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MINISTRY OF ENERGY AND MINERAL DEVELOPMENT
THE REPUBLIC OF UGANDA

OPERATORS TRAINERS' MANUAL

E-MOTORCYCLE

Norad
E4D
BODAWERK

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The manual was prepared and reviewed by the Bodawerk International Ltd.

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ACRONYMS

E4D	Employment and Skills for Development in Africa
PREEEP	Promotion of Renewable Energy and Energy Efficiency Programme
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
MEMD	Ministry of Energy and Mineral Development
ATP	Assessment and Training Package
DIT	Directorate of Industrial Training

INTRODUCTION

The transition to renewable energy in the mobility sector has the potential to decouple the cost of public transport and transportation of goods from the global oil market while reducing pollution and addressing climate change issues. Multiple stakeholders in East Africa have taken up the challenge, trying to initiate or accelerate the transition to Electric-Mobility. This process includes its own challenges and hurdles.

One major challenge is the availability of talent with the right skills and tools to support the operations of these companies and vice-versa, many young East Africans lack the necessary education and skills in relevant fields and trades to participate in the transition to renewable energies. Therefore, there is a gap between the private sector efforts and the current educational and skilling levels among the youth. The transition to renewable energies requires closing of specific skills gaps on the managerial, technical and end-user level.

On the managerial level, modern workplace skills and competencies (including the use of digital solutions, project management and basic technical understanding of renewable energy technologies) are required to ensure the relevance and productivity of Ugandan managers.

For technicians, knowledge about renewable energy technologies, their specific applications e.g. electric motorcycles and hands-on skills to maintain technology are crucial. In the experience of Bodawerk International Ltd, the diagnosis of a problem in an electric vehicle plays a very important role.

Additionally, the end-user requires training to ensure a successful technology transfer and sustainable operation of renewable energy technologies. Besides a basic technical understanding, it is of utmost importance to educate users about road safety practices. This includes promoting awareness of traffic rules and regulations, safe driving techniques, and the importance of adhering to speed limits among other safety precautions.

We integrate the inclusion of financial literacy. This is because the technology transfer will largely happen on a financed basis, in order to successfully complete a financing scheme (e.g. lease-to-own/PAYGO), the end-user must understand the key success factors of managing such a loan. A comprehensive understanding of financial concepts is essential for the seamless execution of financing schemes such as lease-to-own or pay-as-you-go (PAYGO).

The development of applied and certified training will allow the Ugandan workforce to benefit from the economic potential of the transition to renewable energies. Vice-versa, the availability of a productive workforce with a sector-specific skill set will enable the growth of the renewable energy and specifically e-mobility sector fueled by private sector investments.

Purpose of the Guide

This manual is an integral component of a comprehensive set consisting of three distinct manuals, individually tailored to cater to three occupations within the electric vehicle industry; managers, technicians, and operators.

The primary purpose of this manual is to provide instruction for trainers or facilitators to plan for and carry out upskilling and in-service training of operators of the e-motorcycles by any individual or institution interested in providing capacity building for the named category.

Using the Manual

This manual focuses on the preparation for and organization, implementation, and evaluation of training for e-motorcycle operators. The intention is to provide facilitators with basic training techniques and resources summarized in a simple and easily understandable manner. It is expected that facilitators will employ the processes and approaches prescribed in the manual when training the aforementioned category of users in the operation of the e-motorcycle.

Facilitators should ensure that the content is adapted to suit individual situations and target audiences, including participant skill and experience levels in operating an e-motorcycle. The content can be presented by a facilitator and/or used by fellow operators whose capacities have been built individually or in groups using methodologies that are appropriate to each module. Training methods and approaches are not rigid and so a facilitator, in his/her planning, should choose the best methods that suit the category and context of a particular group of participants and are included for relevant practical topics.

Whereas training can occur at an offsite (e.g. a temporarily set-up training space) or onsite location, we would very much prefer that training takes place onsite at a fully-fledged e-mobility facility. This is important because actual e-mobility practices and skills can be demonstrated/observed to and by the operators immediately.

A fully-fledged e-mobility facility encompasses a comprehensive infrastructure and resources to support various aspects of electric mobility training key considerations and requirements could be in terms of:

Physical space: The training venue should have adequate space to accommodate training activities, including classrooms, practical training areas, and workshops. The size of the space should be determined based on the expected number of trainees and the types of training activities to be conducted.

Charging Infrastructure: The training venue should include charging infrastructure to facilitate hands-on training and practical sessions. This includes charging stations or access to charging equipment.

Vehicle Fleet: Electric motorcycles should be available at the training venue to provide rainees with hands-on experience.

Integration with IT Systems: The training venue should have the necessary IT infrastructure to support digital training materials, simulations, and interactive learning experiences. This may include computers, internet access, and software

Facilitators are also hereby encouraged to choose a time and place to have a minimum impact on the service provision of the operators in their regular work time so as to attain maximum attendance.

