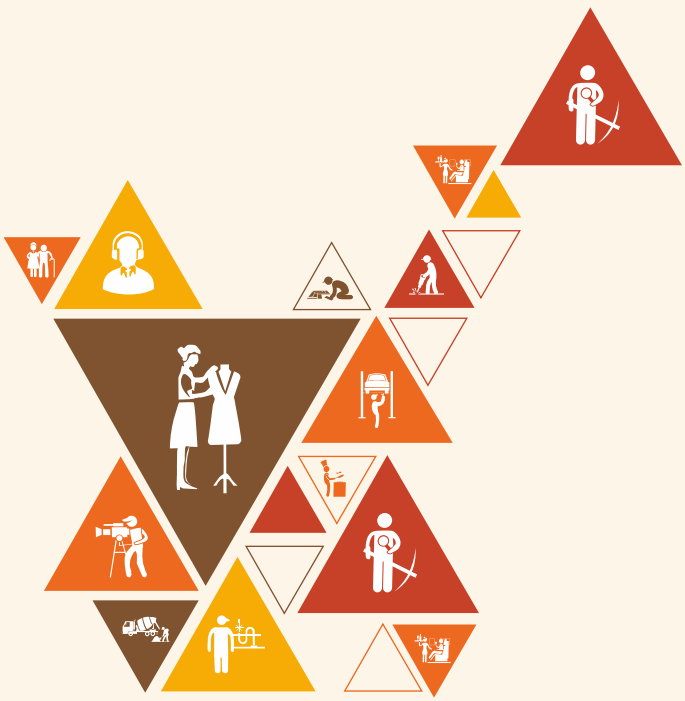
8. Employability and Entreprenuership Skills

https://eskillindia.org/NewEmployability



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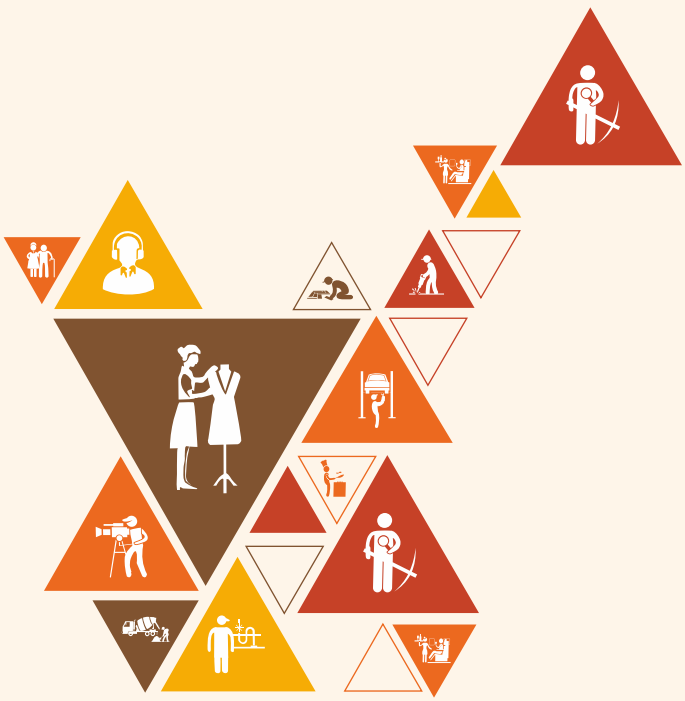
9. Annexures

Annexure I : QR code

Annexure II : Training Delivery Plan

Annexure III : Assessment Criteria



Annexure - QR Code

Serial No.	Module Name	Unit Number	Topic Name	Page No.	URL	QR Code
1	Introduction to The Role of an Electric Vehicle Service Technician	Unit1.1 - Role and Responsibilities of an EVST	Introduction to Automotive Industry	15	www.youtube.com/watch?v=Pou7qc_BzU8	
2	Work Effectively and Efficiently	Unit 2.1 - Safe Working Practices	Workplace etiquettes	47	www.youtube.com/watch?v=88PGRvB-Scs	
		Unit 2.3 - Workplace Quality Standards	Effective communication at workplace		www.youtube.com/watch?v=QGHBq5OEsBM	
3.	Optimize Resource Utilization	Unit 3.2 - Waste Management	Waste management and its disposal	55	www.youtube.com/watch?v=42UHIRVwxec	
4.	Perform routine service and repairs of a four wheeler EV	Unit 5.1 - Prerequisites for Service and Repair of Electric Vehicles	Disconnecting High Voltage in Electric/Hybrid vehicles	83	www.youtube.com/watch?v=XtWvIEDQXLA	

