



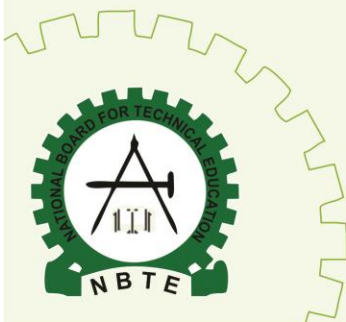
**NATIONAL BOARD FOR TECHNICAL EDUCATION
NATIONAL SKILLS QUALIFICATIONS (NSQ)**

FOR

**THE CONVERSION AND MAINTENANCE
OF COMPRESSED NATURAL GAS (CNG)**

POWERED VEHICLES IN NIGERIA

AUGUST, 2025





NATIONAL SKILLS QUALIFICATIONS

(NSQ)

FOR

**THE CONVERSION AND MAINTENANCE OF COMPRESSED
NATURAL GAS (CNG) POWERED VEHICLES IN NIGERIA**

AUGUST, 2025

OVERVIEW

This qualification aims to equip learners with knowledge and skills in Communicating effectively, working in team, complying with health and safety requirements, in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria. This qualification is subject to review as at when the need arises.

QUALIFICATION PURPOSE

This qualification is designed to equip learner with knowledge and skills in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria.

QUALIFICATION REQUIREMENTS

All Candidates must:

1. Be at least (16) years of age
2. Be medically fit
3. Be physically fit
4. Be mentally fit (Mental alertness)
5. Have achieved all the Safety and Health mandatory units in the qualification
6. Be a Nigerian citizen
7. Other nationals (International passport, residence permit)
8. Be vetted

QUALIFICATION OBJECTIVE

At the end of the qualification, the learner should be able to:

- a. Communicate effectively in workplace
- b. Work in a team
- c. Comply with health and safety requirement
- d. Use computer in the automotive industry
- e. Use basic equipment, tools and kits relevant to the automotive sector.
- f. Assist in conducting routine maintenance of gas powered vehicles.
- g. Appreciate basic features of gas-powered vehicles
- h. Assist in carrying out repairs in petrol and diesel engines.

- i. Appreciate gas-powered vehicle technology.
- j. Assist in carrying out conversion activities on gas powered vehicles
- k. Assist in converting activities for gas powered vehicle
- l. Assist in metal joining and fastening activities
- m. Assist in motor vehicle wheel balancing operations
- n. Assist in motor vehicle wheel alignment operations

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

LEVEL I

National Skills Qualification (NSQ) Table**LEVEL 1: COMPRESSED NATURAL GAS (CNG)****MANDATORY UNITS**

Unit	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	NADDC/CNG/001/L1	Communication Process in an Automotive Workplace Environment	2	20
2	NADDC/CNG/002/L1	Teamwork in Automotive Workplace Environment	2	20
3	NADDC/ CNG /003/L1	Health, Safety and Environment in Automotive Industry	2	20
4	NADDC/ CNG /004/ L1	Basic Computer Skills in Automotive Industry	2	20
5	NADDC/CNG/005/L1	Customer Relations in an Automotive Workshop Service	2	20
6	NADDC/CNG/005/L1	Basic Petrol and Diesel Engine Operations	2	20
7	NADDC/ CNG /006/ L1	Introduction to Gas-Powered Vehicles	3	30
8	NADDC/ CNG /007/ L1	Automotive Service Equipment, Tools and Kits	3	30
9	NADDC/ CNG /008/ L1	Periodic Maintenance of Gas Powered Vehicles	2	20
OPTIONAL				
10	NADDC/ CNG/009/ L1	Maintenance of Motor Vehicle Tyres and Wheels	2	20
TOTAL			20	200

GENERAL GUIDE

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 Qualifications 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 value = 10 guided learning hours
Unit Purpose	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 learning process.
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 qualification.

UNIT 001: Communication Process in an Automotive Workplace Environment

Unit reference number: NADDC/CNG/001/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective communication in a workplace environment.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical Assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product

(This depends on the Trade Areas to be assessed)

UNIT 001: Communication Process in an Automotive Workplace Environment

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.				
The learner will:		The learner can:										
LO 1: <i>Know non-complex communication system in a work environment</i>	1.1	Define communication										
	1.2	Explain work place communication: • Internal • External • Vertical • Horizontal										
	1.3	Discuss tools of communication in a workplace environment										
	1.4	Use a simple verbal means to pass on necessary information.										
	1.5	Use non-verbal means to pass on necessary information e.g. body language										
	1.6	Identify symbols and signs appropriately.										
LO 2: <i>Know sources of information in automotive environment</i>	2.1	Identify sources of information in a workplace environment.										
	2.2	Relate appropriately with the sources of information: • Posters • Signage • Displays • Noticeboards • Memoranda etc.										
	2.3	Use the various information flow systems in a workplace environment.										
	2.4	Use information sources to address challenges in a workplace environment.										
	2.5	Communicate findings in accordance to procedure in a workplace environment.										

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 3: <i>Communicate effectively in a workplace environment</i>	3.1	Identify the various methods of communication in the workplace environment.									
	3.2	Communicate effectively in a workplace environment to the right personnel using various methods of communications.									
	3.3	Observe information effectively using symbols, signs and codes.									
	3.4	Observe 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 002: Teamwork in Automotive Workplace Environment

Unit reference number: NADDC/CNG/002/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is design to provide the learner with the knowledge and skills required to develop team spirit and positive working relationship.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)

(This depends on the Trade Areas to be assessed)

UNIT 002: Teamwork in Automotive Workplace Environment

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO1: <i>Know positive working relationship with colleagues</i>	1.1	Define teamwork		
	1.2	Explain the values of teamwork in an automotive workplace environment		
	1.3	Identify the need for developing positive relationship with colleagues		
	1.4	Recognize the importance of relating with other people in a way that makes them feel valued and respected.		
	1.5	Explain how to assist team members when performing tasks.		
	1.6	Report to the appropriate personnel when requesting for assistance falls outside area of responsibility.		
	1.7	Report issues to higher authority about own work that might affects others		
LO 2: <i>Know responsibilities within the team</i>	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.		
	2.4	Communicate information to colleagues about own work that might affect others.		
LO 3: <i>Know organizational policy</i>	3.1	Explain organizational code of conduct		
	3.2	Use organizational code of practice.		
	3.3	Work in line with organizational standard and structure.		

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

UNIT 003: Health, Safety and Environment in Automotive Industry

Unit reference number: NADDC/CNG/003/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills of health and safety practices in accordance with industry standards, environmental and safety regulations.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning, health and safety protocols are being displayed by the trainee. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product (WP)

(This depends on the Trade Areas to be assessed)

UNIT 003: Health, Safety and Environment in Automotive Industry

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: <i>Know personal health, safety and environmental protection in Automotive Industry</i>	1.1	Define health, safety and environment in Automotive Industry								
	1.2	State the importance of health, safety and environment in Automotive Industry								
	1.3	Explain health and safety guidelines as it relate to own job scope								
	1.4	State general rules on hygiene that must be followed								
	1.5	Use Personal Protection Equipment (PPE) such as: • Head protection, • Foot protection, • Hand and body protection • Eyes and ears protection • Respiratory protection.								
	1.6	State the importance of maintaining good personal hygiene in and out of workplace environment								
	1.7	Describe how to carry out First Aid in dealing with: • Allergies • Cuts, • Bruises, • Wounds • Dislocations • Foreign particles in eyes, etc.								

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 2: <i>Know personal health and hygiene regulations and guidelines</i>	2.1	Demonstrate the appropriate use of Personal Protective Equipment (PPE)		
	2.2	Explain work safety procedures in line with HSE regulations and guidelines		
	2.3	Explain how workplace injuries should be treated by certified first-aid technicians or personnel.		
	2.4	Explain the procedure for reporting illness and infection to the appropriate authority		
LO 3: <i>Know hygienic, safe, and secure workplace</i>	3.1	State the importance of working in a healthy, safe and hygienic workplace		
	3.2	Explain procedures for reporting accident or near accident (s) using the prescribed method/format in the workplace environment		
	3.3	Explain the procedures of reporting any unsafe acts and or conditions (s) using the prescribed method/format in the workplace environment		
	3.4	Explain procedure for assisting other workers to observe health, hygiene and safety procedure during work		
	3.5	Practice emergency procedures during work: • Muster point assembly • Evacuation of personnel • Fire drill • Use of fire extinguishers		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type				Evidence Ref. Page No.			
The learner will:		The learner can:								
		- Communication-Vertical, Horizontal, Internal and External - Resuscitation process								
	3.6	Explain organizational security procedures								
	3.7	Explain disposal methods of waste and pollution control with organic and inorganic substances.								
	3.8	Explain how to assist others to observe sound and noise control and protection methods.								
LO 4: <i>Know preventive measures against hazards in the work place</i>	4.1	Explain hazards in the workplace environment								
	4.2	Identify types of hazard or potential hazards and deals with these correctly								
	4.3	Describe the types of hazards in workplace that may occur and how to deal with them								
	4.4	Explain hazards that can be dealt with personally and those that should be reported to someone else								
	4.5	Explain how to warn other people about hazards and why this is important								
	4.6	Explain why any accident and near accident should be reported and who they should be reported to								
	4.8	Demonstrate safe lifting and handling techniques that should be followed.								
	4.9	Demonstrate other ways of working safely that are relevant to								

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
		own position and why they are important.		
	4.10	State the possible causes of fire in the workplace		
	4.11	Describe how to prevent fire in the workplace		
	4.12	State where to find the alarms and how to set them off		
	4.13	State why a fire should never be approached unless it is safe to do so		
	4.14	State the importance of observing the fire safety regulations and laws		
	4.15	Describe the organizational security procedures addressing access by unauthorized person(s).		
	4.16	Explain the importance of reporting all usual or non-routine incidents to the appropriate authority.		

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

UNIT 004: Basic Computer Skills in Automotive Industry

Unit reference number: NADDC/CNG/004/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for computer usage in the automotive industry.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 004: Basic Computer Skills in Automotive Industry

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know computer systems classification and operation</i>	1.1	Define computer		
	1.2	Explain the configuration of a computer system: • Usage, • Type • Size		
	1.3	Explain various computer components and systems		
	1.4	Identify the characteristics and benefits of computers in automotive workshop.		
	1.5	Operate the keyboard using: • Function keys, • Alphanumeric keys, • Numeric keys • Control keys.		
	1.6	Differentiate between analogue, digital and hybrid computers.		
	1.7	Identify the various types of microcomputers.		
LO 2: <i>Know computer hardware and software elements</i>	2.1	Explain the functions of various hardware components of the computer.		
	2.2	Explain the functions of various software components of the computer.		
	2.3	Differentiate between operating system and application software.		
	2.4	Select application software for a particular operation.		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 3: <i>Know the use of computers in modern automobile workshops</i>	3.1	Explain the roles of computer in modern motor vehicles.		
	3.2	Explain the various applications of computers in automobile workshop.		
	3.3	Carry out a given assignment in a vehicle using the computer.		