However, off-site training can be done away from an e-mobility facility for reasons of the practical operation of the motorcycles, experiencing new learning spaces through exposure visits or for reasons related to building synergies with other technical partner institutions or sector stakeholders. To ensure that the training is a success, users of this manual should carefully read and fully comprehend the content.

Considering the breadth of knowledge and practical skills to be covered, it is advisable to allocate a duration of 4 days for this intensive training program. This timeframe allows for a structured and in-depth exploration of key concepts while providing ample opportunities for hands-on practice and interactive learning.

To effectively utilize these 4 days, the facilitator should split the training into well-defined modules, each addressing specific aspects of e-mobility. By dividing the content into logical segments, trainees can immerse themselves in focused earning, gradually building their understanding and expertise.

The first day can be dedicated to the **Module 1:** Introduction to & Functionality of an E-Motorcycle, this sets a strong groundwork for trainees to comprehend the underlying principles on the second and third days, it is recommended to delve deeper into practical applications with the **Module 2:** Safety Precautions in Operating an E-Motorcycle and **Module 3**: Financial Literacy.

The final day of the training program can be dedicated to **Module 4:** Traffic Rules and Regulations and Consolidation and Review. It offers an opportunity to reinforce key concepts, address any remaining questions or concerns, and facilitate open discussions among the trainees. Additionally, this day can be utilized for assessments or practical evaluations to gauge the trainees' understanding and application of the learned knowledge.

Target Users of the Training Manual

The target users of the manual are individuals and institutions (government, NGOs, private sector players, vocational training institutions) who are interested in building the capacity of electric motorcycle riders.

Organisation of the Manual

The training program consists of four modules, each with a specific focus.

Module 1 is an introduction that provides a comprehensive overview of the training, including an introduction to the features and functionality of the electric motorcycle and its different parts.

Module 2 focuses on building the competencies and skills of operators to safely operate the e-motorcycle.

Module 3 is designed to develop the financial management skills of operators.

Finally, in **Module 4**, operators deepen their understanding of traffic rules and regulations in the country to ensure they adhere to them.

The E-Motorcycle Training Manual provides all the necessary information required to conduct the training effectively. The manual includes a list of learning outcomes that participants will gain during the session. The session overview provides details on teaching methods, time required, and materials needed for each activity. The manual also includes a series of training activities with step-by-step instructions that explain how to carry out the activities.

OCCUPATIONAL PROFILE FOR AN E-MOTORCYCLE OPERATOR

The occupational or competency profile for an e-motorcycle operator defines the duties and tasks a competent e-motorcycle rider is expected to perform in the world of work (on the job) in the transport sector.

Since the occupational profile reflects the skill requirements of work life, the profile is the reference document for the subsequent development of a curriculum, training modules and assessment instruments (test items) which are directly relevant to the duties and tasks of an operator in the e-mobility space. Whereas electric vehicles refer to motorcycles, tricycles, and motor vehicles, the focus in our case shall be on electric motorcycles.

Three key issues arise when looking at the Occupational profile of an e-motorcycle Operator:

- Since e-mobility is quite a new field in Uganda, e-motorcycle operators do not yet fully appreciate and understand the functionality of the vehicles. A number of them are used to the existing fuel-powered machines and are, experientially, well acquainted with its performance weaknesses and strengths.

- The costs of acquisition machines are quite prohibitive for most of the operators and yet in the long run the cost of ownership is low. They therefore have to operate machines for other people, ride to own or enter into a hire purchase agreement/credit financing arrangement to own one. This therefore means it is important for them to manage the finances generated from their use of the vehicles prudently to manage their obligation to the financing or leasing firm. As such, managing their sales and revenue becomes a duty on their side and forms part of their profile. A comprehensive understanding of financial planning further leads to sustainable business development.

- Operators start working without proper training on safe driving techniques, traffic rules, and defensive driving skills. This knowledge gap contributes to an increased risk of accidents and unsafe practices on the road Another road safety concern is the inadequate use of safety gear among e-motorcycle operators in Uganda.

Many riders do not wear helmets or use other protective gear consistently. This lack of protection increases the vulnerability of operators to head injuries and other severe consequences in the event of an accident. To address these issues, it is crucial to train participants to comply with traffic laws. Promoting the consistent use of safety gear, addressing overloading practices are essential steps towards enhancing the safety of e-motorcycle operators and other road users.

Duties and Tasks of an E-motorcycle Operator

By definition, a duty describes a large area of work in performance terms and also serves as a title for a cluster of related tasks. This means the duties of an e-motorcycle operator within the e-mobility space relate to the broad areas within which their daily activities are clustered, and these are majorly operating the electric motorcycles, maintaining the electric motorcycles, maintenance of Occupational Health and Safety (OSH), undertake customer care and manage financial resources generated from the use of the motorcycle. The hope is that if these duties are undertaken diligently, servicedelivery and effective use of the cycle that leads to longevity of service life becomes efficacious.

Meanwhile, a task or job tasks represent the smallest unit of job activities with a meaningful outcome. Tasks result in a product, service, or decision. They represent an assignable unit of work and have a definite beginning and ending point. Tasks can be observed and measured.