Annexure - QR Code

Serial No.	Module Name	Unit Number	Topic Name	Page No.	URL	QR Code
5	Perform routine service and repairs of a four wheeler EV	Unit5.2 - Prepare to Carry out Routine Service or Minor Repair	Insulation Testing on Hybrid Vehicles	83	www.youtube.com/watch?v=nqD32G6gUQI	
		Unit5.2 - Prepare to Carry out Routine Service or Minor Repair	Working on high voltage vehicles		www.youtube.com/watch?v=t_jDdsC5UBc	
		Unit5.3 - Perform Routine Service or Minor Repair	What does an EV Service look like?		www.youtube.com/watch?v=FeK_ZpkIxn8	
6	Perform routine service and repairs of a 2/3 wheeler EV	Unit6.2 - Routine Service and Repairs on a 2/3-Wheeler EV	How To Service & Maintain Tunwal Bikes	93	www.youtube.com/watch?v=j4cqOHUV22I&t=509s	
7	Employability and Entreprenuership Skills		Employability and Entrepreneurship Skills	103	eskillindia.org/NewEmployability	

Annexure - QR Code

Serial No.	Module Name	Unit Number	Topic Name	Page No.	URL	QR Code
			Effective communication		www.youtube.com/watch?v=I6IAhXM-vps	
			Gender sensitivity in workplace		www.youtube.com/watch?v=SsqGxFx9-QE	

Annexure II

Training Delivery Plan

Training Delivery Plan			
Program Name	**Electric Vehicle Service Technician**		
Qualification Pack, Name and Reference ID	Electric Vehicle Service technician ASC/Q1429, v1.0		
Version No.	1.0	**Version Update Date**	30/12/2021
Pre-requisites to Training (If any)	Driving License and Basic Computer Skills		
Training Outcome	**After completing this programme, the trainee will be able to:** 1. Work effectively and efficiently as per schedules and timelines. 2. Implement safety practices. 3. Optimize the use of resources. 4. Communicate effectively using interpersonal skills. 5. Schedule service appointments with customers. 6. Deliver a sales pitch and close sales leads for individual/retail vehicles.		

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
1.	Introduction to the role of an Electric Vehicle Service Technician	Role and Responsibilities of an EVST	1. List the role and responsibilities of an Electric Vehicle Service Technician 2. Discuss the job opportunities for an Electric Vehicle Service Technician in the automobile industry 3. Discuss the job opportunities of an Electric Vehicle Maintenance Technician - Electrical	N/A Bridge Module	Group Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 0
		EV Manufacturing Market in India	1. Explain about Indian EV manufacturing market	N/A	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 0
		EV- Original Equipment Manufacturers	1. List various types of EVs and different products/ models manufactured by Original Equipment Manufacturers (OEMs)	N/A	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 0
		Workshop Structure	1. Illustrate the workshop structure 2. Describe role and responsibilities of different people in the workshop	N/A	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 0

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Maintenance Standards	1. Discuss the maintenance standards and procedures followed in organization 2. Identify the standard checklists and schedules recommended by OEM	N/A	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 0
2.	Work Effectively and Efficiently	Safe Working Practices	1.Elaborate importance of safety at workplace 2. List the general safely rules for the employee 3. List the standard emergency guidelines and reporting procedures 4. Display the correct way of wearing and removing PPE such as face masks, hand gloves, face shields, PPE suits, etc.	ASC/N9801	Interactive Lecture in the Class, Team Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 5
		Emergencies, Rescue and First Aid Procedures	1. Discuss the causes of the fire on the shop floor 2. Demonstrate steps of emergency procedures 3. Demonstrate steps to evacuate in an emergency situation 4. Demonstrate basic first aid techniques		Interactive Lecture in the Class, Team Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 5

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Workplace Quality Standards	1. State the methods to keep the work area clean and tidy 2. Apply basic housekeeping practices to ensure that the work area is clean, such as mopping spills and leaks, cleaning grease stains etc 3. Perform routine cleaning of tools, equipment and machines 4. Discuss how to complete the given work within the stipulated time period 5. Discuss ways to maintain a proper balance between team and individual goals				T: 3 P: 5
		Health and Hygiene During an Epidemic and Pandemic	1. Discuss epidemics and pandemics and their impact on society at large 2. Elaborate the significance of following prescribed rules and guidelines during an epidemic or a pandemic 3. Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol-based hand sanitizers		Interactive Lecture in the Class, Team Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 3 P: 5