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

UNIT 005: Customer Relations in an Automotive Workshop Service

Unit reference number: NADDC/CNG/005/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective customer relations in the work environment.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 005: Customer Relations in an Automotive Workshop Service

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Establish contact with customers</i>	1.1	Accommodate customer in safe, non-active and comfortable place		
	1.2	Engage the customer on the complaints of the vehicle		
	1.3	Perform the following activities: • Capture the pictorials of the vehicle • Vehicle sign-in form • Vehicle checklist after sign-in		
	1.4	Document customers' needs assessment as necessary		
	1.5	Discuss vehicle status with customer		
	1.6	Document vehicle status for both parties to sign out		
LO 2: <i>Determine customers' needs</i>	2.1	Confirm that recording systems are complete, accurate, in the required format (electronic/ manual) and signed by the customer where necessary		
	2.2	Discuss with the customer the parts that can be installed on the vehicle		
	2.3	Agree with the customer the parts that can be installed on the vehicle		
	2.4	Inspect: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary • Equipment (Photo- Document), • Electrical and emission system		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
	2.5	Record: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary equipment (Photo- Document), • Electrical and emission system								
LO 3: <i>Perform customer service activities</i>	3.1	Discuss the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.2	Record the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.3	Discuss with customers on the following: • Options available for vehicle inspection, repair/parts replacement • Potential course of action • The consequences of the action • The estimated cost								

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.4	Discuss safety measures with customers when handing over completed vehicle.									
LO 4: <i>Know customers' follow-up service</i>	4.1	Seek further customer approval where the scope of agreement is likely to be exceeded									
	4.2	Describe how to get feedback from customers									
	4.3	Carry out customer satisfaction survey									
	4.4	Analyze customer feedback									

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

UNIT 006: Basic Petrol and Diesel Engine Operations

Unit reference number: NADDC/CNG/006/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This Unit is designed to provide Learner with knowledge and skills required to carry out repairs in petrol and diesel engines.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development training is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product (WP)

(This depends on the Trade Areas to be assessed)

UNIT 006: Basic Petrol and Diesel Engine Operations

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: <i>Know safety, health and environment regulations at workplace</i>	1.1	Observe workshop safety precautions required in carrying out work on an automotive engine									
	1.2	Carry out 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									
	1.4	Identify hazard specific to diesel and petrol powered vehicles and apply safety measures in line with Original Equipment Manufacturers (OEMs) specifications									
LO 2: <i>Know basic petrol and diesel engine components</i>	2.1	Identify different types of engines based on fuel type: • Petrol • Diesel.									
	2.2	Identify different types of engines based on design: • Cylinder/valve arrangement • Transverse and longitudinal									
	2.3	Identify components of a petrol engine									
	2.4	Identify components of a diesel engine									
LO 3: <i>Know basic petrol and diesel engine component removal and refitting operations</i>	3.1	Identify tools and equipment required for removal and replacement of engines and their components									
	3.2	List the procedures of handling tools and equipment used in 3.1 in accordance to manufacturer's recommendation									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.3	Observe safety procedures when removing basic engine components									
	3.4	Identify workshop procedures in the storage of removed components									
	3.5	Carry out removal and replacement of parts in accordance to manufacturer's specification									
	3.6	Operate the assembled components and ensure all functions are in accordance to specifications									
	3.7	Dispose all waste properly following relevant laws and regulations									

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

UNIT 007: Introduction to Gas-powered Vehicles

Unit reference number: NADDC/CNG/007/L1

NSQ level: 1

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is designed to provide the learner with the knowledge of basic features of gas-powered vehicles

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development training is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 007: Introduction to Gas-powered Vehicles

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type						Evidence Ref. Page No.
LO 1: <i>Know fuel types</i>	1.1	Explain the term fuel: - Premium Motor Spirit (PMS) - Automotive Gas Oil (AGO- Diesel) - Low/High Pour Fuel Oil (L/HPFO) - Liquefied Petroleum Gas (LPG) - Compressed Natural Gas (CNG) - Liquefied Natural Gas (LNG) etc.							
	1.2	List the different types of fuels used in vehicles							
	1.3	Explain the basic properties of fuels listed in 1.2							
	1.4	Identify areas of applications of the various fuels listed in 1.2							
	1.5	Explain the safety measures and regulations provided by Statutory bodies (ISO, SON, etc.) regarding auto-gas conversion kits installation.							
LO 2: <i>Know the principles of internal combustion</i>	2.1	Explain the term combustion							
	2.2	List the components of internal combustion engine							
	2.3	Explain the basic combustion process of conventional spark ignition (SI) engine							
	2.4	Explain the basic combustion process of conventional compression ignition (CI) system							
	2.5	Explain the basic combustion process of conventional Compression Ignition (CI)							
	2.6	Explain the advantages and disadvantages of gas as fuel in auto-engines							

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. Page No.
LO 3: <i>Know gas-powered vehicles fuel system layout</i>	3.1	Identify types of gas powered vehicles			
	3.2	Explain gas-powered vehicle system layout			
	3.3	List the components/kits of gas-powered vehicle fuel system			
	3.4	Explain the basic functions of the components/kits listed in 3.3			
	3.5	Differentiate between the tanks used in CNG, auto gas (LPG), LNG powered vehicles			
LO 4: <i>Know gas- powered tank types and specifications</i>	4.1	Explain the following criteria for gas powered Tank Selection: • Tank size • Range • Placement • Tank locations			
	4.2	Explain appropriate brackets and components applicable to the tank design.			
	4.3	Explain the need for different sizes of pipes in the conversion process			
	4.4	Demonstrate the procedure of gas powered tank installations			
	4.5	Apply all safety measures in the selection and installation of tanks and accessories in line with procedures provided by relevant statutory bodies			
	4.6	Identify hazard specific to gas powered vehicles and apply safety measures in line with Original Equipment Manufacturers (OEMs) specifications			

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

UNIT 008: Automotive Service Equipment, Tools and Kits

Unit reference number: NADDC/CNG/008/L1

NSQ level: 1

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is designed to equip learners with knowledge and skills of the basic use of equipment, tools and kits relevant to the automotive sector.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning, health and safety protocols are being displayed by the trainee. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product

(This depends on the Trade Areas to be assessed)

UNIT 008: Automotive Service Equipment, Tools and Kits

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Know automotive service equipment, tools, kits and consumables</i>	1.1	Identify equipment, tools, kits and consumables used for automotive service									
	1.2	Carry out operation using equipment, tools, kits and consumables in accordance with safe working practices to achieve the work outcome.									
	1.3	Demonstrate work skills to select appropriate tools and equipment									
	1.4	Demonstrate work skills to select appropriate kits and consumables									
	1.5	Explain the following work skills: • Measure, • Mark Out, • File, • Fit, • Tap, • Thread, • Cut, • Drill, • Deburr, • Position, • Carry/Lift									
	1.6	Identify the software used for calibrating gas powered vehicles									
	1.7	Identify some special tools and equipment used for gas powered vehicle conversion									
LO 2: <i>Know automotive service workshop equipment</i>	2.1	Carry out pre-start/preparation inspections on power tools and equipment in accordance with approved procedures									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	2.2	Store and secure workshop tools and equipment									
	2.3	Conduct daily post-finish inspection before close of work (house cleaning)									
LO 3: <i>Maintain and service workplace tools and equipment</i>	3.1	Identify damaged and worn out tools and equipment									
	3.2	Maintain tools and equipment and as specified by manufacturer's/ and or workshop within the scope of responsibility.									
	3.3	Carry out checks in accordance with manufacturer's/operators guidance, legislation and official guidance and organizational requirements.									
	3.4	Carry out housekeeping of tools and equipment in accordance to manufacturers specifications									
LO 4: <i>Know workshop tools, equipment and consumables storage.</i>	4.1	Store workshop tools, equipment and consumables appropriately									
	4.2	Dispose waste in accordance with legislation to maintain a clean work place.									
	4.3	Take inventory of tools, equipment, and consumables appropriately and replace any missing item									

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

UNIT 009: Periodic maintenance of Gas Powered Vehicles

Unit reference number: NADDC/CNG/009/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is design to provide the learner with the knowledge and skills required to conduct routine maintenance of gas powered vehicles

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development training is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product (WP)

(This depends on the Trade Areas to be assessed)

UNIT 009: Periodic Maintenance of Gas Powered Vehicles

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.				
The learner will:		The learner can:										
LO 1: <i>Know vehicle maintenance</i>	1.1	Explain maintenance										
	1.2	List types of maintenance: • Preventive • Corrective • Predictive • Re-active etc.										
	1.3	List materials used in 1.2 where appropriate										
	1.4	Use appropriate tools and equipment for vehicle maintenance.										
LO 2: <i>Know filters and their applications</i>	2.1	Identify the various types of filters and their components. • Paper • Fabric, • Cyclone, • Wire-mesh, etc.										
	2.2	Explain pre-filtration and filtration systems.										
	2.3	Describe how to minimize the risk of damage to the vehicle filtration and its systems										
LO 3: <i>Know the procedures for conducting lubrication service</i>	3.1	Use appropriate grade of lubricant in line with manufacturers recommendation										
	3.2	Locate appropriate greasing points										
	3.3	Use appropriate grade of grease in line with manufacturers recommendation										
	3.4	Use appropriate grade of power steering fluid in line with manufacturer's recommendation										

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
	3.5	Use appropriate grade of brake fluid in line with manufacturer's recommendation.		
	3.6	Use appropriate grade of transmission fluid in line with manufacturers recommendation		
	3.7	Use suitable personal protective equipment and vehicle coverings throughout all vehicle maintenance activities		
	3.8	Ensure vehicle's systems and components comply with the following: • Manufacturers approved examination methods • Health, safety and environment requirements		
	3.9	Use appropriate torque for filter mounting and oil sump plug		
LO 4: <i>Know procedure for maintenance of a vehicle</i>	4.1	Use suitable personal protective equipment and vehicle coverings throughout all maintenance activities		
	4.2	Use suitable sources of technical information to carry out all your vehicle maintenance activities		
	4.3	Use appropriate materials for carrying out maintenance of vehicle in line with the recommendation of the Original Equipment Manufacturers (OEM)		
	4.4	Ensure that maintenance records are accurate, complete and passed to the relevant personnel promptly in the format required		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	4.5	Perform all vehicle maintenance activities within the agreed timeline									
	4.6	Perform maintenance operations in accordance with recommended safety procedures									

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

UNIT 010: Maintenance of Motor Vehicle Wheels (Rims and tyres)

Unit reference number: NADDC/CNG/010/L1

NSQ level: 1

Credit value: 2

Guided learning hours: 20

Unit Purpose: This Unit is designed to provide Learner with knowledge and skills required for inspecting standard light motor vehicle wheels (Rims and tyres)

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development training is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product (WP)

(This depends on the Trade Areas to be assessed)

UNIT 010: Maintenance of Motor Vehicle Wheels (Rims and tyres)

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know classification and characteristics of Wheels (rims and tyres)</i>	1.1	Explain the classification of various wheels (rims and tyres)		
	1.2	Explain the characteristics of various wheels (rims and tyres)		
	1.3	Explain the uses of wheels(rims and tyres) data according to manufacturer's specifications		
LO 2: <i>Know tools and equipment for wheels(rims and tyres) repairs and replacement</i>	2.1	Identify tools and equipment used in wheels (rims and tyres) repairs.		
	2.2	Select tools and equipment used in wheels (rims and tyres) repairs.		
	2.3	Carry out inspection activities using suitable equipment, tools and machinery.		
	2.4	Ensure that all wheel (rims and tyres) equipment and tools are safe prior to use.		
LO 3: <i>Know inspection, repair and replace motor vehicle wheels(rims and tyres)</i>	3.1	Use suitable Personal Protective Equipment and motor vehicle coverings throughout all wheel (rims and tyres) inspections, repair and replacement activities.		
	3.2	Use suitable sources of technical information to support your inspection, repair and replacement of wheels (rims and tyres)		
	3.3	Carry out repair and replacement activities using recommended tools, equipment and machinery.		
	3.4	Operate in a way which minimizes the risk of damage to the motor vehicle and its systems		
	3.5	Perform all inspection, repair and replacement activities following:		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
		• Manufacturer's instructions, • Workplace procedure • Health, safety and environmental requirements.		
	3.6	Dispose removed components safely to meet legal and workplace requirements.		
	3.7	Ensure that replaced and refitted wheels and accessories in line with manufacturers recommendations		
	3.8	Report anticipated delays in completion and any additional identified faults, to the relevant personnel promptly.		
	3.9	Carryout wheel balancing operations.		
	3.10	Carryout wheel alignment operations.		
	3.11	Carryout tyre inflation using appropriate tools according to tyre manufacture's specifications		
	3.12	Carry out appropriate repairs according to manufacturers' specification on wheels with tyre pressure sensor.		
	3.13	Select replacement tyres in accordance with manufacturer's specifications.		
	3.14	Interpret wheel data according to manufacturer's specifications.		
	3.15	Store wheels (rims and tyres) in line with manufacturer's and workplace procedures.		
	3.16	Carry out tyre replacement in accordance with motor vehicle manufacturer's specification.		
	3.17	Complete all activities within the agreed timeline		

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

LEVEL II

OVERVIEW

This qualification aims to equip learners with knowledge and skills in Communicating effectively, working in team, complying with health and safety requirements, in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria. This qualification is subject to review as at when the need arises.

QUALIFICATION PURPOSE

This qualification is designed to equip learner with knowledge and skills in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria.

QUALIFICATION REQUIREMENTS

All Candidates must:

1. Be at least (16) years of age
2. Be medically fit
3. Be physically fit
4. Be mentally fit (Mental alertness)
5. Have achieved all the Safety and Health mandatory units in the qualification
6. Be a Nigerian citizen
7. Other nationals (International passport, residence permit)
8. Be vetted

QUALIFICATION OBJECTIVE

At the end of the qualification, the learner should be able to:

- a. Communicate effectively in workplace
- b. Work in a team
- c. Comply with health and safety requirement
- d. Use computer in the automotive industry
- e. Assist in converting activities for gas powered vehicle
- f. Assist in metal joining and fastening activities
- g. Assist in motor vehicle wheel balancing operations
- h. Assist in motor vehicle wheel alignment operations

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

National Skills Qualification (NSQ) Table**LEVEL 2: COMPRESSED NATURAL GAS (CNG)****MANDATORY UNITS**

Unit	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	NADDC/CNG/001/L2	Communication Process in an Automotive Environment	2	20
2	NADDC/CNG/002/L2	Teamwork in an Automotive Environment	2	20
3	NADDC/CNG/003/L2	Health, Safety and Environment In Automotive industry	2	20
4	NADDC/CNG/004/ L2	Basic Computer Skills in Automotive Industry	2	20
5	NADDC/CNG/005/ L2	Customer Relations in an Automotive Workshop Service	2	20
6	NADDC/CNG/006/ L2	Introduction to Conversion Techniques for Gas Powered Vehicle (GPV)	3	30
7	NADDC/CNG/007/ L2	Metal Joining and Fastening Techniques used in Automotive Operations	2	20
	OPTIONAL			
8	NADDC/CNG/008/ L2	Motor Vehicle Wheel Balancing Operations	2	20
9	NADDC/CNG/009/ L2	Motor Vehicle Wheel Alignment Operations	2	20
	TOTAL		19	190

GENERAL GUIDE

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 Qualifications 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 value = 10 guided learning hours
Unit Purpose	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 learning process.
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 qualification.

