NATIONAL BOARD FOR TECHNICAL EDUCATION

NATIONAL OCCUPATIONAL STANDARDS/NATIONAL SKILLS QUALIFICATION

(NOS/NSQ)

FITTING

LEVEL II

October, 2025

NATIONAL SKILLS QUALIFICATION
GENERAL INFORMATION
OVERVIEW

This qualification is designed for learners who are interested in pursuing a career in Fitting to achieve the National Skills Qualifications (NSQ). It aims to produce semi-skilled workers or assistants in Fitting, NSQ Level 2, equipped with the competencies needed to support activities in the Fitting workshop.

This qualification is subject to review as needed.

QUALIFICATION PURPOSE

This qualification is targeted at developing competence in assisting with Fitting.

QUALIFICATION REQUIREMENTS

All Candidates must:

a. Be medically fit
b. Be physically fit
c. Be mentally fit (Mental alertness)
d. Have achieved all the mandatory units in the qualification
e. Be vetted

QUALIFICATION OBJECTIVES

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

1. Apply occupational health, safety, and environmental guidelines
2. Communicate appropriately in a working environment with team members
3. Work in an environment as a team member.
4. Identify and select materials and tools for fitting processes
5. Measure and mark out materials during fitting
6. Support in carrying out fitting processes.
7. Interpret Basic Engineering drawings and prepare Hand Sketches.
8. Demonstrate proper handling and maintenance of Hand Tools

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must take place in a real workplace environment where learning and human development occur. Simulation is allowed at 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. Work Product (WP)
6. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

NATIONAL SKILLS QUALIFICATION (NSQ) TABLE
Level II: FITTING

MANDATORY UNITS

Unit	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	ENG/FIT/001/L2	Occupational Health and Safety in the Fitting Workplace	2	20
2	ENG/FIT/002/L2	Communication	2	20
3	ENG/FIT/003/L2	Teamwork in a Fitting Workplace	2	20
4	ENG/FIT/004/L2	Introduction to Fitting	2	20
5	ENG/FIT/005/L2	Introduction to Hand Tools	3	30
6	ENG/FIT/006/L2	Basic Engineering Drawing	3	30
7	ENG/FIT/007/L2	Tolerance, Fits and Limits	2	20
8	ENG/FIT/008/L2	Materials and Tools Selection	2	20
9	ENG/FIT/009/L2	Measurement and Marking Out	2	20
10	ENG/FIT/010/L2	Cutting, Grinding, and Filing Operations	4	40
11	ENG/FIT/011/L2	Drilling and Tapping Operations.	2	20
12	ENG/FIT/012/L2	Introduction to Forming Operations	2	20
13	ENG/FIT/013/L2	Fastening	2	20
14	ENG/FIT/014/L2	Tools Handling and Maintenance	2	20
15	ENG/FIT/015/L2	Workshop on Electrical Systems	2	20
TOTAL			**34**	**340**

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 Skill Qualification Framework NSQF.
Unit Credit Value	The value that has been given to the unit based on the expected learning time for an average learner. 1 Credit = 10 learning hours
Unit Aim	Provides a brief outline of the unit content.
Learning Outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment Criteria	A description of the requirements a learner must achieve to demonstrate that a Learning Outcome has been met.
Unit Assessment Guidance	Any additional guidance provided to support the assessment of the unit.
Unit Guided Learning Hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

UNIT 001:	HEALTH, SAFETY AND ENVIRONMENT
Unit Reference Number:	ENG/FIT/001/L2
NSQ Level:	2
Credit Value:	2
Guided Learning Hours:	20hours

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for site safety, health, and environmental policies and procedures, maintaining good personal hygiene, and applying safe work procedures.

Unit assessment requirements/evidence requirements

Assessment must be conducted in a real workplace environment where learning and human development training takes place. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal Statement (PS)

(This depends on the Trade Areas to be assessed)