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
			4. Show how to sanitize and disinfect one's work area regularly 5. Demonstrate the correct way of washing hands using soap and water 6. Demonstrate the correct way of sanitizing hands 7. Demonstrate appropriate social and behavioural etiquette (greeting and meeting people, spitting/ coughing/sneezing, etc.) 8. Discuss the ways of dealing with stress and anxiety during an epidemic or a pandemic				
3.	Optimize resource utilization	Resource Optimization	1. List the ways to optimize usage of resources	ASC/ N9801	Interactive Lecture in the Class, Team Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 3
		Resource Optimization (Contd.)	2. Employ ways for efficient utilization of material and water				T: 2 P: 3
		Resource Optimization (Contd.)	3. Use energy efficient electrical appliances and devices to ensure energy conservation				T: 2 P: 3

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Waste Management	1. Discuss various methods of waste management and its disposal 2. List the different categories of waste for the purpose of segregation		Interactive Lecture in the Class, Team Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 3
		Waste Management (Contd.)	3. Differentiate between recyclable and non-recyclable waste 4. State the importance of using appropriate colour dustbins for different types of waste				T: 2 P: 3
		Waste Management (Contd.)	5. Demonstrate different disposal techniques depending upon different types of waste		Interactive Lecture in the Class, Team Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 3
4.	Employability Skills (60 hours)	Introduction to Employability Skills	1. Discuss the importance of Employability Skills in meeting the job requirements	DGT/VSQ/N0102	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 0.5 P: 1.0

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Constitutional values - Citizenship	1. Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 0.5 P: 1.0
		Becoming a Professional in the 21st Century	1. Discuss 21st century skills. 2. Describe the benefits of continuous learning		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1.0 P: 1.5
		Basic English Skills	1. Describe basic communication skills		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Basic English Skills (Contd..)	2. Discuss ways to read and interpret text written in basic English		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 0 P: 2

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Career Development & Goal Setting	1. Discuss need of career development plan		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 1
		Communication Skills	1. Explain the importance of active listening for effective communication 2. Discuss the significance of working collaboratively with others in a team		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 3
		Diversity & Inclusion	1. Discuss the significance of reporting sexual harassment issues in time		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 1.5
		Financial and Legal Literacy	1. List the common components of salary and compute income, expenditure, taxes, investments etc. 2. Discuss the legal rights, laws, and aids		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 3

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Essential Digital Skills	1. Describe the role of digital technology in today's life		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 2
		Essential Digital Skills (Contd…)	2. Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 0 P: 2
		Entrepreneurship	1. Explain the types of entrepreneurship and enterprises 2. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan 3. Describe the 4Ps of Marketing- Product, Price, Place and Promotion and apply them as per requirement		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 3 P: 4

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Customer Service	1. Explain the significance of identifying customer needs and addressing them. 2. Explain the significance of identifying customer needs and responding to them in a professional manner 3. Discuss the significance of maintaining hygiene and dressing appropriately.		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 3
		Getting ready for apprenticeship & Jobs	1. Discuss the significance of maintaining hygiene and confidence during an interview 2. List the steps for searching and registering for apprenticeship opportunities		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 3 P: 5
5.	Perform routine service and repair of an Electric Vehicle (EV)	Prerequisites for Service and Repair of Electric Vehicles	1. Discuss the safety precautions need to follow during servicing and repairing of an EV 2. Describe five safety rules for electrical work on HV systems before starting the work	ASC/N 1449	Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T:4 P:4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)					T:0 P:8

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	3. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 2
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	4. Describe organizational/professional code of ethics and standards of practice		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T:4 P:4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	5. Explain legal regulations that need to be taken into account for handling electric vehicles		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T:4 P:4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	6. List the types of tools and equipment used in different processes of an EV maintenance		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T:4 P:4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)					T:4 P:4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	7. Recall fundamental terms, laws and principles of electricity used in EV		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)					T: 4 P: 4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	8. Describe various symbols, units and terms used in wiring diagrams associated with electrical/electric systems/components of an EV		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)			Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 4
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	9. Describe various electrical and electronic signals such as electrical inputs, outputs, voltage, pulse-width modulation, digital signal (including infra-red and fiber optics) etc.		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 6
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	10. List various components /aggregates and the manufacturer's specifications of an EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 3 P: 5

