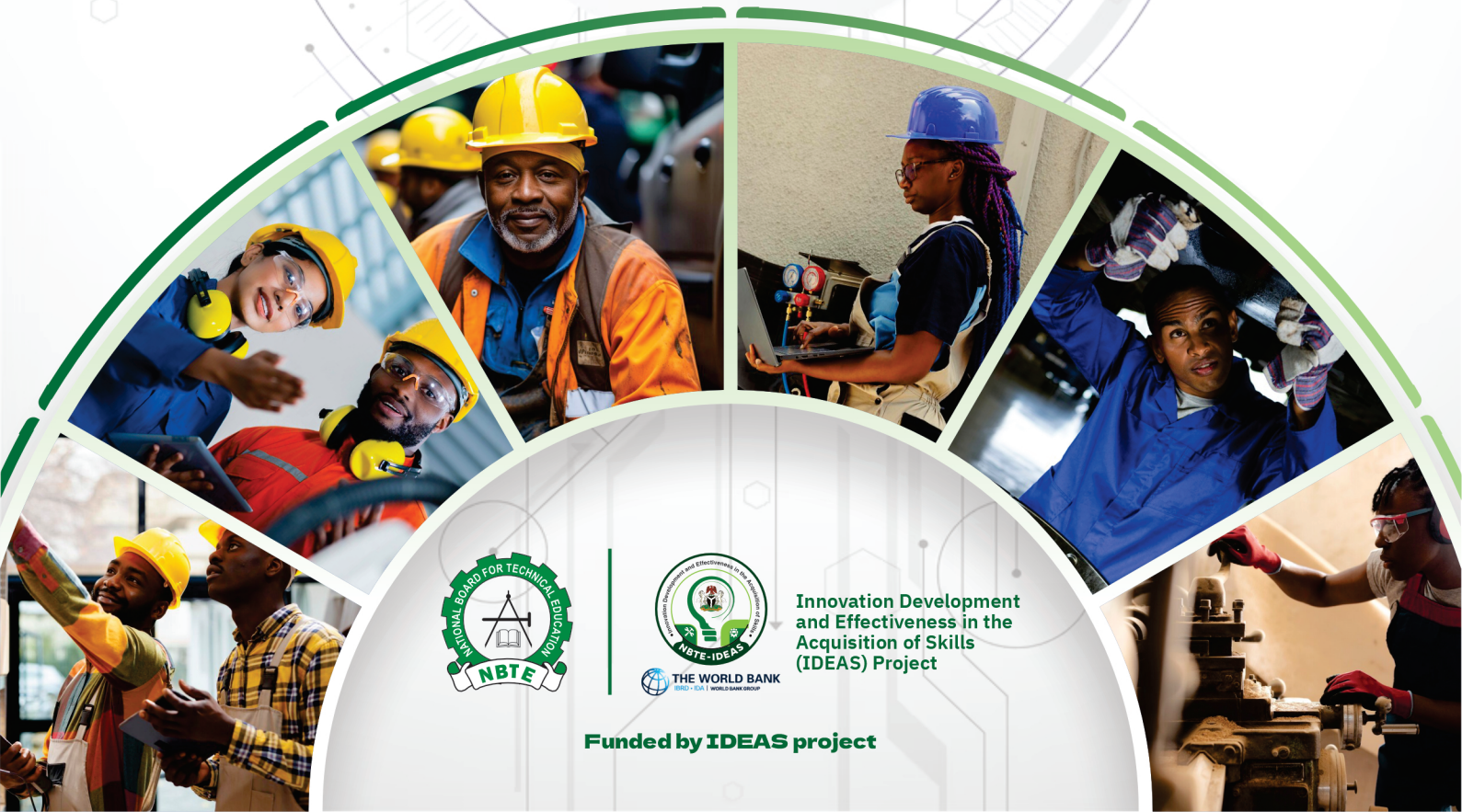
FEDERAL MINISTRY OF EDUCATION

National Skills Qualifications FOR AUTOMOBILE MECHANICS

LEVEL 1, 2 & 3

February, 2025



NATIONAL BOARD FOR TECHNICAL EDUCATION
NBTE

Innovation Development and Effectiveness in the Acquisition of Skills (IDEAS) Project

THE WORLD BANK

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National Board for Technical Education
Plot B, Bida Road, P.M.B. 2239, Kaduna, Nigeria

NATIONAL SKILLS QUALIFICATION

AUTOMOBILE MECHANICS

LEVEL 1-3

FEBRUARY, 2025

Contents

OVERVIEW

This qualification is for those interested in developing a career in Automobile Mechanic Works for the award of National Skills Qualifications (NSQ). It is aimed at producing specialists in Automobile Mechanics and repairs at NSQ Levels 1, 2 and 3 with the competencies to repair automobile faults professionally while complying with relevant regulatory requirements, health and safety.

This qualification is subject to review as and when the need arises.

NATIONAL SKILLS QUALIFICATION

AUTOMOBILE MECHANICS

LEVEL 1

FEBRUARY, 2025

NATIONAL SKILLS QUALIFICATION

NSQ LEVEL 1 – AUTOMOBILE MECHANICS

GENERAL INFORMATION

QUALIFICATION PURPOSE

This qualification is designed for individuals who are interested in developing a career in the Automobile mechanics and repairs industry.

QUALIFICATION REQUIREMENTS

Candidates must:

a. Be at least 15 years of age
b. Be medically fit (visual acuity, blood pressure and blood sugar)
c. Be mentally fit
d. Have achieved all the mandatory units in the qualification

Note:

This is a 180 credit hour qualification. To achieve this qualification; learners are required to achieve all credits units. Each Credit is approximately equivalent to 10 Guided Learning Hours (GLH).

QUALIFICATION OBJECTIVE

At the end of the qualification, the Automobile Mechanic specialist should be able to:

a. Apply Health and safety rules in automotive workshop
b. Communicate effectively in an automotive workshop
c. Relate effectively in an automotive workshop
d. carryout the organisation of automotive mechanic workshop
e. Identify the vehicle layout and systems.
f. Identify automotive service tools and equipment.
g. Apply basic computer skills in automotive industry.
h. Carryout periodic maintenance.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real work environment in which learning and human development is carried out. Simulation is allowed in this units and level (where/when necessary).

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

NATIONAL SKILLS QUALIFICATION

AUTOMOBILE SECTOR
LEVEL 1: AUTOMOBILE MECHANICS

Mandatory Units

S/NO/ UNIT	REFERENCE NO.	NOS TITLE	CREDIT VALUE	GUIDED LEARNING HOURS	REMARKS
1	AUT/AM/001/L1	**Health, Safety and Environment In Automotive industry**	2	20	*Level 1*
2	AUT/AM/002/L1	**Communication Process in an Automotive Environment**	2	20	*Level 1*
3	AUT/AM/003/L1	**Team Work**	1	10	*Level 1*
4	AUT/AM/004/L1	**Introduction to Automobile Mechanic Workshop organization**	2	20	*Level 1*
5	AUT/AM/005/L1	**Introduction to vehicle layout and Systems**	3	30	*Level 1*
6	AUT/AM/006/L1	**Automotive service tools and equipment**	3	30	*Level 1*
7	AUT/AM/007/L1	**Basic computer skills in Automotive Industry**	2	20	*Level 1*
8	AUT/AM/008/L1	**Introduction to Periodic maintenance Service**	3	30	*Level 1*
TOTAL CREDIT VALUE/HOURS			**18**	**180**	

NOTE: Learners are required to cover all NOS at this level.

NOTE: This is a 180 credit hour qualification. To achieve this qualification; Learners are required to achieve 18 Credit from the mandatory units. Each Credit is equivalent to approximate 10 Guided Learning Hours (GLH). The Total Learning Hours will therefore consist of the GLH *plus* the independent learning hours of the candidate, which is generally 50% – 150% of the GLH. ***The actual Total Learning Hours for each Credit will then be a minimum of 15 hours***.

Qualification Purpose: This qualification is aimed at the ability of the learner acquiring sufficient knowledge and skills in the work environment to carry out Automobile Mechanic repairs and support experienced workers in the industry

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit
Unit reference	The unique reference number given to each unit at qualification approval by NBTE
Unit level	Denotes the level of the unit within the National skills Qualification framework NSQF.
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study Time or assessment required to achieve a qualification or unit of a qualification.

Unit 1: Health, Safety and Environment in Automotive industry

Unit Reference Number: **AUT/AM/001/L1**
NSQ Level: **1**
Credit Value: **2**
Guided Learning Hours: **20**

Unit Purpose: This unit specifies the competencies required to demonstrate understanding of safe work practices in the Automotive Industry.

Unit assessment requirements/evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is allowed*** (where/when necessary) in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 001: HEALTH, SAFETY AND ENVIRONMENT (HSE) IN AUTOMOTIVE INDUSTRY

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO 1: Carryout Personal health and hygiene	1.1	Wear clean, smart and appropriate personal protective equipment (wears).									
	1.2	Work safely at all times, complying with health, safety and environmental regulations and guidelines.									
	1.3	Get cuts, grazes and wounds treated by the appropriate personnel.									
	1.4	Report any form of illness promptly to the appropriate personnel.									
LO2: Maintain personal health and hygiene	2.1	Identify own responsibility in the health and safety Act as it relates to own occupation.									
	2.2	Identify general rules on hygiene that must be followed.									
	2.3	Identify correct personal protection equipment (such as Head Protection, Foot Protection, Hand and body protection) and regulatory protection.									
	2.4	Identify the importance of maintaining good personal hygiene.									
	2.5	Demonstrate how to deal with cuts, grazes and wounds and why it is important to do so.									
LO3: Carryout maintenance of a hygienic, safe and secure workplace	3.1	Identify the importance of working in a healthy, safe and hygienic workplace.									
	3.2	Report any accidents or near misses quickly and accurately to the proper personnel.									
	3.3	Identify health, hygiene and safety procedure at work.									
	3.4	Carryout emergency procedures during work.									
	3.5	Identify organizational security procedures and measures.									