The training provided to e-motorcycle operators within their occupational profile addresses a significant portion of the required duties and tasks; however, it does not encompass the entirety of the necessary skills and knowledge.

Duties and Tasks of an E Motorcycle Operator

DUTIES	TASKS		
Duty A Operate an electric motorcycle	**A1** Check one-motorcycle load requirements and laden load limits.	**A2** Observe traffic rules and road safety standards	**A3** Check on the power supply and general functionality of the e-motorcycle.
	A4 Ride the e-motorcycle correctly and carefully.	**A5** Acquire and maintain at all times a valid driving license.	**A6** Use the five senses in driving the e-motorcycle.
Duty B Maintain an electric vehicle	**B1** Carefully clean the e-motorcycles.	**B2** Monitor theperformance of the e-motorcycle and make appropriate referrals for repair.	**B3** Carry out minor repairs on the e-motorcycles.
	B4 Change and replace discharged batteries.	**B5** Maintain hygiene and sanitation	**B6** Replace faulty parts of the e-motorcycles.
Duty C Customer care	**C1** Identify customer needs.	**C2** Communicate effectively to customers	**C3** Attend customer complaints, challenges and feedback.
	C4 Attract and retain customers.	**C5** Offer complementary/give back services to customers.	**C6** Build relationships between suppliers and customers.
Duty D Observe health and safety	**D1** Identify hazards both on and off the e-motorcycles and act accordingly.	**D2** Select and use PPEs	**D3** Sensitize customers on health and safety concerns.
	D4 Carry out basic first aid.	**D5** Put on reflector jackets	**D6** Switch on lights in the darkness and adverse weather conditions
Duty E Managing cash flows	**E1** Plan expenses e.g., on servicing and maintenance of the e-motorcycles.	**E2** Track daily receipts and expenses.	**E3** Monitor reduced expenses and increase savings.
	E4 Repay debts and loans, if any.	**E5** Insure motorcycle	**E6** Pay the insurance policy for the e-motorcycles
Duty F Maintain records	**F1** Keep the logbook of the e-motorcycles safely.	**F2** Keep safely the insurance policy for the e-motorcycles and produce the same when required.	**F3** Develop or track the maintenance schedule of the e-motorcycles.
	F4 Keep receipts for parts bought and services received.	**F5** Store tools, materials and equipment.	**F6** Obtain service manuals.
Duty G Participate in capacity development initiatives	**G1** Go through routine tests with the Inspector of Vehicles.	**G2** Participate in refresher training on use and operation of the e-motorcycle.	**G3** Enroll in associations.
	G4 Train for new technology	**G5** Adapt to new technology	**G6** Participate in defensive driving opportunities.

Skills and Competencies

- Ability to perfectly operate an e-motorcycle.
- Safe and defensive driving skills of the motorcycles.
- Follow and adhere to traffic rules and regulations.
- Ability to comprehend and carry out oral and (sometimes) written instruction.
- Ability to use and maintain the e-motorcycle.
- Customer care skills.
- Financial literacy competencies.
- Communication skills.

Points to Note: Personal Protective Equipment (PPE) Usage: Emphasize the importance of wearing proper PPE, such as helmets and reflector jackets, during practical training sessions.

MODULE 1: INTRODUCTION TO E-MOBILITY AND E-MOTORCYCLE

Overview: The module provides a comprehensive overview of the e-mobility sector in Uganda and lets operators know what they should expect over the next 4 days. The module also provides an overview of the training program, its purpose and objectives, a brief description of electric motorcycles and their components.

Module purpose

The purpose of this module is to introduce the operators of the motorcycle to highlight its features and functionality of the different parts and the fully converted electrical motorcycle itself.

Sub-module 1.1: What is an e-motorcycle?

Overview: This sub-module covers the salient features of an e-motorcycle and how this differs from the conventional ones with particular focus on power supply, operations, their torque, power, speed and range. It also covers why the choice of the e-motorcycle former should be made over the petrol motorcycle.

By the end of the session, participants shall be able to;

1. Differentiate between petrol-powered and electric motorcycles.
2. Name and explain the uses of the different parts of the electric motorcycle.
3. Explain the strengths and weaknesses of the electric motorcycle weighed against the petrol-powered ones.

Time: 1 Hour and 30 minutes

Tools, Equipment and Materials

- A petrol-powered motorcycle
- An electric motorcycle
- Projector
- Markers
- Flipchart/whiteboard
- Sticky notes.

STEP 1 Introduce the differences between petrol-powered and electric motorcycles

Explain the basic differences between petrol- powered and electric motorcycles, such as the mechanics of how e-motorcycle work.
Discuss the advantages and disadvantages of each type of motorcycle, including factors such as maintenance, cost, and environmental impact.

STEP 2 Discuss the different parts of the electric motorcycle.

Introduce the key parts of the electric motorcycle, such as the battery, motor, controller, and charging system.
Explain the function of each part and how they work together in order to power the motorcycle.

STEP 3 Show the participants the different parts of the electric motorcycle like the battery, controller and motor.