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)					T: 0 P: 8
		Prerequisites for Service and Repair of Electric					T: 0 P: 6
		Prerequisites for Service and Repair of Electric Vehicles (Contd.)	11. Discuss basic technology used, functioning and interconnections of various systems and components of an EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 6
		Prepare to Carry out Routine Service or Minor Repair	1. Discuss the importance of no HV (High Voltage) activity is being conducted around workstation prior to commencement of work		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 5
		Prepare to Carry out Routine Service or Minor Repair (Contd.)	2. Elucidate SOP for receiving vehicles, opening job card, allocation of work, invoicing, vehicle delivery, handling complaints, etc.		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 4
		Prepare to Carry out Routine Service or Minor Repair (Contd.)					T: 0 P: 6

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Prepare to Carry out Routine Service or Minor Repair (Contd.)	3. Discuss standard schedules and checklists recommended by the OEM/auto component manufacturer for servicing of electric vehicles		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 4
		Prepare to Carry out Routine Service or Minor Repair (Contd.)					T: 0 P: 6
		Perform Routine Service or Minor Repair	1. Discuss various sources of information available for assessing service and repair requirements of the vehicle.		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 5
		Perform Routine Service or Minor Repair (Contd.)					T: 0 P: 8
		Perform Routine Service or Minor Repair (Contd.)	2. Elaborate ways to work on the HV systems which do not require isolation, troubleshooting and replacing parts on the active HV system.		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 4

Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Perform Routine Service or Minor Repair (Contd.)					T: 0 P: 8
		Perform Routine Service or Minor Repair (Contd.)					T: 0 P: 8
		Perform Routine Service or Minor Repair (Contd.)	3. List the activities need to perform for preparing an EV for fault identification and repairing work.		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 6
		Perform Routine Service or Minor Repair (Contd.)	4. Discuss the symptoms of technical faults, their causes and rectification procedures in EV.		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 1 P: 6
		Perform Routine Service or Minor Repair (Contd.)	5. Discuss the documents to be maintained w.r.t inspection, troubleshooting and diagnosis of faults.		Interactive Lecture in the Class, Activity	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 6
			Total (In Hours)		**Theory**		109
					Practical		221
					On the Job Training		30
					***Grand Total (in Hours)**		360 hours

Elective 1							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
6.	Module 6: Perform routine service and repairs of a four wheeler EV	Basics of a Four-Wheeler EV	1. List various components /aggregates and the manufacturer's specifications of a four wheeler EV	ASC/N 1450	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Basics of a Four-Wheeler EV (Contd.)					T: 2 P: 6
		Basics of a Four-Wheeler EV (Contd.)	2. Discuss basic technology used, functioning and interconnections of various systems and components of a four wheeler EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Basics of a Four-Wheeler EV (Contd.)			Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 6
		Routine Service and Repairs of a 4-Wheeler EV	1. List the types of tools and equipment used in different processes of a four wheeler EV maintenance		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)	2. List the activities need to perform for preparing a four wheeler EV for fault identification and repairing work		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4

Elective 1							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)					T: 4 P: 4
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)					T: 4 P: 4
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)	3. Discuss the symptoms of technical faults, their causes, and rectification procedures in a four-wheeler EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)					T: 0 P: 8

Elective 1							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)	4. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs of a 4-Wheeler EV (Contd.)					T: 4 P: 4
				Total (In Hours)		**Theory**	40
						Practical	80
						***Grand Total (in Hours)**	120 hours

Elective 2							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
7.	Perform routine service and repairs of a 2/3 wheeler EV	Basics of Electric 2/3-Wheeler Vehicle	1. List various components /aggregates and the manufacturer's specifications of a 2/3 wheeler EV	ASC /N1 451	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Basics of Electric 2/3-Wheeler Vehicle (Contd.)					T: 2 P: 6
		Basics of Electric 2/3-Wheeler Vehicle (Contd.)	2. Discuss basic technology used, functioning and interconnections of various systems and components of a 2/3 wheeler EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Basics of Electric 2/3-Wheeler Vehicle (Contd.)			Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 6
		Routine Service and Repairs on a 2/3-Wheeler EV	1. List the types of tools and equipment used in different processes of a 2/3 wheeler EV maintenance		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)	2. List the activities need to perform for preparing a 2/3 wheeler EV for fault identification and repairing work		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4