	3.6	Carryout disposal of waste and pollution control with organic and inorganic waste disposal methods.									
	3.7	Follow noise control and protection methods.									
LO4: Carryout Prevention of hazards in the work place											
	4.1	Identify any potential hazards and deal with these correctly.									
	4.2	Identify where information about health, safety and environment in the workplace can be obtained.									
	4.3	Identify the types of hazards in the workplace that may occur and how to deal with them.									
	4.4	Identify hazards that can be dealt with personally and those that should be reported to the appropriate personnel.									
	4.5	Identify how to warn other people about potential hazards/hazards and why this is important.									
	4.6	Identify why accidents and near-accidents should be reported and to whom.									
	4.7	Identify the types of emergencies that may happen in the workplace and how to deal with it.									
	4.8	Identify where to find the first-aid equipment and who the registered first responder is in the work place									
	4.9	Carryout safe lifting and handling techniques that should be followed.									
	4.10	Identify other ways of working safely that are relevant to own position and why they are important.									
	4.11	Carryout organizational emergency procedures, in particular fire, and how these should be followed.									
	4.12	Identify the possible causes of fire and how to minimize the									

		possibility of fire in the workplace.									
	4.13	Identify where to find the alarms and how to set them off.									
	4.14	Identify the importance of following the fire safety laws and why it should never be approached unless it is safe to do so.									
	4.15	Describe the organizational security procedures and why these are important.									
	4.16	Identify the importance of reporting all incidents to the appropriate personnel.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 2: COMMUNICATION PROCESS IN AN AUTOMOTIVE ENVIRONMENT

Unit reference number: **AUT/AM/002/L1**
NSQ level: **1**
Credit value: **2**
Guided learning hours: 20

Unit Purpose: To establish a quality communication system that is responsive and subject to change in meeting workers and employers need, in work environment.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

UNIT 002: COMMUNICATION PROCESS IN AN AUTOMOTIVE ENVIRONMENT

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Carryout non-complex communication system in a work environment	1.1	Carryout a simple verbal means to pass necessary information.									
	1.2	Carryout non-verbal means to pass on necessary information e.g. body language.									
	1.3	Identify and explain symbols and signs appropriately.									
LO2: Carryout Information source identification in a work environment.											
	2.1	Identify the source of information in an organization and work environment.									
	2.2	Relate appropriately with the source of information.									
	2.3	Use the various information flow systems in a work environment.									
	2.4	Use information sources to address challenges in a work environment.									
	2.5	Communicate findings in accordance to procedure in a work environment.									
LO3: Identify communication methods in a work environment											
	3.1	Identify the various methods of communication in the work environment.									
	3.2	Use effectively, the various methods of communication in a work environment and communicate effectively to the right personnel.									
	3.3	Identify symbols, signs and codes for effective information									
	3.4	Carryout instructions in line with ethics of the work environment.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 3: TEAM WORK

Unit reference number: **AUT/AM/003/L1**
NSQ level: **1**
Credit value: **1**
Guided learning hours: 10

Unit Purpose: The purpose of this unit to impart to the learner, skills, knowledge and understanding required to develop team spirit and positive working relationship.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 003: TEAM WORK

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO1: Carryout positive working relationship with colleagues	1.1	Identify the need for developing positive relationship with colleagues.									
	1.2	Recognize the importance of relating with other people in a way that makes them feel valued and respected.									
	1.3	Assist team members when required.									
	1.4	Report to the appropriate personnel when request/requesting for assistance fall outside area of responsibility.									
	1.5	Communicate information to colleagues about own work that might affect others.									
LO2: Take Responsibilities within the team											
	2.1	Recognize own role and responsibilities within the team.									
	2.2	Perform individual tasks in line with the team rules and regulations.									
	2.3	Recognize other team member role and responsibilities within the team.									
LO3: Comply with organisational policies											
	3.1	Carryout work In line with organizational standard and structure.									
	3.2	Identify organizational code of conduct.									
	3.3	Use organizational code of practice.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 4: INTRODUCTION TO AUTOMOBILE MECHANIC WORKSHOP ORGANIZATION

Unit reference number: **AUT/AM/004/L1**
NSQ level: **1**
Credit value: **2**
Guided learning hours: **20**

Unit Purpose: This unit aims to equip the learners with the requisite knowledge of how an automotive workshop is to be organized.

Unit assessment requirements/evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 004: INTRODUCTION TO AUTOMOBILE MECHANIC WORKSHOP ORGANIZATION

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO 1: Identify different sections in an Automobile workshop	1.1	Identify the different sections of an automobile workshop • Mechanical • Electrical • Body works									
	1.2	Describe the function of the sections in an automobile workshop									
	1.3	Carryout the services rendered in the various sections of an automobile workshop									
LO 2: Identify roles of Workshop Personnel											
	2.1	Identify key personnel in an automobile workshop									
	2.2	Identify the roles of key personnel in the workshop									
	2.3	State functions of the following personnel • Workshop manager • Line supervisor • Forman									
LO 3: Understand Organizational rules, regulation and standards.											
	3.1	Work in line with organizational standard.									
	3.2	Use organization code of practice.									
	3.3	Explain organizational Code of Conduct.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 5: INTRODUCTION TO VEHICLE LAYOUT AND SYSTEMS

Unit reference number: **AUT/AM/005/L1**
NSQ level: **1**
Credit value: **3**

Guided learning hours: **30**

Unit Purpose: This unit aims to equip the learner with the fundamental understanding of the constructional structure of the automobiles.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. ***Simulation is not allowed*** in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 005: INTRODUCTION TO VEHICLE LAYOUT AND SYSTEMS

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO 1: Know the history of the Motor vehicle											
	1.1	Define the Automobile									
	1.2	Explain the history of Motor vehicles									
	1.3	Identify the basic constructional sections that form the motor vehicle									
LO 2: Identify automobile Systems											
	2.1	Identify the basic systems that form the automobile									
	2.2	Identify the engines and their classification									
	2.3	Identify the engine supporting systems in automobile Fuel system Ignition Engine Lubrication Engine Cooling Electrical and Electronics Etc.									
	2.4	Identify wheel drives FWD RWD AWD 4WD									
	2.5	Identify the power transmission systems Manual transmission Clutch Automatic Transmission and transaxle									
O 3: Identify Chassis design and structures											
	3.1	Identify various chassis design structures.									
	3.2	Recognise the differences between the chassis design structures									
	3.3	Describe advantages and disadvantage of each chassis design and structures.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 6: AUTOMOTIVE SERVICE TOOLS AND EQUIPMENT

Unit reference number: **AUT/AM/006/L1**
NSQ level: **1**
Credit value: **3**
Guided learning hours: **30**

Unit Purpose: This unit is to equip learners with the knowledge of tools and equipment used in the automotive workshop

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 006: AUTOMOTIVE SERVICE TOOLS AND EQUIPMENT

LO (Learning outcome)		**Performance Criteria**	Evidence Type					Evidence Ref Page number			
LO1: Identify common Automotive service hand and power tools	1.1	Identify types of hand and power tools and its use in the automotive workshop									
	1.2	Carry out operation using hand and power tools in accordance with safe working practices to achieve the work outcome.									
	1.3	Carryout maintenance on; • Hand tools • Ancillary equipment • Safety aids.									
	1.4	Select relevant hand and power tools to achieve an identified task.									
	1.5	Perform work skills to measure, mark out, file, fit, tap, thread, cut, drill, finish, position and secure work piece and tools.									
LO2: Identify common Automotive service workshop equipment											
	2.1	Carry out pre-start preparation inspections on power tools and equipment in accordance with approved procedures									
	2.2	Store and secure workshop tools and equipment in line with workplace procedures									
	2.3	Carryout check and recalibrate tools in accordance with workshop tools manuals									
LO3: Carryout maintenance and servicing of workplace tools and equipment											
	3.1	Identify damaged and worn out tools and equipment									
	3.2	Carryout service, adjust and or maintain tools and equipment as specified by manufacturers.									
	3.3	Identify problems associated with power tools and equipment which need to be referred to authorized personnel.									
	3.4	Carry out checks in accordance with manufacturer's/operators guidance, legislation and official guidance and organizational requirements.									

LO4: Identify Workshop Tools And Equipment Storage											
	4.1	Carryout store documentation procedures in an automotive workshop.									
	4.2	Carryout storage procedures of tools and equipment in automotive workshop									
	4.3	Carry out routine maintenance of automotive service tools and equipment									
	4.4	Store and secure workshop tools and equipment in line with workplace procedures.									
	4.5	Dispose waste generated as a result of tool/equipment usage in accordance with workplace procedures.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 7: BASIC COMPUTER SKILLS IN AUTOMOTIVE INDUSTRY

Unit reference number: **AUT/AM/007/L1**
NSQ level: **1**
Credit value: **2**
Guided learning hours: **20**

Unit Purpose: This unit is to provide the necessary skills and competency required for computer usage in the automotive industry.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 007: BASIC COMPUTER SKILLS IN AUTOMOTIVE INDUSTRY

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO 1: Identify Computer Classification and operation											
	1.1	Identify computers according to usage, type and size.									
	1.2	Distinguish between analogue, digital and hybrid computers.									
	1.3	Identify the various types of micro-computers.									
	1.4	Carry out a given assignment using the computer.									
LO 2: Identify the use of computers in modern automobile workshops.											
	2.1	Identify the roles of computer in modern motor vehicles.									
	2.2	Carryout the various applications of computer in automobile workshop.									
	2.3	Identify the characteristics and benefits of computer in automotive workshop.									
LO 3: Identify Computer Hardware and Software Elements											
	3.1	Identify the functions of various hardware and software components of the computer.									
	3.2	Distinguish between operating system and application software.									
	3.3	Select application software for a particular operation.									
LO4: Carryout basic computer Operations	4.1	Operate the keyboard using function keys, alphanumeric keys, numeric keys and control keys.									
	4.2	Carry out typing exercise on the computer.									
	4.3	Perform printing procedures in computer operations.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 8: INTRODUCTION TO PERIODIC MAINTENANCE SERVICES

Unit reference number: **AUT/AM/008/L1**
NSQ level: **1**
Credit value: **2**
Guided learning hours: **20**

Unit Purpose: This unit is to equip learners with the necessary skills required to carry out automotive routine maintenance.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 008: INTRODUCTION TO PERIODIC MAINTENANCE SERVICE

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO 1: Identify vehicle maintenance Services											
	1.1	List the importance of vehicle maintenance services									
	1.2	Identify types of maintenance services carried out on a vehicle									
	1.3	Identify vehicle maintenance checklist.									
	1.4	Carryout vehicle maintenance checklist to assess the various vehicle systems and equipment.									
LO2: Carryout procedures for conducting a lubrication service											
	2.1	Select the right PPE to carryout lubrication services.									
	2.2	Identify the correct servicing parts required for lubrication services.									
	2.3	Identify the procedures for conducting a lubrication service									
	2.4	Carry out a vehicle lubrication service following manufacturer recommended procedure.									
LO 3 Carryout procedure for servicing a vehicle engine											
	3.1	Identify suitable personal protective equipment and motor vehicle coverings throughout all maintenance activities									
	3.2	Identify suitable sources of technical information to support all motor vehicle maintenance activities.									
	3.3	Identify appropriate diagnostic tools and equipment for routine engine service.									
	3.4	Identify the motor vehicle engine systems and components following: • The manufacturer's approved examination methods • Workplace procedures • Health, Safety Environment requirements									

	3.5	Identify accurately any vehicle engine system and components that falls outside the specified maintenance schedule.									
	3.6	Identify technical issues of the engine using appropriate diagnostic tools									
	3.7	Carryout the engine servicing following workshop procedures.									
	3.8	Carryout parameter measurement to evaluate performance of engine components/systems.									
	3.9	Carryout maintenance records accurately in accordance to workshop standards and procedures.									
	3.10	Carryout motor vehicle maintenance activities within the agreed timescale.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

NATIONAL SKILLS QUALIFICATION

AUTOMOBILE MECHANICS

LEVEL 2

FEBRUARY, 2025

NATIONAL SKILLS QUALIFICATION
NSQ LEVEL 2 – AUTOMOBILE MECHANICS
GENERAL INFORMATION

QUALIFICATION PURPOSE
This qualification is designed for individuals who are interested in developing a career in the Automobile mechanic works and repairs industry.