UNIT 001: Communication Process in an Automotive Workplace Environment

Unit reference number: NADDCCNG/001/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective communication in a workplace environment.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical Assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product

(This depends on the Trade Areas to be assessed)

UNIT 001: Communication Process in an Automotive Workplace Environment

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.				
			The learner can:									
The learner will:												
LO 1: <i>Understand non-complex communication system in a work environment</i>	1.1	Define communication										
	1.2	Explain work place communication: • Internal • External • Vertical • Horizontal										
	1.3	Discuss tools of communication in a workplace environment										
	1.4	Use a simple verbal means to pass on necessary information.										
	1.5	Use non-verbal means to pass on necessary information e.g. body language										
	1.6	Identify symbols and signs appropriately.										
LO 2: <i>Know sources of information in automotive environment</i>	2.1	Identify sources of information in a workplace environment.										
	2.2	Relate appropriately with the sources of information: • Posters • Signage • Displays • Noticeboards • Memoranda etc.										
	2.3	Use the various information flow systems in a workplace environment.										
	2.4	Use information sources to address challenges in a workplace environment.										
	2.5	Communicate findings in accordance to procedure in a workplace environment.										

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.				
LO 3: <i>Communicate effectively in a workplace environment</i>	3.1	Identify the various methods of communication in the workplace environment.										
	3.2	Communicate effectively in a workplace environment to the right personnel using various methods of communications.										
	3.3	Observe information effectively using symbols, signs and codes.										
	3.4	Observe 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 002: Teamwork in Automotive Workplace Environment

Unit reference number: NADDC/CNG/002/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is design to provide the learner with the knowledge and skills required to develop team spirit and positive working relationship.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)

(This depends on the Trade Areas to be assessed)

UNIT 002: Teamwork in Automotive Workplace Environment

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO1: <i>Know positive working relationship with colleagues</i>	1.1	Define teamwork		
	1.2	Explain the values of teamwork in an automotive workplace environment		
	1.3	Identify the need for developing positive relationship with colleagues		
	1.4	Recognize the importance of relating with other people in a way that makes them feel valued and respected.		
	1.5	Explain how to assist team members when performing tasks.		
	1.6	Report to the appropriate personnel when requesting for assistance falls outside area of responsibility.		
	1.7	Report issues to higher authority about own work that might affects others		
LO 2: <i>Know responsibilities within the team</i>	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.		
	2.4	Communicate information to colleagues about own work that might affect others.		
LO 3: <i>Know organizational policy</i>	3.1	Explain organizational code of conduct		
	3.2	Use organizational code of practice.		
	3.3	Work in line with organizational standard and structure.		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.

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

UNIT 003: Health, Safety and Environment in Automotive Industry

Unit reference number: NADDC/CNG/003/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills of health and safety practices in accordance with industry standards, environmental and safety regulations.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning, health and safety protocols are being displayed by the trainee. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product (WP)

(This depends on the Trade Areas to be assessed)

UNIT 003: Health, Safety and Environment in Automotive Industry

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
LO 1: <i>Know personal health, safety and environmental protection in Automotive Industry</i>	1.1	Define health, safety and environment in Automotive Industry			
	1.2	State the importance of health, safety and environment in Automotive Industry			
	1.3	Explain health and safety guidelines as it relate to own job scope			
	1.4	State general rules on hygiene that must be followed			
	1.5	Use Personal Protection Equipment (PPE) such as: • Head protection, • Foot protection, • Hand and body protection • Eyes and ears protection • Respiratory protection.			
	1.6	State the importance of maintaining good personal hygiene in and out of workplace environment			
	1.7	Describe how to carry out First Aid in dealing with: • Allergies • Cuts, • Bruises, • Wounds • Dislocations • Foreign particles in eyes, etc.			
LO 2: <i>Know personal health and hygiene regulations and guidelines</i>	2.1	Demonstrate the appropriate use of Personal Protective Equipment (PPE)			
	2.2	Explain work safety procedures in line with HSE regulations and guidelines			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	2.3	Explain how workplace injuries should be treated by certified first-aid technicians or personnel.			
	2.4	Explain the procedure for reporting illness and infection to the appropriate authority			
LO 3: <i>Know hygienic, safe, and secure workplace</i> .	3.1	State the importance of working in a healthy, safe and hygienic workplace			
	3.2	Explain procedures for reporting accident or near accident (s) using the prescribed method/format in the workplace environment			
	3.3	Explain the procedures of reporting any unsafe acts and or conditions (s) using the prescribed method/ format in the workplace environment			
	3.4	Explain procedure for assisting other workers to observe health, hygiene and safety procedure during work			
	3.5	Practice emergency procedures during work: • Muster point assembly • Evacuation of personnel • Fire drill • Use of fire extinguishers • Communication-Vertical, Horizontal, Internal and External • Resuscitation process			
	3.6	Explain organizational security procedures			
	3.7	Explain disposal methods of waste and pollution control with organic and inorganic substances.			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	3.8	Explain how to assist others to observe sound and noise control and protection methods.			
LO 4: <i>Know preventive measures against hazards in the work place</i>	4.1	Explain hazards in the workplace environment			
	4.2	Identify types of hazard or potential hazards and deals with these correctly			
	4.3	Describe the types of hazards in workplace that may occur and how to deal with them			
	4.4	Explain hazards that can be dealt with personally and those that should be reported to someone else			
	4.5	Explain how to warn other people about hazards and why this is important			
	4.6	Explain why any accident and near accident should be reported and who they should be reported to			
	4.8	Demonstrate safe lifting and handling techniques that should be followed.			
	4.9	Demonstrate other ways of working safely that are relevant to own position and why they are important.			
	4.10	State the possible causes of fire in the workplace			
	4.11	Describe how to prevent fire in the workplace			
	4.12	State where to find the alarms and how to set them off			
	4.13	State why a fire should never be approached unless it is safe to do so			
	4.14	State the importance of observing the fire safety regulations and laws			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	4.15	Describe the organizational security procedures addressing access by unauthorized person(s).			
	4.16	Explain the importance of reporting all usual or non-routine incidents to the appropriate authority.			

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

UNIT 004: Basic Computer Skills in Automotive Industry

Unit reference number: NADDC/CNG/004/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for computer usage in the automotive industry.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 004: Basic Computer Skills in Automotive Industry

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know computer systems classification and operation</i>	1.1	Define computer		
	1.2	Explain the configuration of a computer system: • Usage, • Type • Size		
	1.3	Explain various computer components and systems		
	1.4	Identify the characteristics and benefits of computers in automotive workshop.		
	1.5	Operate the keyboard using: • Function keys, • Alphanumeric keys, • Numeric keys • Control keys.		
	1.6	Differentiate between analogue, digital and hybrid computers.		
	1.7	Identify the various types of microcomputers.		
LO 2: <i>Know computer hardware and software elements</i>	2.1	Explain the functions of various hardware components of the computer.		
	2.2	Explain the functions of various software components of the computer.		
	2.3	Differentiate between operating system and application software.		
	2.4	Select application software for a particular operation.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 3: <i>Know the use of computers in modern automobile workshops</i>	3.1	Explain the roles of computer in modern motor vehicles.		
	3.2	Explain the various applications of computers in automobile workshop.		
	3.3	Carry out a given assignment in a vehicle using the computer.		

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

UNIT 005: Customer Relations in an Automotive Workshop Service

Unit reference number: NADDC/CNG/005/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective customer relations in the work environment.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

10. Direct Observation / Oral Questions (DO)
11. Question and Answer (QA)
12. Practical assessment
13. Witness Testimony (WT)
14. Personal statement (PS)
15. Work product (WP)
16. Recognition of Prior Learning (RPL)
17. Professional Discussion (PD)
18. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 005: Customer Relations in an Automotive Workshop Service

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Establish contact with customers</i>	1.1	Accommodate customer in safe, non-active and comfortable place		
	1.2	Engage the customer on the complaints of the vehicle		
	1.3	Perform the following activities: • Capture the pictorials of the vehicle • Vehicle sign-in form • Vehicle checklist after sign-in		
	1.4	Document customers' needs assessment as necessary		
	1.5	Discuss vehicle status with customer		
	1.6	Document vehicle status for both parties to sign out		
LO 2: <i>Determine customers' needs</i>	2.1	Confirm that recording systems are complete, accurate, in the required format (electronic/ manual) and signed by the customer where necessary		
	2.2	Discuss with the customer the parts that can be installed on the vehicle		
	2.3	Agree with the customer the parts that can be installed on the vehicle		
	2.4	Inspect: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary • Equipment (Photo- Document), • Electrical and emission system		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
	2.5	Record: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary equipment (Photo- Document), • Electrical and emission system								
LO 3: <i>Perform customer service activities</i>	3.1	Discuss the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.2	Record the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.3	Discuss with customers on the following: • Options available for vehicle inspection, repair/parts replacement • Potential course of action • The consequences of the action • The estimated cost								

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. Page No.
	3.4	Discuss safety measures with customers when handing over completed vehicle.			
LO 4: <i>Know customers' follow-up service</i>	4.1	Seek further customer approval where the scope of agreement is likely to be exceeded			
	4.2	Describe how to get feedback from customers			
	4.3	Carry out customer satisfaction survey			
	4.4	Analyze customer feedback			

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

UNIT 006: Introduction to Conversion Techniques for Gas Powered Vehicles (GPV)

Unit reference number: NADDC/CNG/006/L2

NSQ level: 2

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is designed to provide the learner with knowledge and skills required for carrying out conversion on non-gas-powered to gas-powered vehicles.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 006: Introduction to Conversion Techniques for Gas Powered Vehicles

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Know conversion kits and their functions</i>	1.1	Identify different kits available		
	1.2	List the functions of the various components of the kits		
	1.3	Identify the location of safety valves in the kits		
	1.4	Work in a way to minimize risks associate with Electronic Control Unit (ECU) damage, mild electric shock and accident		
LO 2: <i>Know pre-check activities</i>	2.1	Use suitable Personal Protective Equipment (PPE) throughout the activities		
	2.2	Inspect the vehicle for conversion suitability i.e.: • Engine compartment • Vehicle boot space • Pipe trunking • Mechanical condition of the engine • Chassis condition etc.		
	2.3	Use Vehicle Checklist After Customer Sign-In procedure		
	2.4	Identify the relevant vehicle details: • Engine power ratings • Vehicle kits ratings		
	2.5	Inspect kits suitability for vehicle conversion		
	2.6	Scan (OBD II) vehicle to check the engine condition		
LO 3: <i>Know procedure for mounting conversion kits</i>	3.1	Use suitable Personal Protective Equipment (PPE) throughout the activities		
	3.2	According to manufacturer's specifications, identify: • Markings and labels of components • Location of markings of labels • Labels under various codes		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
	3.3	Ensure battery terminals are disconnected in the right order before any activity		
	3.4	Identify suitable location for mounting of kits (marking out)		
	3.5	Explain why best choice place are preferred during mount activity (marking out)		
	3.6	Assist to carry out mounting activities: • ECU • Reducer/Regulator • Multi-valves • De-filter • Injectors • Wire harnesses • Solenoid, etc.		
LO 4: <i>Know post check-activities</i>	4.1	Ensure there is no danger to: • Bonnet • Existing components (If possible, snap engine before retrofitting)		
	4.2	Ensure that all components(kits) are well fitted to avoid failure		
	4.3	Ensure that the ECU is mounted before Electrical connections are done and powered.		
	4.4	Ensure that all activities are carried out in line with manufacturer's specifications.		