Elective 2							
Sl. No.	Module Name	Session Name	Session Objectives	NOS Ref.	Methodology	Training Tools/Aids	Duration in Hours
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)					T: 4 P: 4
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)					T: 4 P: 4
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)	3. Discuss the symptoms of technical faults, their causes and rectification procedures in a 2/3 wheeler EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)					T: 0 P: 8

Elective 2							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)	4. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs on a 2/3-Wheeler EV (Contd.)					T: 4 P: 4
				Total (In Hours)		**Theory**	40
						Practical	80
					***Grand Total (in Hours)**		120 hours

Elective 3							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
8.	Perform routine service and repairs of a truck/bus electric vehicle	Basics of Truck/Bus Electric Vehicle	1. List various components /aggregates and the manufacturer 's specifications of a truck/bus EV	ASC/N1452	Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Basics of Truck/Bus Electric Vehicle (Contd.)					T: 2 P: 6
		Basics of Truck/Bus Electric Vehicle (Contd.)	2. Discuss basic technology used, functioning and interconnections of various systems and components of a truck/bus EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Basics of Truck/Bus Electric Vehicle (Contd.)			Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 2 P: 6
		Routine Service and Repairs on a Truck/Bus EV	1. List the types of tools and equipment used in different processes of a truck/bus EV maintenance		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4

Elective 3							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
		Routine Service and Repairs on a Truck/Bus EV (Contd.)	2. List the activities need to perform for preparing a truck/bus EV for fault identification and repairing work		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs on a Truck/Bus EV (Contd.)					T: 4 P: 4
		Routine Service and Repairs on a Truck/Bus EV (Contd.)					T: 4 P: 4
		Routine Service and Repairs on a Truck/Bus EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs on a Truck/Bus EV (Contd.)	3. Discuss the symptoms of technical faults, their causes and rectification procedures in a truck/bus EV		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4

Elective 3							
Sl. No.	**Module Name**	**Session Name**	**Session Objectives**	**NOS Ref.**	**Methodology**	**Training Tools/Aids**	**Duration in Hours**
		Routine Service and Repairs on a Truck/Bus EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs on a Truck/Bus EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs on a Truck/Bus EV (Contd.)					T: 0 P: 8
		Routine Service and Repairs on a Truck/Bus EV (Contd.)	4. Explain the health and safety measures and regulations w.r.t. equipment and components during fault diagnosis		Interactive Lecture in the Class	Participant handbook, Projector, Whiteboard, Marker, and Duster	T: 4 P: 4
		Routine Service and Repairs on a Truck/Bus EV (Contd.)					T: 4 P: 4
Total (In Hours)					**Theory**		40
					Practical		80
					***Grand Total (in Hours)**		120 hours

Annexure III

Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES

Assessment Criteria for Electric Vehicle Service Technician	
Job Role	**Electric Vehicle Service Technician**
Qualification Pack	**ASC/Q1429, v1.0**
Sector Skill Council	**Automotive**

Sr. No.	Guidelines for Assessment
1.	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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.	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).
4.	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training centre based on these criteria.
5.	In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6.	In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
ASC/N9801: Organize work and resources (Service)	**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**
	PC7. sanitize workstation and equipment regularly	2	2	-	2
	PC8. clean hands with soap, alcohol-based sanitizer regularly	2	1	-	-
	PC9. avoid contact with ill people and self-isolate in a similar situation	2	1	-	-
	PC10. wear and dispose PPEs regularly and appropriately	2	2	-	1
	PC11. report advanced hygiene and sanitation issues to appropriate authority	2	2	-	2
	PC12. follow stress and anxiety management techniques	2	-	-	-
	Material/energy conservation practices	**10**	**4**	**-**	**3**

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC13. identify ways to optimise usage of material in various tasks/activities/processes	2	-	-	1
	PC14. use resources, including water, in a responsible 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, machines and equipment	2	-	-	-
	PC18. check if the equipment/machine is functioning normally 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 in use	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
	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**

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
DGT/VSQ/N0102 : Employability Skills	**Introduction to Employability Skills**	**1**	**1**	**-**	**-**
	PC1. identify employability skills required for jobs in various industries	-	-	-	-
	PC2. identify and explore learning and employability portals	-	-	-	-
	Constitutional values – Citizenship	**1**	**1**	**-**	**-**
	PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
	PC4. follow environmentally sustainable practices	-	-	-	-
	Becoming a Professional in the 21st Century	**2**	**4**	**-**	**-**
	PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
	PC6. practice the 21st Century Skills such as Self- Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
	Basic English Skills	**2**	**3**	**-**	**-**
	PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
	PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
	PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
	Career Development & Goal Setting	**1**	**2**	**-**	**-**