QUALIFICATION REQUIREMENTS
Candidates must:

a. Be at least 15 years of age
b. Be medically fit (visual acuity, blood pressure and blood sugar)
c. Be mentally fit
d. Have achieved all the mandatory units in the qualification

Note:
This is a 250 credit hour qualification. To achieve this qualification; learners are required to achieve all credits units in mandatory units and any other 2 unit of optional units. Each Credit is equivalent to 10 Guided Learning Hours (GLH).

QUALIFICATION OBJECTIVE
At the end of the qualification, the Automobile mechanic specialist should be to:

a. Apply Health Safety precautions in the workshop
b. Communicate effectively in an Automotive Work Environment
c. Carryout Basic Petrol and Diesel Engine Operations
d. Identify Engine Systems (cooling, Lubrication, Ignition and fuel system)
e. Identify Basic Chassis system (Suspension, brakes and steering)
f. Carryout Fastening(Joining) Techniques used in Automotive Services and repair operation
g. Relate effectively in the workshop
h. Apply Basic Computer Skills in Automotive Industry
i. Carryout Motor vehicle tyres and wheel service
j. Carryout Periodic Maintenance Service
k. Carryout Heavy duty Motor vehicle Periodic Maintenance

Unit assessment requirements/evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in these units and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

NATIONAL SKILLS QUALIFICATION
AUTOMOBILE SECTOR
LEVEL 2: AUTOMOBILE MECHANICS

MANDATORY UNITS

S/NO/ UNIT NO	REFERENCE NO.	NOS TITLE	CREDIT VALUE	GUIDED LEARNING HOURS	REMARKS
1	AUT/AM/001/L2	**Health, Safety and Environment In Automotive Industry**	2	20	*Culled from Level I*
2	AUT/AM/002/L2	**Communication Process in an Automotive Work Environment**	2	20	*Culled from Level I*
3	AUT/AM/003/L2	**Basic Petrol and Diesel Engine Operations**	2	20	
4	AUT/AM/004/L2	**Basic Engine Systems(cooling, Lubrication, Ignition and fuel system)**	3	30	
5	AUT/AM/005/L2	**Basic Chassis system (Suspension, brakes and steering)**	3	30	
6	AUT/AM/006/L2	**Fastening(Joining) Techniques used in Automotive Services and repair operation**	3	30	
7	AUT/AM/007/L2	**Team Work**	1	10	*Culled from Level I*
8	AUT/AM/008/L2	**Basic Computer Skills in Automotive Industry**	2	20	*Culled from Level I*
TOTAL CREDIT HOURS			**18**	**180**	

OPTIONAL UNITS (Specialty)

S/NO	OPTIONAL NOS	NOS TITLE	CREDIT VALUE	GUIDED LEARNING HOURS	REMARKS
9	AUT/AM/009/L2	**Motor vehicle tyres and wheel service**	2	20	
10	AUT/AM/010/L2	**Introduction to Periodic Maintenance Service**	2	20	*Culled from Level I*
11	AUT/AM/011/L2	**Heavy duty Motor vehicle Periodic Maintenance**	3	30	
TOTAL CREDIT HOURS			**7**	**70**	

NOTE: Learners are required to achieved all mandatory units and select two (2) units from the optional units.

NOTE: This is a 250 credit hour qualification. To achieve this qualification; Learners are required to achieve 180 Credit hour from the mandatory units and a minimum of 50 credit hour from the optional units. Each Credit is equivalent to approximately 10 Guided Learning Hours (GLH). The Total Learning Hours will therefore consist of the GLH *plus* the independent learning hours of the candidate, which is generally 50% – 150% of the GLH. ***The actual Total Learning Hours for each Credit will then be a minimum of 15 hours***.

Qualification Purpose: This qualification is aimed at the ability of the learner acquiring sufficient knowledge and skills in the work environment to carry out Automobile Mechanic works and support experienced workers in the industry

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit
Unit reference	The unique reference number given to each unit at qualification approval by NBTE
Unit level	Denotes the level of the unit within the National skills Qualification framework NSQF.
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

Unit 1: Health, Safety and Environment in Automotive industry

Unit Reference Number: **AUT/AM/001/L1**
NSQ Level: **2**
Credit Value: **2**
Guided Learning Hours: **20**

Unit Purpose: This unit specifies the competencies required to demonstrate understanding of safe work practices in the Automotive Industry.

Unit assessment requirements/evidence requirements:
Assessment must be carried out in real workplace environment. in which learning and human development is carried out. ***Simulation is allowed*** (where/when necessary) in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 001: HEALTH, SAFETY AND ENVIRONMENT (HSE) IN AUTOMOTIVE INDUSTRY

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO 1: Carryout Personal health and hygiene	1.1	Wear clean, smart and appropriate personal protective equipment (wears).									
	1.2	Work safely at all times, complying with health, safety and environmental regulations and guidelines.									
	1.3	Get cuts, grazes and wounds treated by the appropriate personnel.									
	1.4	Report any form of illness promptly to the appropriate personnel.									
LO2: Maintain personal health and hygiene	2.1	Identify own responsibility in the health and safety Act as it relates to own occupation.									
	2.2	Identify general rules on hygiene that must be followed.									
	2.3	Identify correct personal protection equipment (such as Head Protection, Foot Protection, Hand and body protection) and regulatory protection.									
	2.4	Identify the importance of maintaining good personal hygiene.									
	2.5	Demonstrate how to deal with cuts, grazes and wounds and why it is important to do so.									
LO3: Carryout maintenance of a hygienic, safe and secure workplace	3.1	Identify the importance of working in a healthy, safe and hygienic workplace.									
	3.2	Report any accidents or near misses quickly and accurately to the proper personnel.									
	3.3	Identify health, hygiene and safety procedure at work.									
	3.4	Carryout emergency procedures during work.									
	3.5	Identify organizational security procedures and measures.									

	3.6	Carryout disposal of waste and pollution control with organic and inorganic waste disposal methods.									
	3.7	Follow noise control and protection methods.									
LO4: Carryout Prevention of hazards in the work place											
	4.1	Identify any potential hazards and deal with these correctly.									
	4.2	Identify where information about health, safety and environment in the workplace can be obtained.									
	4.3	Identify the types of hazards in the workplace that may occur and how to deal with them.									
	4.4	Identify hazards that can be dealt with personally and those that should be reported to the appropriate personnel.									
	4.5	Identify how to warn other people about potential hazards/hazards and why this is important.									
	4.6	Identify why accidents and near-accidents should be reported and to whom.									
	4.7	Identify the types of emergencies that may happen in the workplace and how to deal with it.									
	4.8	Identify where to find the first-aid equipment and who the registered first responder is in the work place									
	4.9	Carryout safe lifting and handling techniques that should be followed.									
	4.10	Identify other ways of working safely that are relevant to own position and why they are important.									
	4.11	Carryout organizational emergency procedures, in particular fire, and how these should be followed.									
	4.12	Identify the possible causes of fire and how to minimize the									

		possibility of fire in the workplace.									
	4.13	Identify where to find the alarms and how to set them off.									
	4.14	Identify the importance of following the fire safety laws and why it should never be approached unless it is safe to do so.									
	4.15	Describe the organizational security procedures and why these are important.									
	4.16	Identify the importance of reporting all incidents to the appropriate personnel.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 2: COMMUNICATION PROCESS IN AN AUTOMOTIVE ENVIRONMENT

Unit reference number: **AUT/AM/002/L1**
NSQ level: **2**
Credit value: **2**
Guided learning hours: **20**

Unit Purpose: To establish a quality communication system that is responsive and subject to change in meeting workers and employers need, in work environment.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

UNIT 002: COMMUNICATION PROCESS IN AN AUTOMOTIVE ENVIRONMENT

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Carryout non-complex communication system in a work environment	1.1	Carryout a simple verbal means to pass necessary information.									
	1.2	Carryout non-verbal means to pass on necessary information e.g. body language.									
	1.3	Identify and explain symbols and signs appropriately.									
LO2: Carryout Information source identification in a work environment.											
	2.1	Identify the source of information in an organization and work environment.									
	2.2	Relate appropriately with the source of information.									
	2.3	Use the various information flow systems in a work environment.									
	2.4	Use information sources to address challenges in a work environment.									
	2.5	Communicate findings in accordance to procedure in a work environment.									
LO3: Identify communication methods in a work environment											
	3.1	Identify the various methods of communication in the work environment.									
	3.2	Use effectively, the various methods of communication in a work environment and communicate effectively to the right personnel.									
	3.3	Identify symbols, signs and codes for effective information									
	3.4	Carryout instructions in line with ethics of the work environment.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 3: BASIC PETROL AND DIESEL ENGINE OPERATIONS

Unit reference number: **AUT/AM/001/L2**
NSQ level: **2**
Credit value: **2**
Guided learning hours: **20**

Unit Purpose: To equip the learner with the basic knowledge and skills required to carry out repairs in petrol and diesel engines.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

UNIT 003: BASIC PETROL AND DIESEL ENGINES OPERATION

LO (Learning outcome)		**Performance Criteria:-**	Evidence Type					Evidence Ref Page number			
L.O 1: Identify Safety, Health and Environmental regulations at workplace.	1.1	Observe workshop safety precautions required in carrying out work on an automotive engine.									
	1.2	Carryout workshop procedures required for safe disposal of waste during automotive maintenance activities. .									
	1.3	Perform safety procedures required for engine repairs in an automotive workshop									
LO2: Identify basic Petrol and Diesel Engine components.	2.1	Identify different types of engines base on fuel type • Petrol • Diesel									
	2.2	Identify different types of engines base on design: • Cylinder / Valve arrangement • Transverse & Longitudinal									
	2.3	Identify components of a petrol engines									
	2.4	Identify components of a diesel engines									
LO3: Carryout basic petrol and Diesel Engine component removal and Refitting operations	3.1	Identify tools and equipment required for removal and replacement of engines and its components									
	3.2	Observe safety procedures when removing basic engine components.									
	3.3	Identify workshop procedures in the storage of removed components.									
	3.4	Carry out removal and replacement of parts in accordance to manufacturers' specification.									
	3.5	Operate the assembled components and ensure all function are in accordance to specifications.									
	3.6	Dispose all wastes properly following relevant laws and regulations									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 4: BASIC ENGINE SYSTEMS (COOLING, LUBRICATION, IGNITION AND FUEL SYSTEM)