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

UNIT 007: Metal Joining and Fastening Techniques used in Automotive Operations

Unit reference number: NADDC/CNG/007/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to equip the learner with knowledge and skills of metal joining and fastening techniques

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 007: Metal Joining and Fastening Techniques used in Automotive Operations

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know safety precautions required in metal joining and fastening</i>	1.1	State safety precautions required in metal joining and fastening		
	1.2	Ensure adequate protection of the vehicle frame during the conversion process		
	1.3	Explain the procedures involved in metal joining and fastening operations		
	1.4	Use the appropriate Personal Protective Equipment (PPE) when carrying out metal joining operations		
	1.5	Carry out metal joining and fastening operations following Health and Safety requirements.		
	1.6	Protect the motor vehicle when carrying out metal joining operations.		
	1.7	Ensure that the tools, equipment and PPE required are in a safe working condition.		
	1.8	Work in a way to avoid damage to other components of the motor vehicle while carrying out metal joining and fastening.		
	1.9	Protect the repaired area using recommended treatment and fortification materials to prevent corrosion where necessary.		
	1.10	Clean and store PPE and equipment in appropriate manner.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 2: <i>Know tools and equipment for carrying out metal joining operations</i>	2.1	Use recommended tools and equipment for carrying out metal joining operations		
	2.2	Ensure that the tools and equipment, PPE required are in safe working condition.		
	2.3	Ensure stability of tools and materials before use.		
LO 3: <i>Know metal Joining and fastening techniques</i>	3.1	Prepare material and align to enable suitable joining to be achieved		
	3.2	Treat meeting/lapping members before joining		
	3.3	Carry out metal joining operations: • Check suitability of joining technique • Check suitability of tooling • Check if consumables are correct		
	3.4	Check integrity of the joint(s) i.e.: • Visual inspection, • Scanning etc.		
	3.5	Identify and remedy joint defects.		
	3.6	Carry out metal joining operations within the agreed timeline.		
	3.7	Reconfirm fastener integrity		
	3.8	Remedy fastener failures		

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

Unit 008: Motor Vehicle Wheel Balancing Operations

Unit reference number: NADDC/CNG/008/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to equip the learner with knowledge and skills of Motor Vehicle Wheel Balancing Operations.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 008: Motor Vehicle Wheel Balancing Operations

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: <i>Know wheel balancing operations</i>	1.1	Differentiate between wheel alignment and balancing.									
	1.2	Define the following: • Dynamic unbalance • Static unbalance • Toe-in • Toe-out, etc.									
	1.3	State the effects of: • Tyre under inflation • Tyre over inflation.									
	1.4	State the purpose of the steering and suspension systems									
	1.5	Examine a given motor vehicle (while driving) to ascertain the wheel balancing status.									
	1.6	Explain the effects of unbalanced wheel while driving a given motor vehicle.									
LO 2: <i>Know wheel balancing tools, equipment and materials</i>	2.1	Use various recommended wheel balancing tools, equipment and materials correctly.									
	2.2	Measure and adjust tools, equipment and materials prior to carrying out wheel balance operations.									
	2.3	Carry out wheel balancing operations using suitable tools, equipment and materials and the correct techniques in line with manufacturer's recommendations.									
	2.4	Store tools, equipment and materials according to manufacturer's specification.									

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 3: <i>Know pre-balancing checks</i>	3.1	State the purpose of pre-balancing checks		
	3.2	List the step-by-step procedures for pre-balancing checks		
	3.3	Conduct wheel balancing pre checks operations: • Correct technical data • Manufacturer's instructions • Health, Safety and Environment requirements		
LO 4: <i>Know wheel balancing procedures</i>	4.1	Use suitable Personal Protective Equipment (PPE) and motor vehicle coverings throughout all wheel balancing operations.		
	4.2	Work in a manner which minimizes the risk of damage to the motor vehicle and its systems.		
	4.3	Conduct wheel balancing pre checks operations following: • Correct technical data • Manufacturer's instructions • Health, Safety and Environment requirements.		
	4.4	Identify the various valves on the tyre for: • Rim size • Width • Tyre classification • Tyre diameter • Tyre direction of rotation mark • Tyre wall • Tyre bead • Tyre liner • Tyre pressure, etc.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	4.5	Ensure final adjustment and settings are within the tolerance allowed for the motor vehicle according to manufacturers' specification.		
	4.6	Inform the relevant personnel when adjustments within the tolerances are not possible.		
	4.7	Indicate absolute expiration of wheels where necessary		
	4.8	Make clear and suitable recommendations for any further action to the relevant personnel clearly and accurately.		
	4.9	Complete all wheel alignment operations within the agreed timeline.		
LO 5: <i>Know post-balancing checks</i>	5.1	State the purpose of post balancing checks.		
	5.2	List the step-by-step procedures for post balancing checks.		
	5.3	Carry out post wheel balancing checks including test driving to ensure conformity to manufacturer's specifications.		

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

Unit 009: Motor Vehicle Wheel Alignment Operations

Unit reference number: NADDC/CNG/009/L2

NSQ level: 2

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to equip the learner with knowledge and skills of motor vehicle wheel alignment operations

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 009:**Motor Vehicle Wheel Alignment Operations**

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Know wheel alignment operations</i>	1.1	State the purpose of the steering and suspension system.		
	1.2	State reasons for tyre wear		
	1.3	State the function of the following: • Castor • Camber • King Pin Inclination/ Steering Angle Inclination (KPI/SAI) • Toe-in • Toe-out.		
	1.4	Examine a given motor vehicle to ascertain the wheel alignment status		
LO 2: <i>Know wheel alignment tools and equipment</i>	2.1	Use various wheel alignment tools/equipment correctly.		
	2.2	Ensure that measuring and adjustment tools and equipment are safe and in good working condition.		
	2.3	Carry out all wheel alignment operations using suitable tools and equipment the correct techniques		
	2.4	Store tools and equipment in accordance with manufacturer's specifications		
LO 3: <i>Know pre- alignment checks</i>	3.1	State the purpose of pre-alignment checks.		
	3.2	List the step-by-step procedures for pre-alignment checks		
	3.3	Conduct all wheel alignment pre checks and wheel alignment operations following the correct technical data in accordance with: • Manufacturer's specifications.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
		Health, Safety and Environmental requirements.		
	3.4	Apply grease to all joints		
LO 4: <i>Know wheel alignment procedures</i>	4.1	Use suitable Personal Protective Equipment (PPE) and motor vehicle coverings throughout all wheel alignment operations.		
	4.2	Work in a manner which minimizes the risk of damage to the motor vehicle and its systems.		
	4.3	Conduct all wheel alignment pre checks and post checks alignment operations following the: - Correct technical data - Manufacturer's instructions - Health, Safety and Environmental requirements.		
	4.4	Ensure final adjustments and settings are within tolerance in accordance to manufacturer's specification.		
	4.5	Inform relevant personnel when tolerance is not achievable.		
	4.6	Indicate absolute expiration of components where necessary		
	4.7	Make clear and suitable recommendations for any further action to the relevant personnel clearly and accurately.		
	4.8	Complete all wheel alignment operations within the agreed timeline.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 5: Know alignment post-checks	5.1	State the purpose of post alignment checks.		
	5.2	List the step-by-step procedures for post alignment checks.		
	5.3	Carry out post wheel alignment checks including test driving to ensure conformity to manufacturer's specifications.		

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

LEVEL III

OVERVIEW

This qualification aims to equip learners with knowledge and skills in Communicating effectively, working in team, complying with health and safety requirements, in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria. This qualification is subject to review as at when the need arises.

QUALIFICATION PURPOSE

This qualification is designed to equip learner with knowledge and skills in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria.

QUALIFICATION REQUIREMENTS

All Candidates must:

1. Be at least (16) years of age
2. Be medically fit
3. Be physically fit
4. Be mentally fit (Mental alertness)
5. Have achieved all the Safety and Health mandatory units in the qualification
6. Be a Nigerian citizen
7. Other nationals (International passport, residence permit)
8. Be vetted

QUALIFICATION OBJECTIVE

At the end of the qualification, the learner should be able to:

- a. Communicate effectively in workplace
- b. Work in a team
- c. Comply with health and safety requirement
- d. Use computer in the automotive industry
- e. Appreciate basic features of Compressed Natural Gas (CNG)
- f. Install Compressed Natural Gas (CNG) kits and fueling system
- g. Calibrate Compressed Natural Gas (CNG) powered vehicles

- h. Diagnose and rectify faults in automotive electrical/ electronic components in accordance with approved procedures.
- i. Maintain Compressed Natural Gas (CNG) powered vehicles
- j. Perform effective customer relations in the work environment.
- k. Diagnose and rectify faults occurring in all motor vehicles

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

National Skills Qualification (NSQ) Table**LEVEL 3: COMPRESSED NATURAL GAS (CNG)****MANDATORY UNITS**

Unit	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	NADDC/CNG/001/L3	Communication Process in an Automotive Environment	2	20
2	NADDC/CNG/002/L3	Teamwork in an Automotive Environment	2	20
3	NADDC/ CNG /003/L3	Health, Safety and Environment in Automotive industry	2	20
4	NADDC/ CNG /004/ L3	Computer Skills in Automotive Industry	2	20
5	NADDC/CNG/005/ L3	Customer Relations in an Automotive Workshop Service	2	20
6	NADDC/CNG/006/ L3	Introduction to CNG	3	30
7	NADDC/CNG/007/ L3	CNG Kits and Fueling System Installation	2	20
8	NADDC/CNG/008/ L3	Calibration Of CNG-Powered Vehicles.	2	20
9	NADDC/CNG/009/ L3	Diagnosis and Fault Rectification of Automotive Electrical/ Electronic Components/Systems	2	20
10	NADDC/CNG/010/ L3	Maintenance of CNG Powered Vehicles	2	20
	OPTIONAL			
11	NADDC/CNG/011/ L3	Computerized Motor Vehicle Diagnosis	3	30
	TOTAL		24	240

GENERAL GUIDE

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 Qualifications 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 value = 10 guided learning hours
Unit Purpose	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 learning process.
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 qualification.

UNIT 001: Communication Process in an Automotive Workplace Environment

Unit reference number: NADDC/CNG/001/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective communication in a workplace environment.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical Assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product

(This depends on the Trade Areas to be assessed)

UNIT 001: Communication Process in an Automotive Workplace Environment

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know non-complex communication system in a work environment</i>	1.1	Define communication		
	1.2	Explain work place communication: • Internal • External • Vertical • Horizontal		
	1.3	Discuss tools of communication in a workplace environment		
	1.4	Use a simple verbal means to pass on necessary information.		
	1.5	Use non-verbal means to pass on necessary information e.g. body language		
	1.6	Identify symbols and signs appropriately.		
LO 2: <i>Know sources of information in automotive environment</i>	2.1	Identify sources of information in a workplace environment.		
	2.2	Relate appropriately with the sources of information: • Posters • Signage • Displays • Noticeboards • Memoranda etc.		
	2.3	Use the various information flow systems in a workplace environment.		
	2.4	Use information sources to address challenges in a workplace environment.		
	2.5	Communicate findings in accordance to procedure in a workplace environment.		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 3: <i>Communicate effectively in a workplace environment</i>	3.1	Identify the various methods of communication in the workplace environment.									
	3.2	Communicate effectively in a workplace environment to the right personnel using various methods of communications.									
	3.3	Observe information effectively using symbols, signs and codes.									
	3.4	Observe 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 002: Teamwork in Automotive Workplace Environment

Unit reference number: NADDC/CNG/002/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is design to provide the learner with the knowledge and skills required to develop team spirit and positive working relationship.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)

(This depends on the Trade Areas to be assessed)

UNIT 002: Teamwork in Automotive Workplace Environment

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO1: <i>Know positive working relationship with colleagues</i>	1.1	Define teamwork		
	1.2	Explain the values of teamwork in an automotive workplace environment		
	1.3	Identify the need for developing positive relationship with colleagues		
	1.4	Recognize the importance of relating with other people in a way that makes them feel valued and respected.		
	1.5	Explain how to assist team members when performing tasks.		
	1.6	Report to the appropriate personnel when requesting for assistance falls outside area of responsibility.		
	1.7	Report issues to higher authority about own work that might affects others		
LO 2: <i>Know responsibilities within the team</i>	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.		
	2.4	Communicate information to colleagues about own work that might affect others.		
LO 3: <i>Know organizational policy</i>	3.1	Explain organizational code of conduct		
	3.2	Use organizational code of practice.		
	3.3	Work in line with organizational standard and structure.		