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	Assessment criteria for outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC10. understand the difference between job and career	-	-	-	-
	PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
	Communication Skills	**2**	**2**	**-**	**-**
	PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
	PC13. work collaboratively with others in a team	-	-	-	-
	Diversity & Inclusion	**1**	**2**	**-**	**-**
	PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
	PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
	Financial and Legal Literacy	**2**	**3**	**-**	**-**
	PC16. select financial institutions, products and services as per requirement	-	-	-	-
	PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
	PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
	PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
	Essential Digital Skills	**3**	**4**	**-**	**-**
	PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
	PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	Assessment criteria for outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-
	Entrepreneurship	**2**	**3**	**-**	**-**
	PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
	PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
	PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
	Customer Service	**1**	**2**	**-**	**-**
	PC26. identify different types of customers	-	-	-	-
	PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
	PC28. follow appropriate hygiene and grooming standards	-	-	-	-
	Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
	PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
	PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
	PC31. apply to identified job openings using offline/online methods as per requirement	-	-	-	-
	PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	Assessment criteria for outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
	NOS Total	**20**	**30**	**-**	**-**

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
ASC/N1449: Carry out routine service or minor repairs on electric vehicle and assist in diagnosis	**Prepare to carry out routine service or minor repair and assist in fault diagnosis**	**5**	**14**	**-**	**6**
	PC1. review the job card and understand work to be carried out on the electric vehicle	-	1	-	1
	PC2. identify the auto components related to the various aggregates in the electric vehicle	1	2	-	1
	PC3. ensure no HV (High Voltage) activity is being conducted 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 nature of 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 be performed on electric vehicle	1	1	-	1
	PC8. conduct visual inspection on the electric vehicle to identify defects in HV components and identify indirect faults in electrical/electronic aggregate due to other system/component	-	2	-	1

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC9. assess mechanical aggregates such as steering gear, 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**
	PC11. take precautions to avoid damage to the electric vehicle and its components while 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 following stages: 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 per OEM SOP	2	3	-	2
	PC15. remove parts relevant to various mechanical aggregates of electric vehicle and place them securely as specified by OEM	1	2	-	-

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC16. clean and condition dismantled mechanical and electrical 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 OEM guidelines	1	2	-	1
	PC19. maintain the documentation related to inspection, servicing and minor repair performed on the electric vehicle	1	1	-	-
	Assist lead technician in diagnosis or troubleshooting the 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	-	-
	PC21. follow lead technician instructions to choose and 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

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC22. carry out inspection or test on 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 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 required to conclude the diagnosis or troubleshooting	1	1	-	-
	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 is required by another specialist	2	3	-	2
	PC27. ensure completeness of tasks assigned before releasing 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's policies	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**

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory**	**Practical Marks**	**Project Marks**	**Viva Marks**
ASC/N1450: Carry out routine service or minor repairs on four wheeler electric/ hybrid vehicle and assist in diagnosis	**Prepare to carry out routine service or minor repair and assist in fault diagnosis**	**5**	**14**	**-**	**6**
	PC1. review the job card and understand work to be carried out on the four wheeler electric/ hybrid vehicle	-	1	-	1
	PC2. identify the auto components related to the various aggregates in the four wheeler electric/ hybrid vehicle	1	2	-	1
	PC3. ensure no HV (High Voltage) activity is being conducted around workstation prior to commencement of work on four wheeler electric/ hybrid vehicle	1	1	-	-
	PC4. collect workshop tools/measuring devices/equipment required to carry out job on the four wheeler electric/ hybrid vehicle and check their condition/calibration	1	2	-	1
	PC5. prepare the four wheeler electric/ hybrid 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 live state of HV system	-	1	-	-
	PC6. mark the four wheeler electric/ 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/ hybrid vehicle	1	1	-	1

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC8. conduct visual inspection of the four wheeler electric/ hybrid vehicle to identify defects in HV components and identify indirect faults in electrical/electronic aggregate due to other system/component	-	2	-	1
	PC9. assess mechanical aggregates such as engine/traction motor, transmission, axles, brakes etc. of the four wheeler electric/ 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/ hybrid vehicle beyond own scope to the concerned person	-	1	-	-
	Perform routine service and minor repairs	**12**	**18**	**-**	**5**
	PC11. take precautions to avoid damage to the four wheeler electric/ hybrid vehicle and its components while 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 following stages: general and mechanical tasks on the four wheeler electric/ 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	-	-