Unit reference number: **AUT/AM/004/L2**
NSQ level: **2**
Credit value: **3**
Guided learning hours: **30**

Unit Purpose: To equip the learner with the knowledge and skills required in the maintenance of basic engine systems.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 004: BASIC ENGINE SYSTEMS (COOLING, LUBRICATION, IGNITION AND FUEL SYSTEM)

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Identify tools and equipment used in basic engine system maintenance											
	1.1	Identify tools and equipment for engine system maintenance.									
	1.2	Identify the appropriate tools and equipment for engine system maintenance.									
	1.3	Identify appropriate tools and equipment to carry out engine system maintenance.									
L.O 2: Identify basic components of engine cooling system											
	2.1	Identify basic cooling components in the engine system.									
	2.2	Identify the layout of basic components in cooling system									
	2.3	Identify basic components of engine cooling system.									
	2.4	Couple the basic cooling system component									
LO3: Identify basic components of engine lubrication system	3.1	Identify basic lubrication components of the engine system.									
	3.2	Identify the layout of basic components in cooling system									
	3.3	Identify basic components of the engine lubrication system									
	3.4	Remove and refit basic lubrication system components									
LO4: Identify the basic components of engine ignition system	4.1	Identify the basic components in the engine ignition system.									
	4.2	Identify the layout of basic components in ignition system									
	4.3	Identify basic components of the engine ignition system									
	4.4	Remove and refit basic ignition system component									

LO5: Identify the basic components of engine fuel system	3.1	Identify the basic components in the engine fuel system.									
	3.2	Identify the layout of basic components in engine fuel system									
	3.3	Identify basic components of the engine fuel system									
	3.4	Remove and refit basic fuel system components.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 5: BASIC CHASSIS SYSTEM (SUSPENSION, BRAKES AND STEERING)

Unit reference number: **AUT/AM/005/L2**
NSQ level: **2**
Credit value: **3**
Guided learning hours: **30**

Unit Purpose: To equip the learner with the knowledge and skills required in the maintenance of basic chassis system

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

UNIT 005: BASIC CHASSIS SYSTEM (SUSPENSION, BRAKES AND STEERING)

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Identify tools and equipment used in basic chassis system maintenance.	1.1	Identify correct tools for chassis system components maintenance.									
	1.2	Select correct tools and equipment for chassis system components maintenance									
	1.3	Use correct tools and equipment in carrying out chassis system maintenance.									
	2.1	Describe the basic components in the vehicle suspension system.									
	2.2	Identify the layout of basic suspension components of the vehicle.									
	2.3	Identify the basic components of vehicle suspension system									
	2.4	Remove and refit basic vehicle suspension components.									
LO3: Identify basic components of vehicle brake system	3.1	Identify the basic components in the vehicle brake system.									
	3.2	Identify the layout of basic brake system components.									
	3.3	Identify the basic component of the vehicle brake system.									
	3.4	Remove and refit basic vehicle brake system component.									
LO4: Basic components of steering system	4.1	Identify the basic components in the steering system.									
	4.2	Identify the layout of the basic component of the vehicle steering system.									
	4.3	Identify the basic components of vehicle steering system									
	4.4	Remove and refit basic steering system component.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 6: FASTENING (JOINING) TECHNIQUES USED IN AUTOMOBILE SERVICES AND REPAIR OPERATION

Unit reference number: **AUT/AM/006/L2**
NSQ level: **2**
Credit value: **3**
Guided learning hours: **30**
Unit Purpose: To equip learner with the knowledge and skills required in fastening and joining techniques used in automotive Industry

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 006: FASTENING (JOINING) TECHNIQUES USED IN AUTOMOTIVE SERVICES AND REPAIR OPERATIONS

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO 1: Identify types of materials used in joining and fastening in automotive workshop.	1.1	Identify various materials used for fastening and joining in auto workshop.									
	1.2	Identify the composition of various materials used for fastening and joining in the auto workshop.									
	1.3	Identify various materials for fastening and joining in an auto workshop.									
LO 2: Identify tools and equipment for carrying out metal joining operations											
	2.1	Identify the tools and equipment for metal joining operation									
	2.2	Identify correct tools and equipment for carrying out metal joining operations									
	2.3	Check for stability/alignment of tools and material during use.									
LO3: Carryout Joining and fastening techniques in automotive workshop.	3.1	Identify various joining and fastening techniques in an auto workshop.									
	3.2	Apply techniques for identifying defects in joining and fastening.									
	3.3	Identify areas of applications for joining and fastening.									
LO4: Carryout Material Joining and fastening procedures in an automotive workshop.											
	4.1	Prepare material and align to enable suitable joint to be achieved.									
	4.2	Carryout measuring procedures on joining and fastening.									
	4.3	Determine alignment procedures before joining.									
	4.4	Setup equipment to carryout metal joining operations: • Check suitability of joining technique • Check suitability of tooling									

		• check if consumables are correct									
	4.5	Identify joint and fasteners defects.									
	4.6	Check integrity of the joint(s). ie visual inspection etc.									
	4.7	Carryout metal joining operations within the agreed timescale.									
LO 5: Carryout safety precautions required in metal joining and fastening	5.1	Carryout the procedures involved in metal joining and fastening operations.									
	5.2	Observe safety precautions required in metal joining and fastening									
	5.3	Carryout measures to protect the motor vehicle in metal joining operations.									
	5.4	Carryout maintenance of PPE and equipment in accordance with workshop procedures.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 7: TEAM WORK

Unit reference number: **AUT/AM/007/L1**
NSQ level: **2**
Credit value: **1**
Guided learning hours: **10**
Unit Purpose: The purpose of this unit is to impart to the learner, skills, knowledge and understanding required to develop team spirit and positive working relationship.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 007: TEAM WORK

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Carryout Positive working relationship with colleagues	1.1	Identify the need for developing positive relationship with colleagues.									
	1.2	Recognize the importance of relating with other people in a way that makes them feel valued and respected.									
	1.3	Assist team members when required.									
	1.4	Report to the appropriate personnel when request/requesting for assistance fall outside area of responsibility.									
	1.5	Communicate information to colleagues about own work that might affect others.									
LO2: Identify Responsibilities within the team											
	2.1	Recognize own role and responsibilities within the team.									
	2.2	Perform individual tasks in line with the team rules and regulations.									
	2.3	Participate effectively in teamwork.									
LO3: Carryout compliance with organisational policies											
	3.1	Work In line with organizational standard and structure.									
	3.2	Identify organizational code of practice.									
	3.3	Identify organizational code of conduct.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 8: BASIC COMPUTER SKILLS IN AUTOMOTIVE INDUSTRY

Unit reference number: AUT/AM/008/L1
NSQ level: 2
Credit value: 2
Guided learning hours: 20
Unit Purpose: This unit is to provide the necessary skills and competency required for computer usage in the automotive industry.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 008: BASIC COMPUTER SKILLS IN AUTOMOTIVE INDUSTRY

LO (Learning outcome)		**Performance Criteria:-**	Evidence Type					Evidence Ref Page number			
LO 1: Identify Computer Classification and operation											
	1.1	Identify computers according to usage, type and size.									
	1.2	Differentiate between analogue, digital and hybrid computers.									
	1.3	Identify the various types of micro-computers.									
	1.4	Carryout a given assignment using the computer.									
LO 2: Identify use of computers in modern automobile workshops.											
	2.1	Identify the roles of computer in modern motor vehicles.									
	2.2	Identify the various applications of computer in automobile workshop.									
	2.3	Identify the characteristics and benefits of computer in automotive workshop.									
LO 3: Identify Computer Hardware and Software Elements											
	3.1	Identify the functions of various hardware and software components of the computer.									
	3.2	Differentiate between operating system and application software.									
	3.3	Select application software for a particular operation.									
LO4: Carryout basic computer Operation	4.1	Operate the keyboard using function keys, alphanumeric keys, numeric keys and control keys.									
	4.2	Carryout typing exercise on the computer.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 9: MOTOR VEHICLE TYRES AND WHEELS

Unit reference number: AUT/AM/009/L2
NSQ level: 2
Credit value: 2
Guided learning hours: 20
Unit Purpose: This unit is about inspecting standard light motor vehicle tyres and wheels to assess their conditions and suitability for repair and carrying out necessary repair, replacement or refitting activities. It includes replacement and repair procedures for wheels, tyres and tubes.
.
Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 009: MOTOR VEHICLE TYRES AND WHEELS

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Identify Wheels/tyre classification and characteristics	1.1	Identify various tyres classification and their characteristics.									
	1.2	Identify wheel/tyres data according to manufacturer's specifications.									
	1.3	Differentiate the following wheels; • steel • alloy									
LO2: Identify tools/equipment for wheels/tyre repairs and replacement	2.1	Identify and select tools and equipment used in wheels/tyres repairs.									
	2.2	Carryout all inspection, repair and replacement activities using suitable tools and equipment.									
	2.3	Ensure that all tyres/wheel tools and equipment are safe prior to use.									
LO3: Carryout Inspection, repairs and replacement of motor vehicle tyres and wheels	3.1	Use suitable personal protective equipment and motor vehicle coverings throughout all tyres and wheels inspection, repair and replacement activities.									
	3.2	Use suitable sources of technical information to support your inspection, repair and replacement of tyres and wheels									
	3.3	Operate in a way which minimizes the risk of damage to the motor vehicle and its systems.									
	3.4	Perform all inspection, repair and replacement activities following: • manufacturer's instructions • your workplace procedure • health, safety and environment requirements.									
	3.5	Carryout all inspection, repair and replacement activities using • the correct inspection technique									

		• the correct type and size of component • suitable tools and equipment									
	3.6	Dispose of removed components safely to meet legal and workplace requirements.									
	3.7	Ensure that replaced and refitted tyres and valves are correctly fitted.									
	3.8	Report any anticipated delays in completion and any additional faults identified to the relevant personnel promptly.									
	3.9	Carryout wheel balancing operations.									
	3.10	Carry out appropriate repairs according to manufacturers' specification on wheels with tyre pressure sensor.									
	3.11	Carryout replacement tyres in accordance with manufacturer's specifications.									
	3.12	Identify wheel data according to manufacturer's specifications.									
	3.13	Store tyres and wheels in line with workplace procedures.									
	3.14	Carryout tyre replacement in accordance with motor vehicle manufacturer's specification.									
	3.15	Complete all activities within the agreed timescale.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 10: INTRODUCTION TO PERIODIC MAINTENANCE SERVICES

Unit reference number: **AUT/AM/010/L2**
NSQ level: **2**
Credit value: **2**
Guided learning hours: **20**

Unit Purpose: This unit is to equip learners with the necessary skills required to carry out automotive routine maintenance.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 008: INTRODUCTION TO PERIODIC MAINTENANCE SERVICE