UNIT 001: Health, Safety and Environment

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know how to maintain personal health and hygiene***	1.1	Wear clean, bright and appropriate Personal Protective Equipment.									
	1.2	Work safely at all times, adhering to health and safety regulations and other relevant guidelines.									
	1.3	Identify first aid personnel to apply first aid to treat any cuts, grazes and wounds.									
	1.4	Report any illness or infection promptly to the appropriate personnel.									
	1.5	State owns responsibility under the Health and Safety Act as it relates to its own occupation.									
	1.6	State the general hygiene rules that must be followed.									
	1.7	List Personal Protection Equipment									
	1.8	State the importance of maintaining good personal Hygiene.									
LO 2: ***Maintain a hygienic, safe and hazard-free workplace.***	2.1	State the importance of working in a healthy, safe and hygienic workplace.									
	2.2	Follow health, hygiene and safety procedures during work.									
	2.3	Describe emergency procedures during work.									
	2.4	Describe organisational security procedures.									
	2.5	Explain the disposal of waste and pollution control, including methods for organic and inorganic waste.									
	2.6	Identify any hazards or potential hazards and address them effectively.									
	2.7	Describe the types of hazards in the workplace that may occur and how to deal with them.									
	2.8	State hazards that can be addressed personally									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
	2.9	State hazards that should be reported to someone else.									
	2.10	State where information about health and safety in your workplace can be obtained.									
LO 3: ***Maintain a hygienic, safe and secure workplace***	3.1	State how to warn other people about hazards and why this is important.									
	3.2	State why accidents and near accidents should be reported and who they should be reported to									
	3.3	Describe the types of emergencies that may happen in the workplace and how to deal with them									
	3.4	State where to find the first-aid equipment and who the registered first-aider is in the workplace									
	3.5	State safe lifting and handling techniques that should be followed									
	3.6	State other ways of working safely that are relevant to own position and why they are important									
	3.7	Describe organisational emergency procedures, in particular fire, and how these should be followed.									
	3.8	State the possible causes of fire outbreaks in the workplace.									
	3.9	Describe how to minimise the risk of fire outbreaks in the workplace.									
	3.10	State where to find the alarms and how to set them off									
	3.11	State why a fire should never be approached unless it is safe to do so.									
	3.12	State the importance of following the fire safety laws.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
	3.13	Describe organisational security procedures and why these are Important.									
	3.14	State the importance of reporting all usual or non-routine incidents to the appropriate personnel.									

Learner's Signature:	**Date**
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 002:	COMMUNICATION
Unit reference number:	ENG/FIT/002/L2
NSQ Level:	2
Credit Value:	2
Guided Learning Hours:	20 hours

Unit Purpose: This unit is designed to equip learners with the knowledge and skills necessary to establish a high-quality communication system in the workplace.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real workplace environment where learning and human development training take place. Simulation is allowed at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 002: Communication

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know the communication system in a work environment***	1.1	Use simple verbal means to pass on necessary information									
	1.2	Use nonverbal means to convey necessary information, such as body language.									
	1.3	Explain symbols and signs appropriately.									
LO 2: ***Know Sources of information in a work Environment***	2.1	Locate the source of information in an organisation and work environment.									
	2.2	Relate appropriately with sources of information.									
	2.3	Use the general information flow systems in a work environment.									
	2.4	Use information to avoid challenges in a work situation.									
	2.5	Report findings in accordance with the procedure in a work environment.									
LO 3: ***Know basic communication in a work environment***	3.1	Locate the various communication. equipment in the work environment									
	3.2	Use communication equipment in a work Environment.									
	3.3	Relate information effectively to the proper personnel.									
	3.4	Pass information effectively using Symbols, Signs and Codes.									
	3.5	Comply with general instructions in line with the ethics of the work environment.									

Unit 003: TEAM WORK

Unit Reference Number: ENG/FIT/003/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to equip learners with the knowledge and skills necessary to foster team spirit and cultivate a positive working relationship with colleagues.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real workplace environment where learning and human development training takes place. Simulation is allowed at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 003: Team Work

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know positive working relationships with colleagues***	1.1	Identify the need for developing positive working relationships with colleagues.									
	1.2	Recognise the importance of relating to other people in a way that makes them feel valued and respected.									
	1.3	Assist team members when required.									
	1.4	Communicate information to colleagues about one's own work that might affect others.									
LO 2: ***Take responsibilities within the team.***	2.1	Recognise one's own role and duties within the team.									
	2.2	Perform individual tasks in line with the team rules and regulations.									
	2.3	Participate effectively in teamwork.									
LO 3: ***Comply with the policy of the organisation***	3.1	Work in line with the organisational standards.									
	3.2	Use the organisational Code of Practice.									
	3.3	Explain the organisational Code of Conduct.									

Learner's Signature:	**Date**
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 004: INTRODUCTION TO FITTING

Unit Reference Number: ENG/FIT/004/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for basic fittings.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real-world workplace environment where learning and human development training occur. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 004: Introduction to Fitting

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: Know fitting	1.1	Define fitting									
	1.2	List fitting career opportunities									
	1.3	Explain the Scope of fitting.									
	1.4	Describe the Application of fitting.									
LO 2: ***Know a fitter***	2.1	Describe a fitter									
	2.2	List operations that a fitter carries out									
	2.3	List various tools used by a fitter.									
	2.4	List the materials most often worked on by the fitter.									
LO 3: ***Know bench working processes***	3.1	Define Benchwork									
	3.2	Describe a workbench									
	3.3	List types of workbenches									
	3.4	List operations that can be performed on the bench									
LO 4: **Know bench work principles**	4.1	Demonstrate proper Job clamping.									
	4.2	Hold hand tools properly.									
	4.3	Maintain proper posture while carrying out benchwork.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