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

UNIT 003: Health, Safety and Environment in Automotive Industry

Unit reference number: NADDC/CNG/003/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills of health and safety practices in accordance with industry standards, environmental and safety regulations.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning, health and safety protocols are being displayed by the trainee. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product (WP)

(This depends on the Trade Areas to be assessed)

UNIT 003: Health, Safety and Environment in Automotive Industry

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 1: <i>Know personal health, safety and environmental protection in Automotive Industry</i>	1.1	Define health, safety and environment in Automotive Industry		
	1.2	State the importance of health, safety and environment in Automotive Industry		
	1.3	Explain health and safety guidelines as it relate to own job scope		
	1.4	State general rules on hygiene that must be followed		
	1.5	Use Personal Protection Equipment (PPE) such as: • Head protection, • Foot protection, • Hand and body protection • Eyes and ears protection • Respiratory protection.		
	1.6	State the importance of maintaining good personal hygiene in and out of workplace environment		
	1.7	Describe how to carry out First Aid in dealing with: • Allergies • Cuts, • Bruises, • Wounds • Dislocations • Foreign particles in eyes, etc.		
LO 2: <i>Know personal health and hygiene regulations and guidelines</i>	2.1	Demonstrate the appropriate use of Personal Protective Equipment (PPE)		
	2.2	Explain work safety procedures in line with HSE regulations and guidelines		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	2.3	Explain how workplace injuries should be treated by certified first-aid technicians or personnel.			
	2.4	Explain the procedure for reporting illness and infection to the appropriate authority			
LO 3: <i>Know hygienic, safe, and secure workplace</i> .	3.1	State the importance of working in a healthy, safe and hygienic workplace			
	3.2	Explain procedures for reporting accident or near accident (s) using the prescribed method/format in the workplace environment			
	3.3	Explain the procedures of reporting any unsafe acts and or conditions (s) using the prescribed method/ format in the workplace environment			
	3.4	Explain procedure for assisting other workers to observe health, hygiene and safety procedure during work			
	3.5	Practice emergency procedures during work: • Muster point assembly • Evacuation of personnel • Fire drill • Use of fire extinguishers • Communication-Vertical, Horizontal, Internal and External • Resuscitation process			
	3.6	Explain organizational security procedures			
	3.7	Explain disposal methods of waste and pollution control with organic and inorganic substances.			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	3.8	Explain how to assist others to observe sound and noise control and protection methods.			
LO 4: <i>Know preventive measures against hazards in the work place</i>	4.1	Explain hazards in the workplace environment			
	4.2	Identify types of hazard or potential hazards and deals with these correctly			
	4.3	Describe the types of hazards in workplace that may occur and how to deal with them			
	4.4	Explain hazards that can be dealt with personally and those that should be reported to someone else			
	4.5	Explain how to warn other people about hazards and why this is important			
	4.6	Explain why any accident and near accident should be reported and who they should be reported to			
	4.8	Demonstrate safe lifting and handling techniques that should be followed.			
	4.9	Demonstrate other ways of working safely that are relevant to own position and why they are important.			
	4.10	State the possible causes of fire in the workplace			
	4.11	Describe how to prevent fire in the workplace			
	4.12	State where to find the alarms and how to set them off			
	4.13	State why a fire should never be approached unless it is safe to do so			
	4.14	State the importance of observing the fire safety regulations and laws			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	4.15	Describe the organizational security procedures addressing access by unauthorized person(s).			
	4.16	Explain the importance of reporting all usual or non-routine incidents to the appropriate authority.			

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

UNIT 004: Computer Skills in Automotive Industry

Unit reference number: NADDC/CNG/004/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for computer usage in the automotive industry.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 004: Computer Skills in Automotive Industry

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know computer systems classification and operation</i>	1.1	Define computer		
	1.2	Explain the configuration of a computer system: • Usage, • Type • Size		
	1.3	Explain various computer components and systems		
	1.4	Identify the characteristics and benefits of computers in automotive workshop.		
	1.5	Operate the keyboard using: • Function keys, • Alphanumeric keys, • Numeric keys • Control keys.		
	1.6	Differentiate between analogue, digital and hybrid computers.		
	1.7	Identify the various types of microcomputers.		
LO 2: <i>Know computer hardware and software elements</i>	2.1	Explain the functions of various hardware components of the computer.		
	2.2	Explain the functions of various software components of the computer.		
	2.3	Differentiate between operating system and application software.		
	2.4	Select application software for a particular operation.		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidenc e Type	Evidenc e Ref. Page No.
LO 3: <i>Know the use of computers in modern automobile workshops</i>	3.1	Explain the roles of computer in modern motor vehicles.		
	3.2	Explain the various applications of computers in automobile workshop.		
	3.3	Carry out a given assignment in a vehicle using the computer.		

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

UNIT 005: Customer Relations in an Automotive Workshop Service

Unit reference number: NADDC/CNG/005/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective customer relations in the work environment.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 005: Customer Relations in an Automotive Workshop Service

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Establish contact with customers</i>	1.1	Accommodate customer in safe, non-active and comfortable place		
	1.2	Engage the customer on the complaints of the vehicle		
	1.3	Perform the following activities: • Capture the pictorials of the vehicle • Vehicle sign-in form • Vehicle checklist after sign-in		
	1.4	Document customers' needs assessment as necessary		
	1.5	Discuss vehicle status with customer		
	1.6	Document vehicle status for both parties to sign out		
LO 2: <i>Determine customers' needs</i>	2.1	Confirm that recording systems are complete, accurate, in the required format (electronic/ manual) and signed by the customer where necessary		
	2.2	Discuss with the customer the parts that can be installed on the vehicle		
	2.3	Agree with the customer the parts that can be installed on the vehicle		
	2.4	Inspect: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary • Equipment (Photo- Document), • Electrical and emission system		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
	2.5	Record: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary equipment (Photo- Document), • Electrical and emission system								
LO 3: <i>Perform customer service activities</i>	3.1	Discuss the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.2	Record the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.3	Discuss with customers on the following: • Options available for vehicle inspection, repair/parts replacement • Potential course of action • The consequences of the action • The estimated cost								

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. Page No.
	3.4	Discuss safety measures with customers when handing over completed vehicle.			
LO 4: <i>Know customers' follow-up service</i>	4.1	Seek further customer approval where the scope of agreement is likely to be exceeded			
	4.2	Describe how to get feedback from customers			
	4.3	Carry out customer satisfaction survey			
	4.4	Analyze customer feedback			

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

UNIT 006: Introduction to CNG

Unit reference number: NADDC/CNG/006/L3

NSQ level: 3

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is designed to equip the learner with the basic knowledge of compressed natural gas.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 006: Introduction to CNG

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Understand Compressed Natural Gas (CNG)</i>	1.1	Explain how natural gas is produced		
	1.2	Explain the characteristics of CNG		
	1.3	Explain the benefits of CNG: • Economic • Environmental		
		Explain the challenges of CNG: • Economic • Environmental		
	1.4			
	1.5	Explain the mode of transportation of CNG		
	1.6	Explain the various mode of storage of CNG		
	1.7	Explain health and safety requirements for the transportation of CNG		
LO 2: <i>Know how to dispense CNG</i>	2.1	Explain the various types of machinery and equipment for dispensing CNG		
	2.2	Explain health and safety measures for dispensing CNG		
	2.3	Demonstrate the process of dispensing CNG into vehicles		
LO 3:	3.1	Explain the regulations and policies of CNG.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
<i>Know legal framework of CNG</i>	3.2	Explain legal policy of installation of CNG tanks.			
	3.3	Explain legal policy of storing CNG tanks			

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

UNIT 007: CNG Kits and Fuelling System Installation

Unit reference number: NADDC/CNG/007/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills of CNG kits and fueling system installation.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 007: CNG Kit and Fuelling System Installation

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: <i>Know mechanical Kits Installation</i>	1.1	Identify the components of CNG kits and their functions									
	1.2	Install CNG kits									
	1.3	Use suitable Personal Protective Equipment throughout the work process									
	1.4	Explain the health and safety measures and regulations provided by statutory bodies (ISO, SON, etc.) regarding CNG Kits installation.									
	1.5	Identify these components: • Filters • Reducers • Injector nozzles • Hoses • Pipes, • Regulator, • SGI Switch, etc.									
	1.6	Identify the locations for the following: • Cylinder • Pressure reducers • Pressure gauge • Pressure release valve • Filling point/valve with connecting gas hoses, etc.									
	1.7	Locate existing holes to install the following: • Reducers • Injector rail, • ECU • Solenoid valves • Switch etc.									

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type				Evidence Ref. Page No.			
The learner will:		The learner can:								
	1.8	Utilize existing holes to install the following: • Reducers • Injector rail, • ECU • Solenoid valves Switch etc.								
	1.9	Drill new holes and provide bolts and nuts for mounting the following: • Reducers • Injector rail, • ECU • Solenoid valves • Switch etc.								
	1.10	Connect the pressure gauge to the reducer								
	1.11	Connect the high pressure pipe to the reducer inlet/outlet								
	1.12	Connect coolant pipes to the reducer								
	1.13	Connect the filter and gas injector rails using low pressure pipes and clips								
	1.14	Mount the gas injector rail using appropriate brackets								
	1.15	Drill and tap the manifold at appropriate locations and angles using appropriate drill bit and tap								
	1.16	Secure the nozzles on the manifold using lock tight adhesive								
	1.17	Connect the injector rail assembly and injector Nozzles fitting.								
	1.18	Interpret vehicle information for engine capacity (cc) and nozzle size.								

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. Page No.
	1.19	Carry out the calculation for drilling nozzle hole.			
	1.20	Demonstrate the ability to select appropriate drill bit and drilling the appropriate injector nozzle.			
LO 2: <i>Install gas tanks and cylinders</i>	2.1	Explain the differences between the various types of CNG tanks			
	2.2	Select the right type of tank appropriate for the vehicle to be converted			
	2.3	Carry out these operations: - Select the appropriate location to fix tank - Select tools/equipment to drill holes - Install tank and fix the tank bracket			
	2.4	Carry out pipe cutting and connection of pipes during the conversion process (where necessary).			
	2.5	Firmly fasten and secure the tank belt, hoses and pipes			
	2.6	Demonstrate skills in gas and heat-shrink tubing and routing			
	2.7	Discuss the advantages and disadvantages of filling valve locations			
	2.8	Explain the advantages and disadvantages of different types of tank for conversion			
	2.9	Install different types/sizes of pipes			
	2.10	Install different types of valves			
	2.11	Use appropriate tools to cut and connect different types of			

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
		hoses/pipes (as provided by regulations or OEM requirement)									
	2.12	Determine if pressure reading from manufacturer's specifications match component pressure ratings									
	2.13	Determine the system pressure rating from the vehicle in accordance to OEM's specification									
	2.14	Locate shut off valves (In accordance with NFPA52 or manufacturer's specifications)									
	2.15	Identify: • Markings and labels of components • Location of markings of labels • Labels under various codes									
	2.16	Carry out a trial fit in accordance with manufacturer's specifications									
	2.17	Ensure valves are in recommended locations									
LO 3: Know gas transfer lines and connectors	3.1	Explain the Standards for selecting right hose/pipe for different applications									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.2	Describe the various types and functions of hoses/pipes									
	3.3	Describe the various types functions of pipes: • Copper • Steel • Fibre • Alloy • Stainless, etc.									
	3.4	Describe the functions of the map sensor and gas filter									
	3.5	Position the map sensor and gas filter appropriately									
	3.6	Carryout fuel line mounting and routing									
	3.7	Outline the functions of tapered thread fittings and sealants									
	3.8	Describe the functions of fuel line fittings									
	3.9	Explain the requirements for additional fuel-line									
	3.10	Carry out pipe cutting using appropriate tools and techniques									
	3.11	Carry out leak test using appropriate instrument.									
	3.12	Describe the standards for selecting right hose/pipe for different applications									
	3.13	Describe venting system									
	3.14	Describe types of Pressure Relief Devices (PRDs) channel configurations									
	3.15	Explain probable modifications of PRDs									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 4: <i>Connect electrical wiring and components</i>	4.1	Locate where to read pressure ratings on components									
	4.2	Connect Gas Electronic Control Units (ECU) based on vehicle type and characteristics									
	4.3	Demonstrate the use of OEM electrical installation diagrams and guides.									
	4.4	Apply guidelines for bundling and routing the wire harness during conversion process									
	4.5	Demonstrate good wire connection and insulation practice.									
	4.6	Connect fuel rails and injectors									
	4.7	Connect fuel rail pressure and temperature sensors									
	4.8	Connect Manifold Absolute Pressure (MAP) sensor									
	4.9	Connect the emulation cables and other cables to vehicle's injectors nozzles,									
	4.10	Connect the RPM to other cables in the vehicle's: • Ignition coil, • Crank Position sensor, • Cam position sensor (In accordance to the OEM electrical Circuit diagrams).									
	4.11	Connect gas ECU and make all connections to the battery terminals									
	4.12	Connect other wiring harness and switches.									