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO 1: Identify vehicle maintenance Services	1.1	Identify the importance of vehicle maintenance services									
	1.2	Identify types of maintenance services carried out on a vehicle									
	1.3	Identify vehicle maintenance checklist.									
	1.4	Carryout vehicle maintenance checklist to assess the various vehicle systems and equipment.									
LO2: Carryout procedures for conducting a lubrication service											
	2.1	Carryout the procedures for conducting a lubrication service.									
	2.2	Identify the correct servicing parts required for lubrication services.									
	2.3	Identify the right PPE to carryout lubrication services									
	2.4	Identify areas requiring lubrication during routine maintenance services in a vehicle.									
	2.5	Carry out a vehicle lubrication service following manufacturer recommended procedure.									
LO 3 Carryout the procedure for servicing a vehicle engine											
	3.1	Identify suitable personal protective equipment and motor vehicle coverings throughout all maintenance activities									
	3.2	Identify suitable sources of technical information to support all motor vehicle maintenance activities.									
	3.3	Identify and use appropriate diagnostic tools and equipment for routine engine service.									
	3.4	Identify the motor vehicle engine systems and components following: • The manufacturer's approved examination methods • Workplace procedures									

		• Health, Safety Environment requirements									
	3.5	Identify accurately any vehicle engine system and components that falls outside the specified maintenance schedule.									
	3.6	Identify technical issues following workshop procedures.									
	3.7	Carryout the servicing of engine components following workshop procedures									
	3.8	Carryout accurate testing methods to evaluate performance of replaced and adjusted components/systems.									
	3.9	Carryout maintenance records accurately in accordance to workshop standards and procedures.									
	3.10	Carryout motor vehicle maintenance activities within the agreed timescale.									
LO 4: Identify the required service parts after sales	4.1	Identify workshop manuals for routine services.									
	4.2	Identify the required servicing parts for routine servicing procedures									
	4.3	Identify the original from imitation after sales servicing parts.									
	4.4	Process order for placement of automotive servicing parts.									
LO 5: Identify diagnosing tools to clear identified faults	5.1	Operate the diagnosing equipment to check for faults during routine service.									
	5.2	Interpret the identified faults codes									
	5.3	Carry out repairs of identified fault(s)									
	5.4	Use diagnosing equipment to clear faults.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 11: HEAVY DUTY MOTOR VEHICLE PERIODIC MAINTENANCE

Unit reference number: **AUT/AM/011/L2**
NSQ level: **2**
Credit value: **3**
Guided learning hours: **30**
Unit Purpose: This unit is to equip learner with all skills required to carry out automotive routine maintenance of heavy duty motor vehicle.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)

Unit 011: HEAVY DUTY MOTOR VEHICLE PERIODIC MAINTENANCE

LO (Learning outcome) Performance Criteria:-			Evidence Type					Evidence Ref Page number			
LO 1: Identify types and application of filters											
	1.1	Identify the various types of filters and their components.									
	1.2	Identify different filters and the filtrations system (paper filters, fabric, cyclone, wire-mesh filters etc)									
	1.3	Identify the application of pre-filtration and filtration systems.									
	1.4	Apply correct specifications and tolerances for the heavy duty motor vehicle when making assessments of system and component performance.									
	1.5	Work in a way which minimises the risk of damage to the heavy duty motor vehicle, its systems and the environment.									
LO2: Carryout procedures for conducting a lubrication service											
	2.1	Use manufacturer's routine maintenance checklist accurately									
	2.2	Use suitable personal protective equipment and heavy duty motor vehicle coverings throughout all motor vehicle maintenance activities									
	2.3	Ensure heavy duty motor vehicle's systems and components complies with the following; • The manufacturer's approved examination methods • Workplace procedures • Health, Safety and workplace requirements.									
	2.4	Identify areas requiring lubrication for routine maintenance services in a heavy duty vehicle.									
	2.5	Carryout correct specifications and tolerances for the heavy duty motor vehicle when making assessments of system and component performance.									
LO 3: Carryout engine service procedure											
	3.1	Use suitable personal protective equipment and heavy duty motor vehicle coverings throughout all maintenance activities.									
	3.2	Identify suitable sources of technical information to support all your heavy									

		duty motor vehicle maintenance activities.									
	3.3	Identify the motor vehicle's systems and components following: • The manufacturer's approved examination methods • Workplace procedures • Health, Safety and environmental requirements									
	3.4	Identify accurately any faulty light motor vehicle system and component.									
	3.5	Dis-mantle and assemble components in a way which minimizes the risk of damage on the vehicle and its systems.									
	3.6	Identify suitable and accurate testing methods to evaluate the performance of all replaced and adjusted components/systems.									
	3.7	Promptly communicate any problems or issues relating to the motor vehicle's condition or conformity to the relevant personnel.									
	3.8	Identify maintenance record accurately and passed to the relevant personnel.									
	3.9	Identify any anticipated delays in completion to the relevant personnel.									
	3.10	Carryout complete motor vehicle maintenance within the agreed timescale.									
LO 4: Identify the required service parts after sales	4.1	Use workshop manuals for routine services.									
	4.2	Identify required servicing parts for routine servicing procedures									
	4.3	Identify the original from imitation after sales servicing parts.									
	4.4	Process order for placement of automotive servicing parts.									
LO 5: Identify diagnosing tools to clear identified faults	5.1	Identify the diagnosing equipment to check for faults during routine maintenance									
	5.2	Identify faults codes and Interpret									
	5.3	Carry out repairs of identified fault(s)									
	5.4	Identify diagnosing equipment to clear faults.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

NATIONAL SKILLS QUALIFICATION

AUTOMOBILE MECHANICS

LEVEL 3

FEBRUARY, 2025

ATIONAL SKILLS QUALIFICATION
NSQ LEVEL 3 – AUTOMOBILE MECHANIC WORKS

GENERAL INFORMATION

QUALIFICATION PURPOSE

This qualification is designed for individuals who are interested in developing a career in the Automobile mechanic industry.

QUALIFICATION REQUIREMENTS

Candidates must:

i. Be at least 15 years of age
ii. Be medically fit (visual acuity, blood pressure and blood sugar)
iii. Be mentally fit
iv. Have achieved all the mandatory units in the qualification

Note:
This is a 340 credit hour qualification. To achieve this qualification; learners are required to achieve all credits in the mandatory unit and a minimum of two (2) optional units. Each Credit is equivalent to 10 Guided Learning Hours (GLH).
There are four (4) optional units, learners are at liberty to pick any optional unit of interest

QUALIFICATION OBJECTIVE

At the end of the qualification, the Auto mechanic specialist should be to demonstrate knowledge and skills in:

a. Apply Health Safety precautions in the workshop
b. Communicate clearly in an Automotive Workshop
c. Relate effectively in an automotive workshop
d. Develop Customer Relations in an Automotive Service & Repair workshop
e. Identify Basic Automotive Electrics (Battery, Charging and Starting system)
f. Carryout Petrol and Diesel Engine Maintenance 1
g. Carryout Engine Lubrication system maintenance 1
h. Conduct Engine Cooling System maintenance 1
i. Carryout Fuel and air injection system maintenance
j. Conduct Ignition system maintenance 1
k. Carryout Brakes and Suspension system maintenance
l. Carryout Motor vehicle tyres and wheel service.
m. Identify Automotive Electrical/Electronic Components.
n. Identify Basic Vehicle management and diagnosis system.
o. Conduct Motor vehicle Damage Assessment.

MANDATORY UNITS

S/NO/ UNIT NO	REFERENCE NO.	NOS TITLE	CREDIT VALUE	GUIDED LEARNING HOURS	REMARKS
1	AUT/AM/001/L3	**Health, Safety and Environment In Automotive Industry**	2	20	*Culled from Level I*
2	AUT/AM/002/L3	**Communication Process in an Automotive Work Environment**	2	20	*Culled from Level I*
3	AUT/AM/003/L3	**Team Work**	1	10	*Culled from Level I*
4	AUT/AM/004/L3	**Customer Relations in an Automotive Service & Repair workshop**	2	20	
5	AUT/AM/005/L3	**Basic Automotive Electrics (Battery, Charging and Starting system)**	3	30	
6	AUT/AM/006/L3	**Petrol and Diesel Engine Maintenance 1**	3	30	
7	AUT/AM/007/L3	**Engine Lubrication system maintenance 1**	2	20	
8	AUT/AM/008/L3	**Engine Cooling System maintenance 1**	2	20	
9	AUT/AM/009/L3	**Fuel system maintenance 1**	2	20	
10	AUT/AM/010/L3	**Ignition system maintenance 1**	3	30	
11	AUT/AM/011/L3	**Brakes and Suspension system maintenance 1**	3	30	
	Total		**29**	**250**	

OPTIONAL UNITS (Specialty)

S/NO	OPTIONAL NOS	NOS TITLE	CREDIT VALUE	GUIDED LEARNING HOURS	REMARKS
12	AUT/AM/012/L3	**Motor vehicle tyres and wheel service**	2	20	*Culled from level 2*
13	AUT/AM/013/L3	**Automotive Electrical/Electronic Components**	2	20	
14	AUT/AM/014/L3	**Basic Vehicle management and diagnosis system**	2	20	
15	AUT/AM/015/L3	**Motor vehicle Damage Assessment**	3	30	
TOTAL CREDIT HOURS			**15**	**150**	

NOTE: Learners are required to select two (2) units from the optional units.

NOTE: This is a 340 credit hour qualification. To achieve this qualification; Learners are required to achieve 250 Credit hour from the mandatory units and a minimum of 90 credit hour from the optional units. Each Credit is equivalent to approximately 10 Guided Learning Hours (GLH). The Total Learning Hours will therefore consist of the GLH *plus* the independent learning hours of the candidate, which is generally 50% – 150% of the GLH. ***The actual Total Learning Hours for each Credit will then be a minimum of 15 hours***.

Qualification purpose: This qualification is aimed at the ability of the learner acquiring sufficient knowledge and skills in Automobile mechanics and to carryout operations with experienced workers in the industry

Unit title	Provides a clear explanation of the content of the unit.
Unit number	The unique number assigned to the unit
Unit reference	The unique reference number given to each unit at qualification approval by NBTE
Unit level	Denotes the level of the unit within the National skills Qualification framework NSQF.
Unit credit value	The value that has been given to the unit based on the expected learning time for an average learner. 1 credit = 10 learning hours
Unit aim	Provides a brief outline of the unit content.
Learning outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment criteria	A description of the requirements a learner must achieve to demonstrate that a learning outcome has been met.
Unit assessment guidance	Any additional guidance provided to support the assessment of the unit.
Unit guided learning hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

Unit 1: Health, Safety and Environment in Automotive industry

Unit Reference Number: AUT/AM/001/L1	
NSQ Level	**1**
Credit Value:	**2**
Guided Learning Hours:	**20**

Unit Purpose: This unit specifies the competencies required to demonstrate understanding of safe work practices in the Automotive Industry.