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC14. test the four wheeler electric/ hybrid vehicle's electrical/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/ hybrid vehicle and place them securely as specified by OEM	1	2	-	-
	PC16. clean and condition dismantled mechanical and electrical components of the four wheeler electric/ hybrid vehicle prior to assembly	1	1	-	-
	PC17. perform minor repair/replacement/calibration/ of mechanical system/aggregate of the four wheeler electric/ 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 four wheeler electric/ hybrid vehicle as per OEM guidelines	1	2	-	1
	PC19. maintain the documentation related to inspection, servicing and minor repair perform on the four wheeler electric/ hybrid vehicle	1	1	-	-
	Assist lead technician in diagnosis or troubleshooting the faults	**8**	**10**	**-**	**5**
	PC20. conduct test drive of the four wheeler electric/ hybrid vehicle to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	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/ hybrid vehicle/system/component performance to diagnose defect or faults in the electric/hybrid vehicle	2	2	-	2
	PC22. carry out inspection or test on the four wheeler electric/ hybrid vehicle mechanical and electrical systems according to lead technician instructions	2	2	-	2
	PC23. interpret and compare results of diagnostic inspections/tests with four wheeler electric/ hybrid vehicle specifications and regulatory requirements	2	2	-	1
	PC24. maintain the documentation related to inspections and troubleshooting performed on the four wheeler electric/ hybrid vehicle	1	1	-	-
	PC25. report the results to lead technician and seek assistance if further tests or inspections are required to conclude the diagnosis or troubleshooting	1	1	-	-
	Post service/repair/diagnostic activities	5	8	-	4
	PC26. check the performance of four wheeler electric/ hybrid vehicle/aggregate post repair and report to supervisor/service advisor if further inspection is required by another specialist	2	3	-	2
	PC27. ensure completeness of tasks assigned before releasing the four wheeler electric/ 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's policies	1	2	-	1

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	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**

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project**	**Viva Marks**
ASC/N1451: Carry out routine service or minor repairs on two/three wheeler electric vehicle and assist in diagnosis	**Prepare to carry out routine service or minor repair and assist in fault diagnosis**	**5**	**14**	**-**	**6**
	PC1. review the job card and understand work to be carried out on two/three wheeler electric vehicle	-	1	-	1
	PC2. identify the auto components related to the various aggregates in the two/three wheeler electric vehicle	1	2	-	1
	PC3. ensure no HV (High Voltage) activity is being conducted around workstation prior to commencement of work on two/three wheeler electric vehicle	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: general and mechanical/electrical work in non-live state/troubleshoot and replace parts in live state HV system	-	1	-	-
	PC6. mark the two/three wheeler electric vehicle and safeguard 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 HV components and identify indirect faults in electrical/electronic aggregate due to other system/component	-	2	-	1

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	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/three wheeler electric vehicle beyond own scope to the concerned person	-	1	-	-
	Perform routine service and minor repairs	**12**	**18**	**-**	**5**
	PC11. take precautions to avoid damage to the two/three wheeler electric vehicle and its components while 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 following stages: general and mechanical tasks on the two/three wheeler 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 two/three wheeler electric vehicle's electrical/electronic system functioning of two/three 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	-	-

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC16. clean and condition dismantled mechanical and electrical components of two/three wheeler electric vehicle prior to assembly	1	1	-	-
	PC17. perform minor repair/replacement/calibration of mechanical 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 on the two/three wheeler electric vehicle	1	1	-	-
	Assist lead technician in diagnosis or troubleshooting the faults	**8**	**10**	**-**	**5**
	PC20. conduct test drive of the two/three wheeler electric vehicle to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-
	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 diagnose defect or faults	2	2	-	2
	PC22. carry out inspection or tests on the two/three wheeler electric vehicle mechanical and electrical systems according to lead technician instructions	2	2	-	2

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC23. interpret and compare results of diagnostic inspections/tests with two/three wheeler electric 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 required to conclude the diagnosis or troubleshooting	1	1	-	-
	Post service/repair/diagnostic activities	**5**	**8**	**-**	**4**
	PC26. check the performance of the two/three wheeler electric vehicle/aggregate post repair and report to lead technician/supervisor if further inspection is required by another specialist	2	3	-	2
	PC27. ensure completeness of tasks assigned before releasing 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's policies	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**