Provide a hands-on demonstration showing how each component works and how they are interconnected.

Allow operators to ask questions and provide feedback.

STEP 4 Explain the uses of the different components of the electric motorcycle.

Provide a detailed explanation of how each part of the electric motorcycle contributes to its overall performance.
Show how different parts are used in different ways, such as during acceleration or braking.

5 STEP Discuss the strengths and weaknesses of the electric compared to petrol-powered motorcycles Highlight key differences such as environmental impact, operating costs, and performance.

Provide examples and case studies to illustrate these differences.

6 STEP Request operators to demonstrate their understanding of the differences between petrol- powered and electric motorcycles, the different parts of the electric motorcycle and their uses, and the strengths and weaknesses of electric motorcycles.

7 STEP Provide feedback and support as needed to ensure all operators have a clear understanding of the topic.

Sub-module 1.2: Controls & Operations of the E-Motorcycle

Overview: This sub-module covers the functions and use of the right-hand controls which include the throttle and headlamp switch, and the left- hand controls which include indicator switch and horn. Additionally, activation of the ignition key and reading and interpretation of the digital display/speedometer shall be done.

By the end of the session, participants shall be able to;

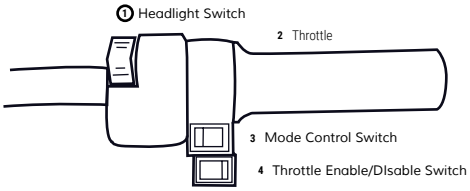
1. Operate the right and left-hand controls of the e-motorcycle correctly.
2. Safely start and stop the motorcycles' motor using the ignition key.
3. Interpret the information displayed on the motorcycle's digital display or speedometer.

Time: 1 Hour and 30 minutes

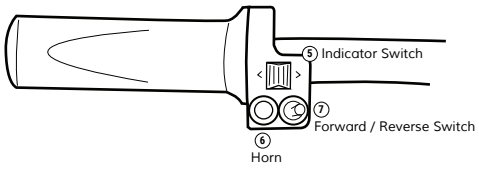
Tools, Equipment and Materials

- A fully assembled e-motorcycle.

After activating the vehicle, the right-hand side (RHS) Controls include:



The left-hand side (LHS) Controls include:



1 STEP Explain in detail the functions of the right and left-hand controls of the e-motorcycle, including the throttle, headlamp switch, indicator switch, and horn.

2 STEP Demonstrate how to correctly operate each control and allow participants to practice operating them until they can do so correctly.

3 STEP Explain the correct sequence for activating the ignition key to start and stop the motorcycle safely.

Provide a demonstration on how to start and stop the motorcycle and allow participants to practice until they are able to do so efficiently.

4 STEP Explain the information displayed on the motorcycle's digital display/ speedometer, including speed, and battery charge level.

5 STEP Provide practical examples of how the information displayed on the motorcycle's digital display/speedometer can impact the motorcycle's operation.

6 STEP Conduct a short oral assessment with participants, asking them to interpret the information displayed on the motorcycle's digital display or speedometer.

Sub-module 1.3: Braking

Overview: This sub-module covers the functionality of the gearing system of rear and forward brakes and how these two gears work.

By the end of the session, participants shall be able to:

1. Shift gears smoothly and safely, and explain how the rear and forward gears work in an e-motorcycle.
2. Use both rear and forward brakes safely and efficiently, and explain the functionality of the braking system in an e-motorcycle.
3. Identify potential problems with the gearing and braking systems of an e-motorcycle, and explain the appropriate corrective actions to take in response

To operate the rear brake, step on the silver pedal found on the right hand side of the motor

To operate the front brake, press the brake lever on the right hand side of the handlebar

Time: 1 Hour

Tools, Equipment and Materials

- A fully assembled e-motorcycle with either a functional or
- Dysfunctional gearing system.
- Rear and forward brakes.

1 STEP

Provide a detailed explanation of the functionality of the gearing system in an e- motorcycle, including how the rear and forward gears work and the braking system in an e-motorcycle, including the use of both rear and forward brakes.

3 STEP Demonstrate the correct technique for shifting gears and using both rear and forward brakes smoothly and safely, and allow participants to practice shifting gears and using both brakes until they can do so correctly.

3 STEP Conduct a practical assessment of trainees, asking them to demonstrate their ability to shift gears and to use both rear and forward brakes safely and efficiently.

4 STEP Explain the common problems that can occur with the gearing and braking systems of an e-motorcycle and provide practical examples of how to identify these problems.

5 STEP Explain the appropriate corrective actions that should be taken in response to each type of problem, either through routine maintenance or in the case of an emergency.

Sub-module 1.4: Battery Swapping

Overview: This sub-module covers the steps to follow in removing the battery from the battery receiver and slotting a new one into the same. Additionally, steps to checking the discharging level and determining readiness for charging of a particular battery shall be covered.

By the end of the session, participants shall be able to:

1. Correctly and safely remove and install a battery in an e-motorcycle, following all necessary safety protocols.
2. Explain how to check the discharging level of a battery and determine if it needs to be charged or replaced.