Unit assessment requirements/evidence requirements:
Assessment must be carried out in real workplace environment. in which learning and human development is carried out. ***Simulation is allowed*** (where/when necessary) in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 001: HEALTH, SAFETY AND ENVIRONMENT (HSE) IN AUTOMOTIVE INDUSTRY

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO 1: Carryout Personal health and hygiene	1.1	Wear clean, smart and appropriate personal protective equipment (wears).									
	1.2	Work safely at all times, complying with health, safety and environmental regulations and guidelines.									
	1.3	Get cuts, grazes and wounds treated by the appropriate personnel.									
	1.4	Report any form of illness promptly to the appropriate personnel.									
LO2: Maintain personal health and hygiene	2.1	Identify own responsibility in the health and safety Act as it relates to own occupation.									
	2.2	Identify general rules on hygiene that must be followed.									
	2.3	Identify correct personal protection equipment (such as Head Protection, Foot Protection, Hand and body protection) and regulatory protection.									
	2.4	Identify the importance of maintaining good personal hygiene.									
	2.5	Demonstrate how to deal with cuts, grazes and wounds and why it is important to do so.									
LO3: Carryout maintenance of a hygienic, safe and secure workplace	3.1	Identify the importance of working in a healthy, safe and hygienic workplace.									
	3.2	Report any accidents or near misses quickly and accurately to the proper personnel.									
	3.3	Identify health, hygiene and safety procedure at work.									
	3.4	Carryout emergency procedures during work.									
	3.5	Identify organizational security procedures and measures.									

	3.6	Carryout disposal of waste and pollution control with organic and inorganic waste disposal methods.									
	3.7	Follow noise control and protection methods.									
LO4: Carryout Prevention of hazards in the work place											
	4.1	Identify any potential hazards and deal with these correctly.									
	4.2	Identify where information about health, safety and environment in the workplace can be obtained.									
	4.3	Identify the types of hazards in the workplace that may occur and how to deal with them.									
	4.4	Identify hazards that can be dealt with personally and those that should be reported to the appropriate personnel.									
	4.5	Identify how to warn other people about potential hazards/hazards and why this is important.									
	4.6	Identify why accidents and near-accidents should be reported and to whom.									
	4.7	Identify the types of emergencies that may happen in the workplace and how to deal with it.									
	4.8	Identify where to find the first-aid equipment and who the registered first responder is in the work place									
	4.9	Carryout safe lifting and handling techniques that should be followed.									
	4.10	Identify other ways of working safely that are relevant to own position and why they are important.									
	4.11	Carryout organizational emergency procedures, in particular fire, and how these should be followed.									
	4.12	Identify the possible causes of fire and how to minimize the									

		possibility of fire in the workplace.									
	4.13	Identify where to find the alarms and how to set them off.									
	4.14	Identify the importance of following the fire safety laws and why it should never be approached unless it is safe to do so.									
	4.15	Describe the organizational security procedures and why these are important.									
	4.16	Identify the importance of reporting all incidents to the appropriate personnel.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 2: COMMUNICATION PROCESS IN AN AUTOMOTIVE ENVIRONMENT

Unit reference number: AUT/AM/002/L1
NSQ level: 3
Credit value: 2
Guided learning hours: 20

Unit Purpose: To establish a quality communication system that is responsive and subject to change in meeting workers and employers need, in work environment.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 002: COMMUNICATION PROCESS IN AN AUTOMOTIVE ENVIRONMENT

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Carryout non-complex communication system in a work environment	1.1	Carryout a simple verbal means to pass necessary information.									
	1.2	Carryout non-verbal means to pass on necessary information e.g. body language.									
	1.3	Identify and explain symbols and signs appropriately.									
LO2: Carryout Information source identification in a work environment.											
	2.1	Identify the source of information in an organization and work environment.									
	2.2	Relate appropriately with the source of information.									
	2.3	Use the various information flow systems in a work environment.									
	2.4	Use information sources to address challenges in a work environment.									
	2.5	Communicate findings in accordance to procedure in a work environment.									
LO3: Identify communication methods in a work environment											
	3.1	Identify the various methods of communication in the work environment.									
	3.2	Use effectively, the various methods of communication in a work environment and communicate effectively to the right personnel.									
	3.3	Identify symbols, signs and codes for effective information									
	3.4	Carryout instructions in line with ethics of the work environment.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 3: TEAM WORK

Unit reference number: **AUT/AM/003/L1**
NSQ level: **3**
Credit value: **1**
Guided learning hours: 10
Unit Purpose: The purpose of this unit is to impart to the learner, skills, knowledge and understanding required to develop team spirit and positive working relationship.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 003: TEAM WORK

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO1: Carryout positive working relationship with colleagues	1.1	Identify the need for developing positive relationship with colleagues.									
	1.2	Recognize the importance of relating with other people in a way that makes them feel valued and respected.									
	1.3	Assist team members when required.									
	1.4	Report to the appropriate personnel when request/requesting for assistance fall outside area of responsibility.									
	1.5	Communicate information to colleagues about own work that might affect others.									
LO2: Take Responsibilities within the team	2.1	Recognize own role and responsibilities within the team.									
	2.2	Perform individual tasks in line with the team rules and regulations.									
	2.3	Recognize other team member role and responsibilities within the team.									
LO3: Carryout compliance with organisational policies	3.1	Carryout work In line with organizational standard and structure.									
	3.2	Identify organizational code of conduct.									
	3.3	Use organizational code of practice.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 4: Customer Relations in an Automotive Service & Repair workshop
Unit reference number: AUT/AM/004/L3
NSQ level: 3
Credit value: 2
Guided learning hours: 20

Unit Purpose: This unit is about gaining information from customers on their perceived needs, ascertain the scope of work, giving advice and information and agreeing a course of action, contracting for the agreed work and completing all necessary records and instructions.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 004: CUSTOMER RELATIONS IN AN AUTOMOTIVE SERVICE & REPAIR WORKSHOP

LO (Learning outcome) Performance Criteria			Evidence Type					Evidence Ref Page number			
LO1: Identify Customers contact/communication											
	1.1	Gather relevant information from the customers to make an assessment of perceived motor vehicle needs.									
	1.2	Analyze and clarify customer's complaints during conversation.									
	1.3	Document and communicate customer's understanding of the requirement you have made.									
LO2: Carryout Documentation of Motor vehicle Data and customer complaint											
	2.1	Carry out accurate identification and clarification of customer and motor vehicle needs, by referring to; • Motor vehicle data • Operating procedure.									
	2.2	Certify that recording system are complete, accurate, in the required format and signed by the customer where necessary.									
	2.3	Discuss and record the following with the customer before accepting the motor vehicle; • the physical inventory of the car • the extent and nature of the work to be undertaken • the terms and conditions of acceptance • the cost • the timeframe.									
	2.4	Provide customers with accurate, current and relevant information on: • suitable motor vehicle inspection, repair/parts replacement • potential causes of action • the consequences of the action									

		• the estimated cost.									
LO3: Carryout Customer Follow Up Service											
	4.1	Compile further customer approval where the contracted agreement is likely to be exceeded.									
	4.2	Identify feedback from customers.									
	4.3	Carryout customer satisfaction survey.									
	4.4	Obtain customer feedback on completed jobs.									
	4.5	Analyze customer feedback.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 5: BASIC AUTOMOTIVE ELECTRICS (BATTERY, CHARGING AND STARTING SYSTEM)
Unit reference number: AUT/AM/005/L3
NSQ level: 3
Credit value: 3

Guided learning hours: 30
Unit Purpose: This unit is to equip learner with knowledge and skills required in the repairs of automobile battery, charging and starting system.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 005: BASIC AUTOMOTIVE ELECTRICS (BATTERY, CHARGING AND STARTING SYSTEM)

LO (Learning outcome) Performance Criteria:-			Evidence Type					Evidence Ref Page number			
LO1: Identify basic Electrical and Electronic principles	1.1	Identify electrical symbols and units used in vehicle circuits a. Volts (voltage) b. Watt (power) c. Ohms (resistance) d. Ampere (current)									
	1.2	Identify key light vehicle protective devices and state their functions. a. Fuse b. Switches c. Relays d. Etc									
	1.3	Identify electrical and electronic tools and equipment in line with manufacturer's specification. a. Multi-meters b. Ohmmeter c. Ammeter d. Voltmeter e. Oscilloscope f. Etc									
	1.4	Carryout safety precaution while working on vehicle electrical systems									
	1.5	Carry out checks on electrical/electronic system a. Continuity b. Open circuit and Short circuit c. Volt drop testing d. Resistance testing e. Current consumption									
L.O2: Identify battery and charging system construction and Operation	2.1	Identify battery and charging system components a. Battery types b. Battery components c. Alternator and components d. Etc									

	2.2	Identify the operation of battery and charging system components									
	2.3	Identify battery and charging system components following recommended procedure									
	2.4	Carry out checks on battery and charging system components to assess their conditions									
L.O3: Identify starting System Construction and Operation											
	3.1	Identify components of the starting system e. Battery types f. Battery components g. Alternator and components h. Etc									
	3.2	Carryout the construction and operation of starting system components a. Ring and pinion gears b. Solenoid c. Relay d. Etc									
	3.3	Remove and replace starting system components following recommended procedure									
	3.4	Carry out checks on starting system components to assess their conditions									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 6: PETROL AND DIESEL ENGINE MAINTENANCE 1
Unit reference number: AUT/AM/006/L3
NSQ level: 3
Credit value: 3
Guided learning hours: 30

Unit Purpose: To equip learner with the knowledge and skills required for petrol and diesel engine maintenance.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 006: PETROL AND DIESEL ENGINE MAINTENANCE 1

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
L.O 1: Identify Petrol and Diesel Engine Operation	1.1	Identify working principle of the spark ignition (S.I) and compressed ignition (C.I) engines.									
	1.2	Identify S.I and C.I engines components.									
	1.3	Identify various types of S.I and C.I engines.									
	1.4	Identify common faults in of S.I and C.I engines.									
	1.5	Identify methods of testing/evaluating the performance of petrol and diesel engines components									
L.O2 Identify safe working practices in petrol engine maintenance.	2.1	Identify appropriate tools, materials and equipment used in petrol and diesel engine maintenance.									
	2.2	Carryout safe handling of the tools and equipment.									
	2.3	Work in a way which minimizes the risk of damage to other motor vehicle system and components									
	2.4	Carryout safety at all times, complying with health safety and other relevant regulations and guidelines.									
LO3: Carryout Petrol and Diesel Engine Dismantling and Re-assembling Procedures	3.1	Identify the correct tools and equipment for dismantling and re-assembling activities on S.I and C.I engine to include; • Engine removal and refitting • Engine component removal and refitting									
	3.2	Carryout checks and assessment of engine during dismantling and re-assembling with reference to technical data/information.									
	3.3	Carry out removal of petrol and diesel engine following manufacturers recommended procedure									