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.
The learner will:		The learner can:						
LO 5: <i>Kow electrical/ electronic kits installation</i>	5.1	Carry out all electrical connections using manufacturer's recommended electrical schematic diagram: • ECU • Injector cables • SGI Gas switch • Reducer • Regulator • Solenoid, etc.						
	5.2	Use suitable Personal Protective Equipment (PPE) throughout the work process						
	5.3	Demonstrate good practice in wire connection, soldering and termination						
	5.4	Explain different electrical components used in the electrical wiring						
	5.5	Carry out continuity testing with multi-meter						
	5.6	Carry out test/ emulation for signals of the following; • Fuel injectors • Oxygen sensors • MAP sensors, etc.						
	5.7	Carry out test to distinguish between the negative cables to injector coils and the positive cables to switch (near the driver)						
	5.8	Demonstrate the use of wire stripper and different wire connection techniques						
	5.9	Ensure insulation of all cable joints and electrical connectors						

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	5.10	Demonstrate the use of hand tools and different wire connection techniques									

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

UNIT 008: Calibration of CNG-Powered Vehicles

Unit reference number: NADDC/CNG/008/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is to provide the necessary knowledge and skills required to calibrate CNG powered vehicles.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 008: Calibration of CNG-Powered Vehicles

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 1: <i>Know scanning tools/ software for calibration of CNG powered vehicles</i>	1.1	Explain the term calibration as it relates to CNG-powered vehicle conversion									
	1.2	Discuss the operations: - Personal Computer; - OBD II tool									
	1.3	Discuss the reasons for calibration									
	1.4	Explain the procedures for carrying out calibration									
	1.5	Discuss the safety precautions to be observed during calibration in accordance with manufacturer's specifications									
	1.6	Select the right software, tools, equipment and materials required for calibration in accordance with manufacturer's specifications.									
	1.7	Use computer system to install the relevant calibration software									
LO 2: <i>Perform calibration operation</i>	2.1	Explain vehicle parameters and their standard values.									
	2.2	Analyze the different calibration software according to the gas medium: - Propane (100%) - Butane- propane blend									
	2.3	Connect communication wires for different OEM systems calibration									
	2.4	Analyze the parameters displayed by calibration software in accordance with manufacturer's specifications									

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
	2.5	Adjust parameters to meet the expected vehicle performance in accordance with manufacturer's specifications									
	2.6	Fill gas in accordance with manufacturer's specifications									
	2.7	Ensure the safety of the vehicle, equipment and the work environment during calibration activities									
LO 3: <i>Manage calibration data and information</i>	3.1	Explain the various components of a calibration system									
	3.2	Carry out real time calibration data collection									
	3.3	Perform basic parameter settings of the gas controller. (Car and system info, RPM, MAP press, Gas press, Red. Temp, Gas. Temp, Engine load, Lambda, gas injector type, oxygen sensor type, reducer temperature sensor, gas level indicator type, engine type, fuel type fuel type, injection control.)									
	3.4	Perform gas injectors settings									
	3.5	Perform Auto-calibration and LED switch operations									
LO 4: <i>Know OBD II scan tool</i>	4.1	Set-up scan tools based on observation of injection pulses									
	4.2	Set-up with an OBD II scanner									
	4.3	Calibrate when engine is at maximum load									
	4.4	Perform idle speed control tuning									

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
	4.5	Document all calibration information									
LO 5: <i>Know general calibration checks</i>	5.1	Resolve “No operation on CNG problems”									
	5.2	Resolve “Fuel identification” problems									
	5.3	Resolve “Excessive gasoline consumption” problems after conversion									
	5.4	Resolve “No automatic switch to CNG” problems									
	5.5	Resolve “No manual switch to gasoline” problems									
	5.6	Resolve “Automatic fuel switch during acceleration” problems									
	5.7	Resolve “Gradual loss of power on gas” problems									
	5.8	Resolve problems associated with starting vehicle when “Out of gasoline”									
	5.9	Resolve “No operation after refueling” problems									
	5.10	Resolve “Inaccurate fuel level gauge” problems									
	5.11	Resolve “Check engine light” problems									
LO 6: <i>Know sequential diagnostic procedures</i>	6.1	Carry out data visualization • Errors Diagnostic • Actuators • ECU Version									
	6.2	Interpret OBD-II parameter readouts									
	6.3	Carry out actuator testing and									

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
		injector sequencing									
	6.4	Replace injector nozzles									
LO 7: <i>Know post check activities on CNG powered vehicles</i>	7.1	Describe post-check activities on vehicles: • Visual inspection, • Leak checks, • Wiring connections, • Tightening, • Electronic diagnosis, • Test driving etc.									
	7.2	Select the tools and equipment required for post-checks									
	7.3	Demonstrate the uses of the tools and equipment required for post-checks									
	7.4	Perform post-check calibration activities in accordance with manufacturer's specifications and standard practices.									
	7.5	Resolve <i>Check engine light</i> and Stored P1649 trouble code									
	7.6	Perform Actuator testing									
	7.7	Perform Injector sequencing									
	7.8	Replace an injector									
	7.9	Set the Reducer outlet pressure									
	7.10	Perform gas purge or gas cap DTC									
LO 8: <i>Know fuel systems in a CNG vehicle</i>	8.1	Describe fuel characteristics regarding pressure and flammability									
	8.2	Describe safety related pressure system components									

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	8.3	Perform proper fuelling and defueling techniques			
	8.4	Demonstrate good tank care and damage prevention procedures			
	8.5	Perform Auto-gas (LPG) flow line diagnosis			
	8.6	Demonstrate Auto-gas (LPG) container and piping diagnosis and repair procedures			
	8.7	Apply Auto-gas (LPG) leak detection techniques			
LO 9: <i>Know fuel line system diagnosis, maintenance and repairs</i>	9.1	Describe fuel tank components			
	9.2	Identify possible fuel lines leakages using appropriate tools			
	9.3	Resolve problems of poor performance, slow refueling and hard starting due to fuel leakage and blockage			
	9.4	Identify leaky fuel injector			
	9.5	Perform injector removal procedure			
	9.6	Perform tank evacuation components			
	9.7	Resolve “Check engine light” problems			
LO 10: <i>Know sequential injection system diagnosis, maintenance and repairs</i>	10.1	Resolve stall on switchover and automatic fuel switch during acceleration			
	10.2	Perform LEAN or RICH DTC Correction			
	10.3	Correct gradual loss of engine power and misfiring problems			
	10.4	Perform general maintenance			

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

UNIT 009: Diagnosis and Fault Rectification of Automotive Electrical/ Electronic Components/ Systems

Unit reference number: NADDC/CNG/009/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is to provide the necessary knowledge and skills required to carry out diagnosis and fault rectification of automotive electrical and electronic components.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 009: Diagnosis and Fault Rectification of Automotive Electrical/ Electronic Components/ Systems

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
LO 1: <i>Know principles of automotive electrical/ electronic systems</i>	1.1	Demonstrate ability to read and interpret circuit diagrams			
	1.2	Identify motor vehicle electrical/electronic systems			
	1.3	Assess motor vehicle electrical/electronic systems.			
	1.4	Differentiate between electrical and electronics components			
	1.5	Analyze the operations of each of the components			
LO 2: <i>Know diagnostic tools and equipment</i>	2.1	Identify appropriate diagnostic tools and equipment.			
	2.2	Select appropriate diagnostic tools and techniques			
	2.3	Select appropriate diagnostic aids such as: - Wiring diagrams - Fault charts etc. to locate faults			
	2.4	Use appropriate diagnostic techniques, tools, equipment, and aids to locate faults.			
	2.5	Store diagnostic tools and equipment safely and in line with manufacturer's specification.			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type					Evidence Ref. Page No.			
The learner will:		The learner can:									
LO 3: <i>Ensure safe working practices in automotive electrical/ electronic components</i>	3.1	Identify health, safety and other relevant regulations and guidelines.									
	3.2	Handle tools and equipment according to Original Equipment Manufacturers' (OEM) guideline.									
	3.3	Store tools and equipment according to Original Equipment Manufacturers' (OEM) guideline.									
	3.4	Demonstrate how to prevent damage to other motor vehicle systems.									
LO 4: <i>Repair automotive electrical /electronics systems faults</i>	4.1	Identify faults using appropriate methods and techniques.									
	4.2	Select appropriate diagnostic techniques, tools, equipment and aids to locate faults.									
	4.3	Troubleshoot to establish the most likely cause(s) of the faults using appropriate diagnostic tools and equipment									
	4.4	Keep record of faults diagnosed									
	4.5	Retrieve faulty codes.									
	4.6	Interpret faulty codes									
	4.7	Erase faulty codes									
	4.8	Print information from a data base									

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

UNIT 010: Maintenance of CNG-Powered Vehicles

Unit reference number: NADDC/CNG/010/L3

NSQ level: 3

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills of the maintenance of CNG-powered vehicles.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 010: Maintenance of CNG-Powered Vehicles

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.
LO 1: <i>Maintain CNG-powered vehicles</i>	1.1	Discuss the processes involve in the maintenance of CNG powered vehicles						
	1.2	Identify the types of maintenance required for CNG powered vehicles						
	1.3	Select tools and equipment used on CNG-powered vehicles						
LO 2: <i>Perform maintenance checks on CNG-powered vehicles</i>	2.1	Demonstrate safe practices in carrying out maintenance procedures						
	2.2	Identify the different components requiring maintenance in CNG powered vehicles: • CNG tanks • Gas filters, • Connectors, • Pipes, • Regulators • Valve • Hoses/pipes • Reducers, • Nozzles, etc.						
	2.3	Select the tools for maintenance of CNG powered vehicles in-line with manufacturer's specifications						
	2.4	Carry out maintenance activities on the components listed in 2.2 above with manufacturer specifications						
	2.5	Interpret customers feedback/carry out root cause analysis of repetitive complaints						
	2.6	Check for leakages						
	2.7	Report maintenance activities and submit to the appropriate authority.						

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.
LO 3: <i>Know procedures for functionality and durability testing.</i>	3.1	Carry out post-checks on the serviced components						
	3.2	Carry out durability checks.						
	3.3	Carry out final check on the identified faults recorded.						

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

UNIT 011: Computerized Motor Vehicle Diagnosis

Unit reference number: NADDC/CNG/011/L3

NSQ level: 3

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is designed to provide the learner with requisite knowledge and skills to diagnose and rectify faults occurring in all motor vehicle systems.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 011: Computerized Motor Vehicle Diagnosis

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know the working principles of internal combustion engine</i>	1.1	Discuss different types of engine		
	1.2	Differentiate between the various cycles of engine operation		
	1.3	Explain the following: • The stroke cycle • Spark and compression ignition engines • Mechanical and electrical/ electronic components of the vehicle.		
	1.4	Explain the differences between hybrid and alternative fuel engines		
	1.5	Explain the hydraulic systems		
	1.6	Explain the pneumatic systems		
LO 2: <i>Know tools and equipment used in engine diagnosis and rectification</i>	2.1	Identify the various diagnostic tools and equipment.		
	2.2	Explain the application of the various diagnostic tools and equipment.		
	2.3	Differentiate between Original Equipment Manufacturers (OEM) tools and equipment and from Generic Diagnostic Equipment (GDE).		
	2.4	Prepare and connect all the required equipment prior to use according to manufacturer's instructions.		
	2.5	Interpret electrical wiring diagram		
	2.6	Test all the required equipment prior to use.		
	2.7	Use relevant tools and equipment correctly and safely throughout all diagnostic and rectification activities.		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
	2.8	Observe manufacturer's specification to store and secure all tools and equipment.		
LO 3: <i>Know engine fault analysis and rectification techniques</i>	3.1	Use appropriate Personal Protective Equipment (PPE) and motor vehicle coverings when carrying out diagnostic and rectification activities.		
	3.2	Explain the different communication systems used in motor vehicles.		
	3.3	Identify fault/s by reviewing motor vehicle: - Diagnostic test procedures. - Technical data		
	3.4	Retrieve, rectify and erase fault codes where necessary.		
	3.5	Interpret readings related to intermittent and permanent faults.		
	3.6	Record any system deviation from acceptable limits accurately.		
	3.7	Diagnose and rectify intermittent faults according to: - Manufacturers' instructions - Health, Safety and Environmental requirements		
	3.9	Dismantle faulty system and/or component according to: - Manufacturers' instructions - Health, Safety and Environmental requirements		
	3.10	Rectify or replace faulty system and/or component according to: - Manufacturers' instructions - Health, Safety and Environmental requirements		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.11	Assess to ensure that the new component/s or system are functional prior to installation.									
	3.12	Re-install the rectified system or component according to: - Manufacturers' instruction - Health, Safety and Environmental requirements									
	3.13	Perform functionality test to confirm that vehicle system or components perform according to manufacturer's specifications									

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

LEVEL IV

OVERVIEW

This qualification aims to equip learners with knowledge and skills in Communicating effectively, working in team, complying with health and safety requirements, in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria. This qualification is subject to review as at when the need arises.

QUALIFICATION PURPOSE

This qualification is designed to equip learner with knowledge and skills in carrying out the conversion and maintenance of Compressed Natural Gas (CNG) powered vehicles in Nigeria.