Time: 45 Minutes

Tools, Equipment and Materials

- A fully assembled e-motorcycle with a battery in the casing
- Multimeter

1 STEP Read aloud the manufacturer's instructions for disconnecting the battery.

2 STEP Demonstrate how to safely turn off the e- motorcycle and disconnect the battery

3 STEP Show how to remove the depleted battery from the battery receiver and emphasize how to lift carefully to avoid dropping the battery or injury to oneself.

4 STEP Explain how to inspect the battery receiver for any signs of damage or wear.

5 STEP Explain how to check the discharging level of the battery using a multimeter. Demonstrate how to connect the tool to the battery terminals and read the voltage level.

6 STEP Show participants how to interpret the voltage reading and determine if the battery needs to be charged or replaced.

7 STEP Demonstrate how to install a fully charged replacement battery, taking care to align the battery with the battery receiver and securely fasten it in place.

8 STEP Reconnect the battery and turn on the e-motorcycle to ensure that the new battery is functioning properly.

Allow participants to practice until they do it correctly.

MODULE 2: SAFETY PRECAUTIONS IN OPERATING AN E-MOTORCYCLE

Overview: The purpose of this module is to build the competencies of the operators in the identification of hazards and managing accompanying risks to the hazards. It focuses on the operators being intentional in risk mitigation and avoidance to ensure the sustainable operation of the motorcycles.

Module purpose

The purpose of this module is to build the competencies of the operators in the identification of hazards and managing accompanying risks to the hazards. It focuses on the operators being intentional in risk mitigation and avoidance to ensure the sustainable

Sub-module 2.1: Loading capacity of e-motorcycles

Overview: In this sub-module, the operators shall be oriented on the maximum loading capacity of the electric bike and how overloading affects the battery and motorcycle performance. It also covers the risks and liabilities associated with overloading a bike and the related offences punishable by law as a result of overloading the motorcycle.

By the end of the session, participants shall be able to:

1. Understand the maximum loading capacity of electric motorcycles and how to follow the manufacturer's recommendations.
2. Identify and explain the risks and liabilities associated with overloading an e-motorcycle.
3. Know the potential legal consequences of overloading and how to properly load the motorcycle within the recommended capacity.

Time: 1 Hour

Tools, Equipment and Materials

- Manufacturers manual
- Customised operators' manual

1 STEP Begin by introducing to the participants the concept of loading capacity and explain in detail why it is important to understand and follow the manufacturer's recommendations for maximum loading capacity.

2 STEP Explain the risks and liabilities associated with overloading an e-motorcycle

3 STEP Provide guidance how to access information on selected manufacturer's recommended maximum loading capacity.

4 STEP Provide guidance and practically demonstrate using a recommended load capacity on how to properly distribute weight when loading e-motorcycle passengers and cargo can be utilized for this demonstration

5 STEP Provide practical examples of typical cargo loads and their estimated weight. Together with the participants, calculate the total weight of the motorcycle and its load, and compare this value to the manufacturer's recommended maximum loading capacity to help operators understand how to properly load their e-motorcycle.

6 STEP Explain the potential legal consequences of overloading an e-motorcycle, including traffic violations and penalties.

7 STEP Review best practices for safely loading an e-motorcycle, such as using a secure and balanced loading system and checking the loading capacity before each ride.

Sub-module 2.2: Servicing the e-motorcycles

Overview: This sub-module covers the importance of servicing a motorcycle and the damages to both machine and life that is caused by not servicing a motorcycle in time.

A number of servicing issues shall be covered and these are:

- When to change the gearbox oil
- Chain tensioning
- Wheel alignment
- Checking for proper
- Waterproofing.
- Checking all the bearings on a motorcycle
- Checking the condition of brake pads and clutch disks

By the end of the session, participants shall be able to:

1. Understand the importance of regular motorcycle servicing and the risks associated with not servicing a motorcycle in a timely manner.
2. Identify the key components of a motorcycle that require regular servicing.
3. Know the steps required to properly service a motorcycle.

Time: 2 Hours

Tools, Equipment and Materials

- Gearbox oil
- Spoke tensioner
- Ratchet/socket spanner 8mm, 19mm
- Small oil can for collecting gearbox oil
- Fixed spanner 10mm, 13mm, 14mm, 30mm
- Sandpaper
- Clean towels/cotton waste

1 STEP Begin the session by introducing the importance of regular servicing of an e-motorcycle and the potential consequences of not doing so.

2 STEP When to change the gearbox oil: Explain the importance of changing the gearbox oil and the recommended frequency for doing so.

Demonstrate how to change the gearbox oil.

3 STEP Chain tensioning: Describe the importance of maintaining proper chain tension and the potential consequences of not doing so.

4 STEP Wheel alignment: Explain the importance of proper wheel alignment and the potential issues that can arise from misalignment. Practically demonstrate how to check the wheel alignment and allow participants to practice.

5 STEP Checking for proper waterproofing: Describe the importance of maintaining proper waterproofing and the potential consequences of failing to do so. Practically demonstrate how to check for proper waterproofing and allow participants to practice.