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project**	**Viva Marks**
ASC/N1452: Carry out routine service or minor repairs on electric truck/bus and assist in diagnosis	**Prepare to carry out routine service or minor repair and assist in fault diagnosis**	**5**	**14**	**-**	**6**
	PC1. review the job card and understand work to be carried out on electric truck/bus	-	1	-	1
	PC2. identify the auto components related to the various aggregates in the electric truck/bus	1	2	-	1
	PC3. ensure no HV (High Voltage) activity is being conducted around workstation prior to commencement of work on the electric truck/bus	1	1	-	-
	PC4. collect workshop tools/measuring devices/equipment required to carry out job on the electric truck/bus and check their condition/calibration	1	2	-	1
	PC5. prepare the electric truck/bus 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 live state HV system	-	1	-	-
	PC6. mark the electric truck/bus and safeguard the working area during electrical work	-	1	-	-
	PC7. wear PPE according to nature of job to be performed on the electric truck/bus	1	1	-	1
	PC8. conduct visual inspection of the electric truck/bus to identify defects in HV components 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 the electric truck/bus for any external impact/bend/leak, incorrect level, wear & tear	1	2	-	1

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project**	**Viva Marks**
	PC10. report the malfunctions/repairs in the electric truck/bus beyond own scope to the concerned person	-	1	-	-
	Perform routine service and minor repairs	**12**	**18**	**-**	**5**
	PC11. take precautions to avoid damage to the electric truck/bus and its components while 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 following stages: general and mechanical tasks on the electric truck/bus 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 electric truck/bus wherever applicable as per OEM SOP	2	3	-	2
	PC15. remove parts relevant to various mechanical aggregates of electric truck/bus and place them securely as specified by OEM	1	2	-	-
	PC16. clean and condition dismantled mechanical and electrical components of electric truck/bus prior to assembly	1	1	-	-
	PC17. perform minor repair/replacement/calibration on electric truck/bus, systems such as drive line, mechanical/air suspension systems, air brakes & steering systems etc. including HVAC, etc.	2	3	-	1

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	PC18. refill/replace, as required quantity and appropriate grade of fluid/lubricant in the electric truck/bus as per OEM guidelines	1	2	-	1
	PC19. maintain the documentation related to inspection, servicing and minor repair performed on the electric truck/bus	1	1	-	-
	Assist lead technician in diagnosis or troubleshooting the faults	**8**	**10**	**-**	**5**
	PC20. conduct test drive of the electric truck/bus to assist the lead technician in assessing the service/repair requirement or calibration/adjustments, if any	-	2	-	-
	PC21. follow lead technician instructions to choose and use the appropriate device/equipment to inspect/test system/component of electric truck/bus performance to diagnose defect or faults in electric vehicle	2	2	-	2
	PC22. carry out inspection or test on mechanical and electrical systems of electric truck/bus according to lead technician instructions	2	2	-	2
	PC23. interpret and compare results of diagnostic inspections/tests with electric truck/bus specifications or regulatory requirements	2	2	-	1
	PC24. maintain the documentation related to inspections and troubleshooting performed on the electric truck/bus	1	1	-	-
	PC25. report the results to lead technician and seek assistance if further tests or inspections are required to conclude the diagnosis or troubleshooting	1	1	-	-

Total Marks: 600	Compulsory NOS				
Assessable Outcomes	**Assessment criteria for outcomes**	**Theory Marks**	**Practical Marks**	**Project Marks**	**Viva Marks**
	Post service/repair/diagnostic activities	**5**	**8**	**-**	**4**
	PC26. check the performance of electric truck/bus aggregate post repair and report to lead technician/supervisor if further inspection is required by another specialist	2	3	-	2
	PC27. ensure completeness of tasks assigned before releasing the electric truck/bus for the next procedure	1	2	-	1
	PC28. dispose of materials such as old batteries, scrap of failed parts/aggregates as per organization's policies	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**

Glossary

- **Sector:** Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
- **Sub-sector:** Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
- **Occupation:** Occupation is a set of job roles, which perform similar/ related set of functions in an industry. Job role: Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
- **Occupational Standards (OS):** OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
- **Performance Criteria (PC):** Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
- **National Occupational Standards (NOS):** NOS are occupational standards which apply uniquely in the Indian context.
- **Qualifications Pack (QP):** QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
- **Unit Code:** Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
- **Unit Title:** Unit title gives a clear overall statement about what the incumbent should be able to do.
- **Description:** Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
- **Scope:** Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.
- **Knowledge and Understanding (KU):** Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

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