QUALIFICATION REQUIREMENTS

All Candidates must:

1. Be at least (16) years of age
2. Be medically fit
3. Be physically fit
4. Be mentally fit (Mental alertness)
5. Have achieved all the Safety and Health mandatory units in the qualification
6. Be a Nigerian citizen
7. Other nationals (International passport, residence permit)
8. Be vetted

QUALIFICATION OBJECTIVE

At the end of the qualification, the learner should be able to:

- a. Communicate effectively in workplace
- b. Work in a team
- c. Comply with health and safety requirement
- d. Use computer in the automotive industry
- e. Plan and manage an automotive workshop
- f. Perform final inspection on Compressed Natural Gas (CNG) powered vehicle
- g. Service Compressed Natural Gas (CNG) powered
- h. Identify and rectify faults in motor vehicle electrical systems
- i. Recondition engine in line with manufacturer's requirement.

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is 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. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

National Skills Qualification (NSQ) Table**LEVEL 4: COMPRESSED NATURAL GAS (CNG)****MANDATORY UNITS**

Unit	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	NADDC/CNG/001/L4	Communication Process in an Automotive Environment	2	20
2	NADDC/CNG/002/L4	Teamwork in an Automotive Environment	2	20
3	NADDC/ CNG /003/L4	Health, Safety and Environment in Automotive industry	2	20
4	NADDC/ CNG /004/ L4	Computer Skills in Automotive Industry	2	20
5	NADDC/CNG/005/ L4	Customer Relations in an Automotive Workshop Service	2	20
6	NADDC/CNG/006/ L4	Workshop Organization and Management	3	30
7	NADDC/CNG/007/ L4	Final Inspection on CNG-Powered Vehicle	2	20
8	NADDC/CNG/008/ L4	CNG-Powered Vehicle Servicing	2	20
9	NADDC/CNG/009/ L4	Motor Vehicle Electrical Unit and Component Faults Rectification	2	20
	OPTIONAL			
10	NADDC/CNG/010/ L4	Engine Reconditioning	3	30
	TOTAL		23	230

GENERAL GUIDE

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 Qualifications 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 value = 10 guided learning hours
Unit Purpose	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 learning process.
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 qualification.

UNIT 001: Communication Process in an Automotive Workplace Environment

Unit reference number: NADDCCNG/001/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective communication in a workplace environment.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical Assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product

(This depends on the Trade Areas to be assessed)

UNIT 001: Communication Process in an Automotive Workplace Environment

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know non-complex communication system in a work environment</i>	1.1	Define communication		
	1.2	Explain work place communication: • Internal • External • Vertical • Horizontal		
	1.3	Discuss tools of communication in a workplace environment		
	1.4	Use a simple verbal means to pass on necessary information.		
	1.5	Use non-verbal means to pass on necessary information e.g. body language		
	1.6	Identify symbols and signs appropriately.		
LO 2: <i>Know sources of information in automotive environment</i>	2.1	Identify sources of information in a workplace environment.		
	2.2	Relate appropriately with the sources of information: • Posters • Signage • Displays • Noticeboards • Memoranda etc.		
	2.3	Use the various information flow systems in a workplace environment.		
	2.4	Use information sources to address challenges in a workplace environment.		
	2.5	Communicate findings in accordance to procedure in a workplace environment.		
LO 3:	3.1	Identify the various methods of communication in the workplace environment.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
<i>Communicate effectively in a workplace environment</i>	3.2	Communicate effectively in a workplace environment to the right personnel using various methods of communications.									
	3.3	Observe information effectively using symbols, signs and codes.									
	3.4	Observe 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 002: Teamwork in Automotive Workplace Environment

Unit reference number: NADDC/CNG/002/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is design to provide the learner with the knowledge and skills required to develop team spirit and positive working relationship.

Unit Assessment /Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)

(This depends on the Trade Areas to be assessed)

UNIT 002: Teamwork in Automotive Workplace Environment

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO1: <i>Know positive working relationship with colleagues</i>	1.1	Define teamwork		
	1.2	Explain the values of teamwork in an automotive workplace environment		
	1.3	Identify the need for developing positive relationship with colleagues		
	1.4	Recognize the importance of relating with other people in a way that makes them feel valued and respected.		
	1.5	Explain how to assist team members when performing tasks.		
	1.6	Report to the appropriate personnel when requesting for assistance falls outside area of responsibility.		
	1.7	Report issues to higher authority about own work that might affects others		
LO 2: <i>Know responsibilities within the team</i>	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.		
	2.4	Communicate information to colleagues about own work that might affect others.		
LO 3: <i>Know organizational policy</i>	3.1	Explain organizational code of conduct		
	3.2	Use organizational code of practice.		
	3.3	Work in line with organizational standard and structure.		

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

UNIT 003: Health, Safety and Environment in Automotive Industry

Unit reference number: NADDC/CNG/003/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills of health and safety practices in accordance with industry standards, environmental and safety regulations.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning, health and safety protocols are being displayed by the trainee. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Project
7. Work product (WP)

(This depends on the Trade Areas to be assessed)

UNIT 003: Health, Safety and Environment in Automotive Industry

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
LO 1: <i>Know personal health, safety and environmental protection in Automotive Industry</i>	1.1	Define health, safety and environment in Automotive Industry			
	1.2	State the importance of health, safety and environment in Automotive Industry			
	1.3	Explain health and safety guidelines as it relate to own job scope			
	1.4	State general rules on hygiene that must be followed			
	1.5	Use Personal Protection Equipment (PPE) such as: • Head protection, • Foot protection, • Hand and body protection • Eyes and ears protection • Respiratory protection.			
	1.6	State the importance of maintaining good personal hygiene in and out of workplace environment			
	1.7	Describe how to carry out First Aid in dealing with: • Allergies • Cuts, • Bruises, • Wounds • Dislocations • Foreign particles in eyes, etc.			
LO 2: <i>Know personal health and hygiene regulations and guidelines</i>	2.1	Demonstrate the appropriate use of Personal Protective Equipment (PPE)			
	2.2	Explain work safety procedures in line with HSE regulations and guidelines			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	2.3	Explain how workplace injuries should be treated by certified first-aid technicians or personnel.			
	2.4	Explain the procedure for reporting illness and infection to the appropriate authority			
LO 3: <i>Know hygienic, safe, and secure workplace</i> .	3.1	State the importance of working in a healthy, safe and hygienic workplace			
	3.2	Explain procedures for reporting accident or near accident (s) using the prescribed method/format in the workplace environment			
	3.3	Explain the procedures of reporting any unsafe acts and or conditions (s) using the prescribed method/ format in the workplace environment			
	3.4	Explain procedure for assisting other workers to observe health, hygiene and safety procedure during work			
	3.5	Practice emergency procedures during work: • Muster point assembly • Evacuation of personnel • Fire drill • Use of fire extinguishers • Communication-Vertical, Horizontal, Internal and External • Resuscitation process			
	3.6	Explain organizational security procedures			
	3.7	Explain disposal methods of waste and pollution control with organic and inorganic substances.			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	3.8	Explain how to assist others to observe sound and noise control and protection methods.			
LO 4: <i>Know preventive measures against hazards in the work place</i>	4.1	Explain hazards in the workplace environment			
	4.2	Identify types of hazard or potential hazards and deals with these correctly			
	4.3	Describe the types of hazards in workplace that may occur and how to deal with them			
	4.4	Explain hazards that can be dealt with personally and those that should be reported to someone else			
	4.5	Explain how to warn other people about hazards and why this is important			
	4.6	Explain why any accident and near accident should be reported and who they should be reported to			
	4.8	Demonstrate safe lifting and handling techniques that should be followed.			
	4.9	Demonstrate other ways of working safely that are relevant to own position and why they are important.			
	4.10	State the possible causes of fire in the workplace			
	4.11	Describe how to prevent fire in the workplace			
	4.12	State where to find the alarms and how to set them off			
	4.13	State why a fire should never be approached unless it is safe to do so			
	4.14	State the importance of observing the fire safety regulations and laws			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	4.15	Describe the organizational security procedures addressing access by unauthorized person(s).			
	4.16	Explain the importance of reporting all usual or non-routine incidents to the appropriate authority.			

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

UNIT 004: Computer Skills in Automotive Industry

Unit reference number: NADDCCNG/004/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for computer usage in the automotive industry.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 004: Computer Skills in Automotive Industry

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know computer systems classification and operation</i>	1.1	Define computer		
	1.2	Explain the configuration of a computer system: • Usage, • Type • Size		
	1.3	Explain various computer components and systems		
	1.4	Identify the characteristics and benefits of computers in automotive workshop.		
	1.5	Operate the keyboard using: • Function keys, • Alphanumeric keys, • Numeric keys • Control keys.		
	1.6	Differentiate between analogue, digital and hybrid computers.		
	1.7	Identify the various types of microcomputers.		
LO 2: <i>Know computer hardware and software elements</i>	2.1	Explain the functions of various hardware components of the computer.		
	2.2	Explain the functions of various software components of the computer.		
	2.3	Differentiate between operating system and application software.		
	2.4	Select application software for a particular operation.		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidenc e Type	Evidenc e Ref. Page No.
LO 3: <i>Know the use of computers in modern automobile workshops</i>	3.1	Explain the roles of computer in modern motor vehicles.		
	3.2	Explain the various applications of computers in automobile workshop.		
	3.3	Carry out a given assignment in a vehicle using the computer.		

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

UNIT 005: Customer Relations in an Automotive Workshop Service

Unit reference number: NADDC/CNG/005/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide the learner with knowledge and skills for effective customer relations in the work environment.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 005: Customer Relations in an Automotive Workshop Service

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Establish contact with customers</i>	1.1	Accommodate customer in safe, non-active and comfortable place		
	1.2	Engage the customer on the complaints of the vehicle		
	1.3	Perform the following activities: • Capture the pictorials of the vehicle • Vehicle sign-in form • Vehicle checklist after sign-in		
	1.4	Document customers' needs assessment as necessary		
	1.5	Discuss vehicle status with customer		
	1.6	Document vehicle status for both parties to sign out		
LO 2: <i>Determine customers' needs</i>	2.1	Confirm that recording systems are complete, accurate, in the required format (electronic/ manual) and signed by the customer where necessary		
	2.2	Discuss with the customer the parts that can be installed on the vehicle		
	2.3	Agree with the customer the parts that can be installed on the vehicle		
	2.4	Inspect: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary • Equipment (Photo- Document), • Electrical and emission system		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
	2.5	Record: • Under- hood modifications (Photo- Document), • Trunk or bed mounted auxiliary equipment (Photo- Document), • Electrical and emission system								
LO 3: <i>Perform customer service activities</i>	3.1	Discuss the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.2	Record the following with the customer before accepting the vehicle: • The physical inventory of the car • The extent and nature of the work undertaken • The terms and conditions of acceptance • The timeline								
	3.3	Discuss with customers on the following: • Options available for vehicle inspection, repair/parts replacement • Potential course of action • The consequences of the action • The estimated cost								

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type		Evidence Ref. Page No.
	3.4	Discuss safety measures with customers when handing over completed vehicle.			
LO 4: <i>Know customers' follow-up service</i>	4.1	Seek further customer approval where the scope of agreement is likely to be exceeded			
	4.2	Describe how to get feedback from customers			
	4.3	Carry out customer satisfaction survey			
	4.4	Analyze customer feedback			

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

UNIT 006: Workshop Organization and Management

Unit reference number: NADDC/CNG/006/L4

NSQ level: 4

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is designed to provide learners with the requisite knowledge and skills to effectively plan and manage an automotive workshop.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 006: Workshop Organization and Management

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
LO 1: <i>Know management principles</i>	1.1	Define management			
	1.2	Discuss the principles of management: • Leadership • Personnel • Inventory • Accounting • Nigerian Tax Act 2025 • Time • Workplace management • Crisis management • Decision making etc.			
	1.3	Apply management principles in a workplace environment			
	1.4	Explain legal-duties and responsibilities			
	1.5	Identify ethical and professional procedures and standards while in supervisory roles			
LO 2: <i>Know health, safety and environmental requirements</i>	2.1	Explain health, safety and environmental principles			
	2.2	Identify common hazards in work environment			
	2.3	Demonstrate use of Personnel Protective Equipment (PPE)			
	2.4	Explain emergency procedures: • First Aid • Fire management			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
		Muster Point Assembly etc.			
	2.5	Interpret workshop signs, symbols and displays			
	2.6	Explain ergonomic requirements in workplace settings: - Lighting - Sound - Posture techniques etc.			
LO 3: <i>Know workshop planning and organization</i>	3.1	Sketch and label a functional workshop organogram			
	3.2	List all the tools, equipment and machineries in a standard workshop			
	3.3	Arrange tools, equipment and machineries properly in a standard workshop			
	3.4	Explain how to optimize available space			
	3.5	Determine sources of supply of spares, consumables etc.			
LO 4: <i>Know workshop records</i>	4.1	Justify reasons for keeping job records			
	4.2	Explain the use of appropriate software for automobile workshop administration			
	4.3	Differentiate various job records used in the workshop: - Job cards/Digital records - Workshop reception forms - Requisition forms			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
		- Purchase order forms - Stock/ bin cards, - Workshop delivery forms, etc.			
	4.4	Prepare various daily jobs reports used in the workshop.			
	4.5	Demonstrate safe record keeping.			
LO 5: <i>Know workshop financial records</i>	5.1	Explain reasons for keeping financial records relevant to automobile workshop activities			
	5.2	Differentiate between various financial records used in workshop: - Work bills. - Invoices - Receipts			
	5.3	Prepare various financial records used in relevant automobile workshop activities			
	5.4	Demonstrate safe keeping of financial records relevant to automobile workshop activities			
LO 6: <i>Know procurement principles</i>	6.1	Discuss reasons for procurement in a workplace organization			
	6.2	Take an inventory of tools, equipment, machineries and consumables.			
	6.3	Explain various storage techniques used in a workshop.			
	6.4	Describe the procedures for procuring tools, equipment,			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
		machineries and consumables i.e.: • Manuals and reference materials • Requests and approvals • Order placements • Reception of goods and Items • Payments procedures • Storage • Use.			