6 STEP Checking all the bearings on a motorcycle: Explain the importance of checking all the bearings on a motorcycle and the potential consequences of failing to do so. Demonstrate how to check all the bearings on a motorcycle.

7 STEP Checking the condition of brake pads and clutch disks: Describe the importance of checking the condition of brake pads and clutch disks and the potential consequences of failing to do so. Demonstrate how to check the condition of brake pads and clutch disks.

Sub-module 2.3: Defensive Riding

Overview: This sub-module covers defensive riding techniques and tips to ensure the safety of the rider and other road users. It discusses why it is important to ride defensively through and the practice of safe riding including driving and avoiding use of drugs and other intoxicants before riding. Another key issue shall be the proper use of lights, and signals like indicators, headlights and brake lights effectively.

By the end of the session, participants shall be able to;

1. Identify common hazards and risks on the road and explain how to use defensive riding techniques to avoid them.
2. Properly use lights and signals, including indicators, headlights, and brake lights, to effectively communicate their intentions to other road users and enhance their own safety while riding.

Time: 3 Hours

Tools, Equipment and Materials

- Projector
- Makers
- Manila
- Pens

Explain the main goals of the sub-module and what will be covered.

Introduce the concept of defensive riding and why it's important for the safety of both the rider and other road users.

Explain the importance of safe riding practices, including avoiding the use of drugs and other intoxicants before riding. Emphasize the importance of being in a clear and alert state of mind while riding, and the dangers of impaired riding.

3 STEP Using illustrations, explain the proper use of lights and signals, including indicators, headlights, and brake lights. Emphasise the importance of using them effectively to signal your intentions to other road users and avoid accidents

4 STEP Using short videos, explain various defensive riding techniques that riders can use to avoid accidents, such as maintaining a safe distance from other vehicles, scanning the road ahead for hazards, and anticipating the actions of other road users.

5 STEP Using short videos, discuss common hazards and risks that riders may encounter on the road, such as wet or slippery surfaces, potholes, and other obstacles.

Explain how to identify and avoid these hazards, and what to do if you encounter them unexpectedly.

6 STEP Allow participants to take turns to ride the electric motorcycles.

Sub-module 2.4: Cleaning and Washing of the E-Motorcycle

Overview: This sub-module covers effective ways of cleaning and washing the e- motorcycles without causing damage to the electrical components. Selection of cleaning detergents and techniques of avoiding soaking of essential parts shall be covered under this module.

By the end of the session, participants shall be able to;

1. Identify the risks of using harsh cleaning detergents and explain how to select safe and effective cleaning solutions for e-motorcycles.
2. Demonstrate proper cleaning techniques for e-motorcycles that protect essential parts and minimize the risk of damage to the electrical components.

Time: 1 Hour

Tools, Equipment and Materials

- E-motorcycle
- Water source
- Detergents of choice
- Scrubbing

1 STEP Start by introducing the importance of cleaning and maintaining e-motorcycles, and the potential risks of damaging the electrical components if not cleaned properly.

2 STEP Explain the steps of preparing the e-motorcycle for cleaning, such as turning off the power supply and protecting sensitive components from water damage. Emphasize the need for caution when working around electrical components.

3 STEP Discuss various cleaning techniques that can be used to clean the e-motorcycle.

4 STEP Explain the importance of selecting the right cleaning detergents for e-motorcycles and the potential risks of using harsh chemicals that can damage the paint or electrical components. Provide examples of safe and effective cleaning solutions that can be used.

5 STEP Hands-on demonstrations with participants of how to effectively clean the e-motorcycles.

MODULE 3: FINANCIAL LITERACY

Overview: The purpose of this module is to build the competencies of the operators so that they have and apply the requisite knowledge, skills and confidence to manage their own finances effectively to meet their subsistence and development needs.

Module Purpose

The purpose of this module is to build the competencies of the operators so that they have and apply the requisite knowledge, skills and confidence to manage their own finances effectively to meet their subsistence and development needs.

Sub-module 3.1: Personal Financial Management

Overview: This sub-module covers how an individual can manage his/her personal finances including budgeting for incomes and expenditures, prioritising expenditures and managing expenditures within the family as the smallest group planning unit.

By the end of the session, participants shall be able to:

1. Develop a budget plan for personal income and expenditures that ccurately reflects individual financial needs and priorities.
2. Evaluate and prioritize personal expenditures based on available income and financial goals to ensure effective financial management.
3. Develop effective strategies for managing family spending to ensure that the family's financial resources are used efficiently and responsibly.
4. Highlight the business development potential through the utilisation of an e-boda.

Time: 2 Hours

Tools, Equipment and Materials

- Projector
- Flipcharts
- Markers
- Printed posters
- Videos

1 STEP Welcome the participants to the Personal Financial Management session Explain briefly that the main focus of the session is to

- Look into what participants spend money on
- Set financial goals (What do I want in life?)

2 STEP Explain clearly what Needs and Wants are. Ask the participants to divide the manila paper given into two parts, and clearly label one section NEEDS and other WANTS. Ask participants to draw picturesillustrating their main needs and wants.