	3.4	Store all removed components safely in a safe location.									
	3.4	Carry out replacement of the removed engine using correct working procedures									
	3.5	Couple components according to manufacturer's specifications.									
	3.6	Dispose all wastes properly following relevant laws and regulations									
	3.7	Observe safety precautions during dismantling and re-assembling in a workshop.									
	3.8	Record finding(s) and make necessary recommendation to the appropriate personnel.									
	4.1	Enumerate engine testing methods in S.I and C.I engine during dismantling and assembling									
LO4: Carryout Petrol Engine component testing and performance evaluation	4.2	Carryout recommended testing method to identify faults in petrol engines and components.									
	4.3	Carryout recommended procedures to correct identified faults during engine dismantling and assembling.									
	4.4	Evaluate the performance of the replaced components in accordance to workshop procedures.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 7: LUBRICATION SYSTEM MAINTENANCE 1

Unit reference number: AUT/AM/007/L3
NSQ level: 3
Credit value: 2
Guided learning hours: 20

Unit Purpose: To equip learner with the skills required in the maintenance of engine lubrication systems.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 007: ENGINE LUBRICATION SYSTEM MAINTENANCE

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Identify Engine Lubrication system operation	1.1	Identify components of lubrication in engine system.									
	1.2	Carryout the construction and operation of engine lubrication system and its components; • Dry and wet sump • Bypass and full flow									
	1.3	Identify engine lubricants in respect to • Properties of lubricants • Classes of lubricants • Selection of lubricant • Etc									
	1.4	Identify the common faults in engine lubrication system									
	1.5	Carryout methods of testing/evaluating the performance of lubrication system and its components. • Pressure testing equipment and methods • Check for leaks • Etc									
L.O 2: Carryout safe working practices in Engine lubrication system maintenance.											
	2.1	Correctly use PPE and vehicle covering during maintenance activities									
	2.2	Identify recommended sources of technical information to support engine lubrication system maintenance activities. a. vehicle technical data b. removal and replacement procedures c. legal requirements									
	2.3	Carryout safe disposal of waste during engine lubrication services.									
LO3: Carryout Removal and Refitting of Lubrication											
	3.1	Identify correct tools and Equipment necessary to carry out lubrication system maintenance activity									

system Components	3.2	Ensure that the tools are properly calibrated to manufacturer specification									
	3.3	Correctly use tools and equipment according to manufacturer specification									
	3.4	Remove and replace engine lubrication system component using approved methods/procedures. a. filters b. oil change activity c. any damage component d. etc									
	3.5	Test the performance of replaced component according to the vehicle specification.									
LO4: Carryout Lubrication system component testing and performance evaluation											
	4.1	Carryout recommended testing method to identify faults in engine lubrication system and components									
	4.2	Carryout recommended testing method to evaluate the performance of the replaced components									
	4.3	Record finding and make suitable recommendations to the appropriate personnel.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

National Skills Qualification

AUTOMOBILE SECTOR

LEVEL 3: AUTOMOBILE MECHANICS

Unit 8: ENGINE COOLING SYSTEM MAINTENANCE 1

Unit reference number: AUT/AM/008/L3
NSQ level: 3
Credit value: 2
Guided learning hours: 20

Unit Purpose: To equip learner with skills required in the maintenance of engine cooling systems.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 008: ENGINE COOLING SYSTEM MAINTENANCE 1

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Identify Engine cooling system operation	1.1	Identify components of engine cooling system									
	1.2	Describe the construction and operation of engine cooling system and its components; • Radiator • Cooling fan • Heater matrices • Thermostat • Coolant • Etc									
	1.3	Identify the common faults in engine cooling system									
	1.4	Identify methods of testing/evaluating the performance of cooling system and its components. • Pressure testing equipment and methods • Coolant/Antifreeze testing method/procedure • Exhaust gas testing • Check for leaks									
L.O 2: Carryout Safe working practices in cooling system maintenance.											
	2.1	Correctly use personal protective equipment and vehicle covering during maintenance activities									
	2.2	Carryout recommended sources of technical information to support engine cooling system maintenance activities. • vehicle technical data • removal and replacement procedures • legal requirements									
	2.3	Carryout safe disposal of waste during engine cooling system services.									
LO3: Carryout Removal and Refitting of											
	3.1	Identify correct tools and Equipment necessary to carry out cooling system maintenance activities									

cooling system Components	3.2	Ensure that the tools are properly calibrated to manufacturer specification									
	3.3	Correctly use tools and equipment according to manufacturer's specification									
	3.4	Remove and replace engine cooling system component using approved methods/procedures. a. Radiator b. Cooling fan c. Heater matrices d. Thermostat e. Coolant flush f. Etc									
	3.5	Test the performance of replaced components									
LO4: Carryout Cooling system component testing and performance evaluation											
	4.1	Carryout recommended testing method to identify faults in vehicle cooling system and components									
	4.2	Carryout recommended testing method to evaluate the performance of the replaced components									
	4.3	Record findings and make suitable recommendations to the appropriate personnel.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 9: FUEL SYSTEM MAINTENANCE 1

Unit reference number: **AUT/AM/009/L3**
NSQ level: **3**
Credit value: **2**
Guided learning hours: **20**

Unit Purpose: To equip learner with skills required in the maintenance of automobile fuel systems.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 009: FUEL SYSTEM MAINTENANCE 1

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Carryout Fuel system operation	1.1	Identify components of air and fuel injection system • Air injection system components • Fuel Injection system component • Carburettor system components									
	1.2	Identify operating principles of air and fuel injection system: • Air injection system components • Fuel Injection system component • Carburettor system components									
	1.3	Identify common faults in engine air and fuel system									
	1.4	Identify methods of testing/evaluating the performance of fuel system and its components. • Injector testing • Fuel pressure testing • Leak checks. • Etc									
L.O 2: Identify Safe working practices in air and fuel system maintenance.											
	2.1	Correctly use personal protective equipment and vehicle covering during maintenance activities									
	2.2	Use recommended sources of technical information to support air and fuel system maintenance activities. i. vehicle technical data j. removal and replacement procedures k. legal requirements									
	2.3	Observe safety precautions in fuel handling during fuel maintenance system									
LO3: Carryout Removal and Refitting of air											
	3.1	Identify correct tools and equipment necessary to carry out air and fuel system maintenance activities									

and fuel system Components	3.2	Ensure that the tools are properly calibrated to manufacturer specification									
	3.3	Correctly use tools and equipment according to manufacturer specification									
	3.4	Identify and replace air and fuel system component following workshop procedures. Components: a. Filters b. Fuel pump c. Injectors d. Carburettor e. Etc									
	3.5	Test the performance of replaced components.									
LO4: Carryout Air and fuel system component testing and performance evaluation											
	4.1	Carryout recommended testing method to identify faults in vehicle air and fuel system and components									
	4.2	Carryout Carryout recommended testing method to evaluate the performance of the replaced components									
	4.3	Record finding and make suitable recommendations to the appropriate Personnel.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 10: IGNITION SYSTEM MAINTENANCE 1

Unit reference number: AUT/AM/010/L3
NSQ level: 3
Credit value: 3
Guided learning hours: 30

Unit Purpose: To equip learner with knowledge and skills required in the maintenance of automobile ignition systems.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 0010: IGNITION SYSTEM MAINTENANCE 1

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Carryout Ignition system operation	1.1	Identify components of engine ignition system • Conventional/distributor Ignition system components • Static/distributor less Ignition system component									
	1.2	Identify the construction and operation of engine ignition system: • Conventional/distributor Ignition system components • Static/distributor less Ignition system component									
	1.3	Identifyt the common faults in engine ignition system									
	1.4	Identify methods of testing/evaluating the performance of ignition system and its components. • Conventional/distributor Ignition system components • Static/distributor less Ignition system component									
L.O 2: Carryout Safe working practices in ignition system maintenance.	2.1	Correctly use PPE and vehicle covering during maintenance activities									
	2.2	Use recommended sources of technical information to support ignition system maintenance activities. a. vehicle technical data b. removal and replacement procedures c. legal requirements									
	2.3	Observe safe precautions in handling electrical ignition system maintenance.									

	2.4	Observe workshop safety precaution during ignition system maintenance.									
LO3: Carryout Removal and Replacement of ignition system Components											
	3.1	Identify correct tools and Equipment necessary to carry out ignition system maintenance activities									
	3.2	Ensure tools are properly calibrated to manufacturer specification									
	3.3	Correctly use tools and equipment according to manufacturer specification									
	3.4	Remove and replace ignition system components using approved methods/procedures. Components: a. Conventional/distributor Ignition system components b. Static/distributor less Ignition system component									
	3.5	Test the performance of replaced component.									
LO4: Carryout Ignition system component testing and performance evaluation											
	4.1	Use recommended testing method to identify faults in vehicle ignition system and components									
	4.2	Use recommended testing method to evaluate the performance of the replaced components									
	4.3	Record finding and make suitable recommendations to the appropriate authority.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

National Skills Qualification

AUTOMOBILE SECTOR

LEVEL 3: AUTOMOBILE MECHANICS

Unit 11: BRAKES AND SUSPENSION SYSTEM MAINTENANCE 1

Unit reference number: AUT/AM/011/L3
NSQ level: 3
Credit value: 3
Guided learning hours: 30

Unit Purpose: To equip learner with the knowledge and skills required in the maintenance of basic brake and suspension systems.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 011: BRAKE AND SUSPENSION SYSTEM MAINTENANCE 1

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Carryout Brake and suspension system operation	1.1	Identify components of vehicle brakes and suspension system • Brake system components • suspension system component									
	1.2	Identify the construction and operation of brake and suspension system: • Brake system operating principles • suspension system operating principles									
	1.3	Identify the common faults in brakes and suspension system									
	1.4	Carryout methods of testing/evaluating the performance of brakes and suspension system and its components. • Brake system components • suspension system component									
L.O 2: Carryout Safe working practices in brake and suspension system maintenance.	2.1	Use appropriate PPEs and vehicle covering during maintenance.									
	2.2	Use recommended sources of technical information to support brake and suspension system maintenance activities. d. vehicle technical data e. removal and replacement procedures f. legal requirements									
	2.3	Observe safety precautions in brake and suspension system maintenance.									
LO3: Carryout Removal and Replacement of brake and suspension	3.1	Identify correct tools and Equipment necessary to carry out brake and suspension system maintenance activities									

system Components	3.2	Test to ensure tools are properly calibrated to manufacturer specification									
	3.3	Correctly use tools and equipment according to manufacturer specification									
	3.4	Remove and replace brake and suspension system components using approved methods/procedures. a. Brake system components b. suspension system component									
	3.5	Test the performance of the replaced component.									
LO4: Carryout Brake and suspension system component testing and performance evaluation	4.1	Use recommended testing method to identify faults in brake and suspension system and components									
	4.2	Use recommended testing method to evaluate the performance of the replaced components									
	4.3	Record finding and make suitable recommendations to the appropriate authority.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
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EQA Signature (if sampled)	**Date:**

National Skills Qualification

AUTOMOBILE SECTOR

LEVEL 3: AUTOMOBILE MECHANICS

Unit 12: MOTOR VEHICLE TYRES AND WHEELS

Unit reference number: **AUT/AMW/012/L3**
NSQ level: **3**
Credit value: **2**
Guided learning hours: 20

Unit Purpose: This unit is about inspecting standard light motor vehicle tyres and wheels to assess their conditions and suitability for repair and carrying out necessary repair, replacement or refitting activities. It includes replacement and repair procedures for wheels, tyres and tubes.