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

UNIT 007: Final Inspection on CNG-Powered Vehicles

Unit reference number: NADDC/CNG/007/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide learners with the requisite knowledge and skills required to perform final inspection on CNG-powered vehicle.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 007: Final Inspection on CNG-Powered Vehicles

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
LO 1: <i>Conduct final inspection on CNG-powered vehicles</i>	1.1	Discuss the need for final inspection			
	1.2	Explain the elements of final inspection: • Quality control check list • Test driving etc.			
	1.3	Differentiate between maintenance, post-check and final inspection			
	1.4	Describe the procedure for final inspection.			
LO 2: <i>Interpret final inspection checklist</i>	2.1	Discuss the importance of parameters on final inspection checklist			
	2.2	Interpret the parameters on the final inspection checklist in accordance with manufacturer's specifications.			
	2.3	Demonstrate final inspection operations			
LO 3: <i>Application of procedural inspection checklist on CNG-powered vehicles.</i>	3.1	Perform final inspection using checklist on: • Gas tank, • Filling inlets • Associated components			
	3.2	Perform final inspection on mechanical components using checklist			
	3.3	Perform final inspection on electronics and electrical components using checklist			

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type		Evidence Ref. Page No.
The learner will:		The learner can:			
	3.4	Report findings of final inspection to the appropriate authority (s)			
LO 4: <i>Know essential elements of documentation</i>	4.1	Explain the goals of documentation			
	4.2	Explain the advantages of effective documentation			
	4.3	Explain the risks of poor documentation			
	4.4	Describe methods to mitigate poor documentation			
LO 5: <i>Use manual record systems</i>	5.1	Explain the use of manual record systems			
	5.2	Demonstrate the use of manual record systems			
	5.3	Maintain manual record system			
LO 6: <i>Use electronic records systems</i>	6.1	Explain the use of electronic record systems			
	6.2	Demonstrate the use of electronic record systems			
	6.3	Maintain electronic record system.			
	6.4	List different types of electronic records and software			
	6.5	Demonstrate the ability to access, use and navigate the different types of electronic records			

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

UNIT 008: CNG-Powered Vehicle Servicing

Unit reference number: NADDC/CNG/008/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide learner with the requisite knowledge and skills to maintain CNG-powered vehicles.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 008: CNG-Powered Vehicle Servicing

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know servicing of CNG-powered vehicles</i>	1.1	Discuss the term servicing of CNG-powered vehicles		
	1.2	Discuss the types of servicing of CNG-powered vehicles		
	1.3	Select tools and equipment used for servicing of CNG -powered vehicles.		
	1.4	Select materials/consumables used for servicing of CNG -powered vehicles.		
	1.5	Explain the application of the various tools and equipment use for servicing CNG-powered vehicle		
	1.6	Discuss the servicing procedures for CNG-powered vehicle		
LO 2: <i>Perform servicing checks on CNG powered vehicle</i>	2.1	Demonstrate safe practices in carrying out servicing procedures		
	2.2	Identify the different components requiring servicing in CNG powered vehicles: • CNG tanks, • Gas filters, • Connectors, • Wiring harness, • Hoses/pipes, • Valves • Reducers, • Nozzles, etc.		
	2.3	Select the tools for servicing of CNG powered vehicles in-line with manufacturer's specifications.		
	2.4	Carry out servicing activities on the components listed in 2.2 above with manufacturer specifications		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
	2.5	Perform fine-tuning on the reducer in accordance with specifications		
	2.6	Interpret customers feedback/ carryout root cause analysis of repetitive complaints		
	2.7	Check for leakages		
	2.8	Report servicing activities and submit to the appropriate authority		
LO 3: <i>Know procedures for functionality and durability test</i>	3.1	Carry out post-checks on the serviced components		
	3.2	Carry out durability checks		
	3.3	Carry out checks to identify any faults recorded.		
	3.4	Carry out quality control check		
	3.5	Carry out quality assessment check		
	3.6	Document servicing data manually/electronically.		
LO 4: <i>Know CNG-powered vehicle fuel (PMS) tanks decommissioning</i>	4.1	Discuss the importance of decommissioning and disposal of fuel (PMS) tank and system i.e.: - Fuel pumps - Filter - Nozzles - Hoses - Pipes etc.		
	4.2	Identify the types of tank: - Steel - Fiber - Composite etc.		
	4.3	Describe safe removal and disposal of decommissioned materials within the workplace		

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
	4.4	Outline how to safely discharge a CNG cylinder								
	4.5	Decommission a tank that has a malfunctioning valve								
	4.6	Decommission a tank and dispose it properly								
	4.7	Perform final inspection checks on the decommissioned vehicle								
	4.8	Perform housekeeping operations								
	4.9	Record decommissioning activities and report appropriately								

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

UNIT 009: Motor Vehicle Electrical Unit and Component Faults Rectification

Unit reference number: NADDC/CNG/009/L4

NSQ level: 4

Credit value: 2

Guided learning hours: 20

Unit Purpose: This unit is designed to provide learners with the requisite knowledge and skills for motor vehicle electrical systems faults and rectification.

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 009: Motor Vehicle Electrical Unit and Component Faults Rectification

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know motor vehicle electrical/ electronic units, components and their operations</i>	1.1	Explain motor vehicle electrical/electronic units and components.		
	1.2	Differentiate between electrical/ electronic units and components'		
	1.3	Inspect various electrical/ electronic units and components		
	1.4	Explain the operations of each of the units and components		
LO 2: <i>Know diagnostic equipment and tools</i>	2.1	Demonstrate the use of appropriate diagnostic techniques, tools and aids to diagnose faults		
	2.2	Operate motor vehicle diagnostic equipment, tools and equipment appropriately		
	2.3	Store diagnostic tools and equipment safely in line with manufacturer's specification.		
	2.4	Update diagnostic tools/ equipment as at when due and in line with manufacturer's specification.		
LO 3: <i>Know safe working practices in motor vehicle electrical/ electronic units and components</i>	3.1	Identify health, safety and other relevant regulations and guidelines		
	3.2	Store the diagnostic equipment and tools safely		
	3.3	Demonstrate how to prevent damage to other motor vehicle systems, components and units while working on the vehicle.		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
LO 4: <i>Know rectification of motor vehicle electrical/ electronic systems faults</i>	4.1	Troubleshoot the most likely cause (s) of the faults in the units and components		
	4.2	Locate faults using appropriate diagnostic techniques, tools, equipment and aids to locate faults.		
	4.3	Retrieve fault codes in an electronic system.		
	4.4	Interpret fault codes in an electronic system.		
	4.5	Print diagnostic results		
	4.6	Rectify the faults using appropriate methods and techniques		
	4.7	Erase fault codes in an electronic system.		
	4.8	Interpret electrical wiring diagrams		
	4.9	Store diagnostic tools and equipment safely.		

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

UNIT 010: Engine Reconditioning

Unit reference number: NADDC/CNG/010/L4

NSQ level: 4

Credit value: 3

Guided learning hours: 30

Unit Purpose: This unit is designed to provide learners with the requisite knowledge and skills to competently recondition the engine in line with manufacture's requirement

Unit Assessment/Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation / Oral Questions (DO)
2. Question and Answer (QA)
3. Practical assessment
4. Witness Testimony (WT)
5. Personal statement (PS)
6. Work product (WP)
7. Recognition of Prior Learning (RPL)
8. Professional Discussion (PD)
9. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 010: Engine Reconditioning

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: <i>Know general engine decoupling procedure</i>	1.1	Explain engine reconditioning		
	1.2	Explain factors responsible for the need to recondition an engine		
	1.3	Describe good workshop practices applicable to engine decoupling procedure.		
	1.4	Identify tools and equipment used for engine decoupling		
	1.5	Demonstrate the procedures for removing the following: • Auxiliaries, • Attachments • External mechanical parts, prior to engine decoupling.		
	1.6	Decouple the engine from its sub-assemblies using appropriate tools		
	1.7	Lift the engine from the sub-assemblies using appropriate tools and equipment		
	1.8	Place the engine on the work bench and inspect		
LO 2: <i>Know procedures for dismantling engine.</i>	2.1	State the procedure of dismantling an engine		
	2.2	State the procedure of placement of the dismantled components of the engine on the work bench		
	2.3	Access the correct information, tools and equipment for dismantling an engine.		
	2.4	Dismantle engine components in sequence		
	2.5	Work with bolts, nuts and fasteners		

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type				Evidence Ref. Page No.			
The learner will:		The learner can:								
	2.6	Arrange dismantled engine components appropriately								
	2.7	Clean dismantled engine components and compartment appropriately								
	2.8	Inspect the components for wear, tear, fault and damage								
	2.9	Identify damaged components								
LO 3: <i>Know procedures for reconditioning engine and sub- assemblies</i>	3.1	Access the information, tools and equipment for reconditioning an engine subassembly and associated components.								
	3.2	Replace worn out and damaged components								
	3.3	Repair worn out and faulty components where possible								
	3.4	Assemble components of an engine sub-assembly								
	3.5	Rebuild or recondition component parts								
	3.6	Test components.								
LO 4: <i>Know procedures for reassembling engine and subassemblies</i>	4.1	Lay out components in assembling order								
	4.2	Assemble components in sequence								
	4.3	Tighten torque of engine bolts, nuts and fasteners using recommended tools								
LO 5: <i>Know general engine coupling procedure</i>	5.1	Describe good workshop practices applicable to engine coupling procedures.								
	5.2	Identify tools and equipment used for engine coupling								
	5.3	Install engine auxiliaries								

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type	Evidence Ref. Page No.
The learner will:		The learner can:		
	5.4	Install engine attachments		
	5.5	Install the external mechanical parts, prior to engine decoupling		
	5.6	Couple the engine with sub-assemblies		
	5.7	Install the engine to its compartment		
	5.8	Tighten the surrounding bolts, nuts and fasteners		
LO 6: Know engine reconditioning post repair operations	6.1	Access information, tools, and equipment for checking engine post repair operations.		
	6.2	Monitor the fluid levels prior to starting: • Brake fluid • Transmission fluid • Engine oil • Radiator water/coolant etc.		
	6.3	Check operation of gauges and warning devices prior to starting in line with manufacture's requirement.		
	6.4	Check for leaks and abnormal noises.		
	6.5	Check gas and oil levels prior to starting the engine		
	6.6	Perform final inspection tests (which include test driving) in line with manufacturer's specifications.		

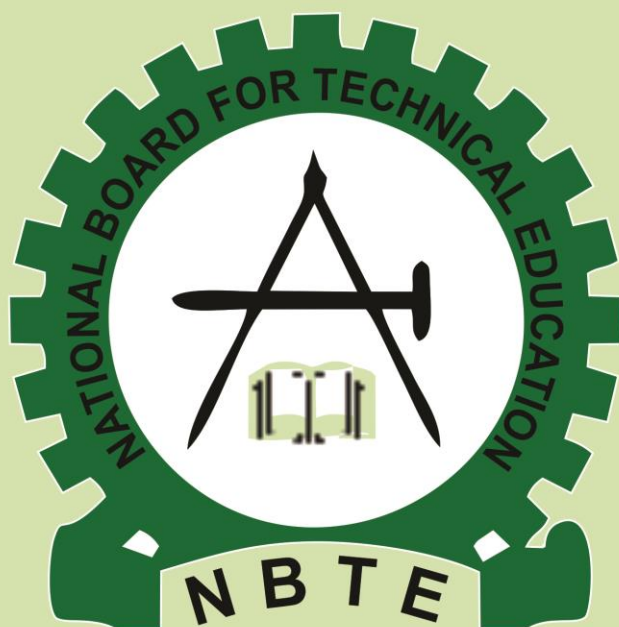
Learners Signature:	Date
Assessors Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	Date:

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