3 STEP Guide the participants to determine their sources of income and estimate the amount of money they get from each source.

4 STEP Guide participants to allocate the amount of money they spend on each picture they have drawn on the manila paper.

5 STEP Display a picture showing an illustration of a budget. Explain to the participants the steps of filling ininformation generated in the previous exercises.

6 STEP Assign participants a practical exercise to draw complete their budgets, add up the total income and the total expenditure and deduct the expenditure from the income.

7 STEP Participants should present their budgets to the class.

8 STEP Display a picture of a family in an intense discussion with calculator pens and paper.

Ask participants to describe what they see in the photo.

Explain to participants the value of budgeting as a family unit.

9 STEP Review the budgets together with the participants and provide feedback. Positive differences can be used to prompt a discussion on how what to do they use the money which introduces the next sub-module on saving.

Negative difference: Please ask the participants to review their budgets. Allow time for participants to make changes and communicate them to the rest of the class.

Sub-module 3.2: Saving

Overview: This sub-module covers the common savings principles like why and how to save, when to save and where to save.The focus shall be on how the operators shall put aside part of their daily income to meet future financial needs.

By the end of the session, participants shall be able to:

1. Understand the importance of saving and be able to apply common savings principles, including setting savings goals, determining when and how much to save, and identifying suitable savings accounts or investment opportunities.

2. Develop and implement a personal savings plan that aligns with financial goals, taking into account income levels and expenditure patterns, to ensure long-term financial stability andsecurity.

Time: 1 Hour

Tools, Equipment and Materials

- Projector
- Markers
- Manila
- Pens

1 STEP Welcome the participants to the saving module session.

Recap main points from the Personal Finance Management session

Explain briefly that the main focus of the session is to

- Why do you save?
- How to save?
- When do you save?
- Where do you save?

2 STEP Define clearly what saving is.

3 STEP Ask the participants to review the budgets theymade in the previous session and determine the amount left over after expenditure.

4 STEP Ask participants what they would use this money for while referring to their drawings of needs and wants done in the previous session.

5 STEP Provide some context and examples to help participants understand why saving is important. Display pictures of situations like boda boda loans, unexpected medical bills, or investment opportunities to illustrate the benefits of saving.

6 STEP Discuss the different ways to save, such as opening a savings account with a bank or microfinance, or SACCOs. Highlight the benefits and draw backs of each option and encourage participants to consider their personal financial goals when deciding where to save.

7 STEP Discuss the importance of setting savings goals and creating a timeline for achieving them. Encourage participants to prioritize their savings goals based on their financial needs and the urgency of the goal.

8 STEP Provide some practical tips on how to save, such as setting up automatic transfers to a savings account or reducing unnecessary expenses.

9 STEP Encourage participants to revisit their budget plans from the previous session and look for ways to cut costs and increase their savings.

Sub-module 3.3: Loan Management

Overview: This sub-module covers how to manage a loan including the opportunity costs that come with the acquisition of one. A key focus shall beon loan repayment especially for operators in situations of ride-to-own/hire purchase arrangements after securing a motorcycle on loan. Another key issue shall be on how loans can be restructured and repaid in weekly blocks as opposed to paying daily.

By the end of the session, participants shall be able to:

1. Understand the importance of regular motorcycle servicing and the risks associated with not servicing a motorcycle in a timely manner.
2. Identify the key components of a motorcycle that require regular servicing.
3. Know the steps required to properly service a motorcycle.

Time: 1 Hour

Tools, Equipment and Materials

- Projector
- Flipcharts
- Markers
- Printed posters

Welcome the participants and provide a brief overview of the session objectives.

Recap the main points from the previous module on personal finance management, particularly on the importance of managing loans effectively

Define key concepts related to loans such as opportunity costs, restructuring, and repayment in weekly blocks..

2 STEP Provide examples of the different types of loans available to the participants, such as lease-to-own/hire purchase arrangements, personal loans, and business loans. Discuss with participants strategies for effective loan management and take note of them.

3 STEP Discuss the advantages and disadvantages of each type of loan, including the interest rates, repayment terms, and other fees.

4 STEP Conduct a case study exercise in which participants work in groups to analyze a loan repayment scenario and develop a plan for successful repayment.

5 STEP Review the key concepts covered in the session and encourage participants to ask questions and share their own experiences with loans.

MODULE 4: TRAFFIC RULES AND REGULATIONS

Overview: The purpose of this module is to build the competencies of the operators in understanding, applying and adhering to traffic rules and regulations in the country. This module provides an overview of the traffic rules and regulations for motorcycles on public roads. It includes information on traffic signs, signals, and markings, as well as rules for right-of-way, lane usage, and speed limits This module also covers important safety considerations when operating an electric motorcycle on the road, including defensive driving techniques like handling different weather conditions, and being aware of other vehicles and pedestrians.

Module purpose

The purpose of this module is to build the competences of the operators in understanding, applying and adhering to traffic rules and regulations in the country.