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Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 012: MOTOR VEHICLE TYRES AND WHEELS

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Identify Wheels/tyre classification and characteristics	1.1	Identify various tyre classification and their characteristics.									
	1.2	Explain wheel/tyre data according to manufacturer's specifications.									
LO2: Identify Tools/equipment for wheels/tyre repairs and replacement	2.1	Identify tools and equipment used in wheels/tyre repairs.									
	2.2	Carryout all inspection, repair and replacement activities using suitable tools and equipment.									
	2.3	Ensure that all tyre/wheel tools and equipment are safe prior to use.									
LO3: Inspect, repair and replace motor vehicle tyres and wheels	3.1	Use suitable personal protective equipment and motor vehicle coverings throughout all tyres and wheels inspection, repair and replacement activities.									
	3.2	Use suitable sources of technical information to support your inspection, repair and replacement of tyres and wheels									
	3.3	Operate in a way which minimizes the risk of damage to the motor vehicle and its systems.									
	3.4	Perform all inspection, repair and replacement activities following: • manufacturer's instructions • your workplace procedure • health, safety and environment requirements.									
	3.5	Carryout all inspection, repair and replacement activities using • the correct inspection technique • the correct type and size of component • suitable tools and equipment									
	3.6	Dispose of removed components safely to meet legal and workplace requirements.									

	3.7	Ensure that replaced and refitted tyres and valves are correctly fitted.									
	3.8	Report any anticipated delays in completion and any additional faults identified to the relevant personnel promptly.									
	3.9	Carryout wheel balancing operations.									
	3.10	Carry out appropriate repairs according to manufacturers' specification on wheels with tyre pressure sensor.									
	3.11	Select replacement tyres in accordance with manufacturer's specifications.									
	3.12	Interpret and use wheel data according to manufacturer's specifications.									
	3.13	Store tyres and wheels in line with workplace procedures.									
	3.14	Carryout tyre replacement in accordance with motor vehicle manufacturer's specification.									
	3.15	Complete all activities within the agreed timescale.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 13: BASIC AUTOMOBILE ELECTRICAL/ELECTRONIC COMPONENT MAINTENANCE

Unit reference number: **AUT/AM/013/L3**
NSQ level: **3**
Credit value: **2**
Guided learning hours: 20

Unit Purpose: To equip learner with knowledge and skills required to maintain electrical/electronic components of vehicles.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

UNIT 013: BASIC ELECTRICAL AND ELECTRONIC COMPONENT MAINTENANCE

LO (Learning outcome)	**Performance Criteria:-**		Evidence Type					Evidence Ref Page number			
LO1: Identify Operating principles of electrical/electronic components											
	1.1	Identify electrical/electronic components of the vehicle.									
	1.2	Describe the construction and operation of electrical and electronic components a. Horn b. Wiper c. Bulbs d. Electric motors e. Electric window f. Instrumentation and monitoring system g. In car entertainment h. Alarm and security i. etc									
	1.3	Identify the common faults in electrical/electronic system components									
	1.4	Carryout open and short circuits									
	1.5	Identify the effects of the above in 1.4									
	1.6	Carryout methods of testing electrical/electronic systems components.									
L.O 2: Carryout Safe working practices in electrical/electronic components maintenance.											
	2.1	Correctly use PPE and vehicle covering during maintenance activities									
	2.2	Use recommended sources of technical information to support electrical/electronic system maintenance activities. a. vehicle technical data b. removal and replacement procedures c. legal requirements									
	2.3	Observe safe electrical handling precautions in electrical/electronic system maintenance.									
LO3:											

Carryout Removal and Replacement of electrical and electronics Components	3.1	Select correct tools and Equipment necessary to carry out electrical/electronic components maintenance activities									
	3.2	Carryout equipment calibration to manufacturer specification									
	3.3	Correctly use tools and equipment according to manufacturer specification									
	3.4	Remove and replace electrical/electronic components using approved methods/procedures.									
	3.5	Test the performance of replaced component.									
LO4: Carryout Electrical/electronic components testing and performance evaluation											
	4.1	Use recommended testing method to identify faults in electrical/electronic components									
	4.2	Use recommended testing method to evaluate the performance of the replaced components									
	4.3	Record finding and make suitable recommendations to the appropriate personnel.									
	4.4	Carryout procedures of fault using diagnosis tools.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 14: BASIC VEHICLE MANAGEMENT SYSTEM AND DIAGNOSIS

Unit reference number: AUT/AM/014/L3
NSQ level: 3
Credit value: 2
Guided learning hours: 20

Unit Purpose: This unit introduces the learners to the basic use of computerized diagnostic equipment to carry out fault finding in a vehicle.

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is not allowed in this unit.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 014:BASIC VEHICLE MANAGEMENT SYSTEM AND DIAGNOSTICS

LO (Learning outcome)	**Performance Criteria**		Evidence Type					Evidence Ref Page number			
LO1. Identify Principles of vehicle Onboard Diagnostic (OBD II)	1.1	Identify the concept of Onboard Diagnosis (OBD)									
	1.2	Identify the functions of basic vehicle sensors. a. Intake Air Temperature (IAT) b. Manifold Absolute Pressure (MAP). c. Engine Coolant Temperature (ECT). d. Oxygen (O2) Sensor (H02S/Lambda) e. Mass Air Flow (MAF). f. Etc									
	1.3	Compile vehicle information relevant to Onboard Diagnosis (OBD). a. VIN and interpret useful information from the VIN b. Location of DLC ports on any vehicle									
LO2: Carryout Basic Computerized diagnosis	2.1	Identify basic tools needed in computerized vehicle diagnosis a. Generic scan tools b. Manufacturer specific diagnostic tools c. Mobile device applications									
	2.2	Carryout the following faults: • temporary, • intermittent • permanent									
	2.3	Differentiate among the faults in 2.2 above.									
	2.4	Measure and interpret diagnostic trouble codes (DTC)									
	2.5	Read and clear faults on different ECU's using both OEM and generic scan tool.									
	2.5	Read parameter measurement/Live data on basic vehicle systems									

	2.6	Carryout procedures to perform actuator/component testing on the following components. a. Engine cooling fan, b. horn, c. dipped beams & main beams, door lock actuators, d. ETC									
LO3: Carryout Repair and replacement activities											
	3.1	Carryout repairs on all identified defective components in line with Manufacturer's specifications.									
	3.2	Replace all worn-out/damage components in line with manufacturer's specifications.									
	3.3	Test the performance of all repaired and replaced components.									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

National Skills Qualification

AUTOMOBILE SECTOR

LEVEL 3: AUTOMOBILE MECHANICS

Unit 15: MOTOR VEHICLE DAMAGE ASSESSMENT

Unit reference number: AUT/AM/015/L3
NSQ level: 2
Credit value: 3
Guided learning hours: 30
Unit Purpose: This unit is about performing Motor Vehicle Damage Assessment in order to gain detailed and exact information on the extent and type of damage present within all motor vehicle systems, units and components and trim fitments. The unit also covers the ability to describe and document damage with reference to manufacturer's guidance and make recommendations in order to maintain the integrity of the repair.

Unit assessment requirements/ evidence requirements:
This assessment can only be carried out in a real automotive workplace environment where automotive activities are carried out. Assessment will require the provision of "accidental" functional motor vehicles.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal statement (PS) or Reflective Practice (RP)
5. Recognition of Prior Learning (RPL)
6. Other methods (OM) as may be applicable

Unit 015: MOTOR VEHICLE DAMAGE ASSESSMENT

LO (Learning outcome) Performance Criteria:-			Evidence Type					Evidence Ref Page number			
LO1: Identify Motor vehicle structure, components and accessories											
	1.1	Identify types of motor vehicle structures.									
	1.2	Identify various component /accessories location.									
	1.3	Identify the functions of various motor vehicle components and accessories.									
	1.4	Enumerate the merits and de-merits of various motor vehicle structures.									
	1.5	Identify laid down rules and regulations.									
LO2: Identify Tools And Equipment For Motor vehicle Damage Assessment											
	2.1	Identify the correct tools and equipment selection for the motor vehicle stripping and examination activities.									
	2.2	Ensure tools and equipment required are in a safe and proper working condition.									
	2.3	Idntify the manufacturer's specification as a guide to store diagnostic tools and equipment safely									
LO3: Carryout Technical Documentations For Motor vehicle Damage Assessments											
	3.1	Carryout motor vehicle stripping, examination and testing activities by referring to: i. Manufacturer's guidance ii. Motor vehicle technical data iii. Initial motor vehicle damage assessor report iv. Removal and replacement procedures v. Legal requirements.									
	3.2	Carryout suitable examination and testing methods to evaluate the type and extent of damage accurately.									
	3.3	Review and ensure examination and testing of the motor vehicle against specifications identifies;									

		• The type and extent of damage to systems, units and components • Differences from the motor vehicle specification • Motor vehicle appearances and fault condition • Accident related and any non-accident related damage or fault • Safety critical items.									
	3.4	Inspect to ensure your records describe damage with reference to manufacturers' specification for system, unit and component condition.									
LO4: Carryout Motor vehicle Damage Assessment.											
	4.1	Use the appropriate personal protective equipment when carrying out motor vehicle stripping, examination and testing									
	4.2	Support and protect the motor vehicle effectively when carrying out motor vehicle stripping, examination and testing.									
	4.3	Carryout all motor vehicle stripping, examination and testing activities following; • Manufacturer's instructions • Workplace procedures • Health, Safety and Environmental requirements									
	4.4	Work in a way which minimizes the risk of: • Damage to other motor vehicle systems • Damage to other component and units • Leakage • Contact with hazardous substances • Damage to the environment.									
	4.5	Work in away commensurate to the level and limit of the damage to the motor vehicle.									
	4.6	Interact to ensure that the extent of motor vehicle stripping is									

		suitable to determine the level and extent of damage.									
	4.7	Compile suitable recommendations for further work that will maintain the integrity of the repair and meet manufacturers' requirements.									
	4.8	Implement all motor vehicle stripping, examination and testing activities within the agreed timescale.									
	4.9	Communicate any expected delays in completing work to relevant personnel. Promptly									

Learners Signature:	**Date:**
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

National Skills Qualifications

FOR

AUTOMOBILE MECHANICS

LEVEL 1, 2 & 3

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