Sub-module 4.1: Traffic Signs and Symbols

Overview: This sub-module covers the different road signs and symbols. It discusses the meanings of the different road signage and speed limits and the related penalties for violation of the road signage and symbol warnings.

By the end of the session, participants shall be able to:

1. Identify and interpret different road signs and symbols, and understand their meanings and implications for safe driving.
2. Recognize and adhere to speed limits associated with different road signs and symbols, and understand the consequences of violating these limits and other related traffic laws.
3. Able to demonstrate an understanding of Personal Protective Equipment (PPEs), including helmets and reflector jackets and their importance in maintaining safety and mitigating potential risks.

Time: 1 Hour

Tools, Equipment and Materials

- Road signs and symbols
- Traffic and Road Safe regulations, 2004

1 STEP Display a video showing accidents involving motorcycles to set the tone for the session.

Ask participants to share knowledge of traffic rules and regulations they know Write down the main themes of shared experiences.

2 STEP Introduce the different types of road signs and symbols, including warning signs, regulatory signs, and information signs. Provide examples of each and discuss their meanings.

3 STEP Discuss the importance of following speed limits and the potential consequences of exceeding them. Provide examples of common speed limits and their associated road signs.

4 STEP Explain the penalties for violating road signs and speed limits, including fines, license suspension, and potential legal consequences.

5 STEP Use visual aids such as pictures and videos to reinforce the importance of understanding and adhering to road signs and speed limits.

6 STEP Conduct a group activity where participants identify and interpret different road signs and symbols, and discuss their meanings and implications for safe driving.

7 STEP Conduct a quiz or assessment to test participants' knowledge and understanding of road signs and speed limits and provide feedback and reinforcement as needed.

Sub-module 4.2: Driving Licences

Overview: This sub-module covers the acquisition and use of driving licences including the relevant classes. It also focuses on the importance of having a licence and why an operator should have it at all times as he rides the motorcycle. Lastly, it covers the penalties and liabilities that accrue due its absence when operating a motorcycle.

By the end of the session, participants shall be able to;

1. Fully assemble all mechanical parts of the bike and ensure the bike functioning as per the quality requirements.

Time: 1 Hour

Tools, equipment and materials

- Sample driving permit
- Traffic and Road safety Regulations, 2004

Ask a participant who has a valid permit to narrate his experience

- What class is it?
- How did he get it?
- How much he paid for it?
- How often does he renew it?
- Make reflections on participants' narration.

Ask the participants questions like:

- Was the process easy or challenging?
- What were the key requirements for obtaining the permit?
- Did the participant encounter any challenges during the application process?

1 STEP Provide a list of requirements and explain where they can be able to obtain these requirements required to apply for a driving permit.

Provide participants with a copy of the list of requirements.

2 STEP Review together with participants the advantages of possessing a valid driving license. Emphasize the legal implications and penalties of not having a valid permit, including fines and imprisonment.

3 STEP Display pictures of persons being stopped on the road or being held in prison as a result of not possessing a valid permit.

4 STEP Conclude by encouraging participants to obtain and carry their driving licences at all times while operating a motorcycle.

Sub-module 4.3: Insurance of the Motorcycles

Overview: This sub-module covers third-party motor insurance and why it is important to have one. It also covers how to acquire one and the accompanying penalties and related liabilities that accrue from not having a valid one as an operator uses a motorcycle.

By the end of the session, participants shall be able to;

1. Understand the importance of having third-party motor insurance and its role in protecting themselves and other road users, including the penalties and liabilities that arise from not having one.

2. Identify the steps to acquire third-party motor insurance and understand the terms and conditions associated with the policy.

Time: 1 Hour

Tools, Equipment and Materials

- Valid insurance ticket
- Traffic and Road safety Regulations, 2004

1 STEP Welcome the participants to the sub-module on third-party motor insurance.

Highlight the importance of having insurance while operating a motorcycle.
Discuss the various types of insurance and focus on third-party motor insurance.

2 STEP Explain the meaning of third-party motor insurance.

Discuss the role of third-party motor insurance in protecting themselves and other road users.
Highlight the penalties and liabilities that arise from not having valid third-party motor insurance.

3 STEP Discuss the steps to acquire third-party motor insurance.

Explain the documentation required to apply for third-party motor insurance.
Provide information on the different insurance providers and their policies.

4 STEP Show examples of third-party motor insurance policies and explain their features.

5 STEP Conduct a quiz to test participants' knowledge and understanding of third-party motor insurance.

6 STEP Encourage participants to obtain valid insurance.

THEORY AND PRACTICAL ASSESSMENT

Basic Controls Proficiency:

Set up a designated area where trainees can practice starting and stopping the electric motorcycle smoothly. Evaluate their ability to operate the throttle, clutch, and brakes effectively.

Acceleration and Braking:

Evaluate the trainee's ability to accelerate smoothly and safely, maintain a consistent speed, and execute controlled braking using both front and rear brakes.

Road Signs and Symbols:

Design an oral test that requires trainees to identify and interpret the meaning of various road signs and symbols.