UNIT 005:	INTRODUCTION TO HAND TOOLS
Unit Reference Number:	ENG/FIT/005/L2
NSQ Level:	2
Credit Value:	3
Guided Learning Hour:	30 hours

Unit Purpose: This unit is designed to equip the learner with the knowledge and skills to use basic tools for Fitting**.**

Unit assessment requirements/ evidence requirements:

Assessment must be conducted in a real workplace environment where learning and human development take place.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Questions and Answers (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

UNIT 005: Introduction to Hand Tools

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know basic hand tools for fitting operations***	1.1	List basic hand tools for fitting operations									
	1.2	Identify basic hand tools for the fitting operation.									
	1.3	Demonstrate appropriate use of hand tools.									
LO 2: ***Know the categories of hand tools***	2.1	List cutting hand tools									
	2.2	Identify cutting hand tools.									
	2.3	List Striking hand tools.									
	2.4	Identify Striking hand tools.									
	2.5	List Fastening Tools									
	2.6	Identify Fastening Tools									
	2.7	List Finishing tools									
	2.8	Identify Finishing tools									
LO 3: ***Know the advantages and disadvantages of hand tools***	3.1	State the advantages of hand tools over machine tools.									
	3.2	State the disadvantages of hand tools.									
	3.3	Determine when to use hand tools.									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQA Signature (if sampled):	Date:
EQA Signature (if sampled):	Date:

UNIT 006: BASIC ENGINEERING DRAWING

Unit Reference Number: ENG/FIT/006/L2

NSQ Level: 2

Credit Value: 3

Guided Learning Hour: 30 hours

Unit Purpose: This unit is designed to equip learners with the knowledge and skills required for sketching and interpreting drawings**.**

Unit assessment requirements/ evidence requirements:

Assessment must be conducted in a real workplace environment where learning and human developments are carried out.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 006: Basic Engineering drawing

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know basic elements of drawing***	1.1	Define drawing									
	1.2	List types of lines in drawing									
	1.3	Explain the uses of different types of lines.									
	1.4	Explain drawing symbols and abbreviations.									
LO 2: ***Know simple dimensions in drawing***	2.1	Explain the purpose of dimensioning									
	2.2	List types of dimensions									
	2.3	Place dimensions in the appropriate position in a drawing.									
LO 3: ***Interpret simple drawings***	3.1	Explain how to interpret a simple drawing.									
	3.2	Explain how to obtain information from a given drawing.									
	3.4	Explain how to obtain the material size from a given drawing.									
LO 4: ***Know simple hand sketches***	4.1	Sketch simple isometric shapes									
	4.2	Sketch a simple Orthographic drawing.									
	4.3	Properly dimension hand sketches									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQA Signature (if sampled):	Date:
EQA Signature (if sampled):	Date:

Unit 007: TOLERANCE, FITS AND LIMITS

Unit Reference Number: ENG/FIT/007/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills required to apply Tolerance, Fits and Limits for a given task

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real workplace environment where learning and human development training takes place. Simulation is allowed at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 007: Tolerance, Fits and Limits

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know tolerance in machining***	1.1	Define tolerance									
	1.2	Explain the use of tolerance.									
	1.3	State type of tolerance (Unilateral, Bilateral)									
	1.4	State the advantages of tolerance.									
LO 2: ***Know limits***	2.1	Define Limits									
	2.2	Explain the type of Limits (lower and upper)									
	2.3	Explain the application of limits.									
LO 3: ***Know basic fits***	3.1	Define fits									
	3.2	Explain basic types of fits.									
	3.3	Identify basic fits									
	3.4	Select basic fits									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 008:	MATERIALS AND TOOLS SELECTION
Unit Reference Number:	ENG/FIT/008/L2
NSQ Level:	2
Credit Value:	2
Guided Learning Hours:	20 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills on material identification and selection in fitting

Unit assessment requirements/ evidence requirements:

Assessment must be conducted in a real-world workplace environment where learning and human development occur.

Assessment methods to be used include:

1. Direct Observation (DO).
2. Written or Oral Question (Q&A).
3. Assignment.
4. Personal Statement

(This depends on the Trade Areas to be assessed)

Unit 008: Materials and Tools selection

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know materials in fitting operations***	1.1	Define material in engineering									
	1.2	List types of engineering material									
	1.3	Identify metallic material									
	1.4	State the advantages of various metallic materials									
LO 2: ***Understand basic metal shapes***	2.1	Describe physical metal shapes (Round, Square, etc.)									
	2.2	Select an appropriate metal shape for the component.									
	2.3	State the advantage of selecting an appropriate shape.									
LO 3: ***Know the properties of metal***	3.1	Describe basic metal properties									
	3.2	Identify the use of different metals based on their properties.									
	3.3	Select an appropriate metal for the specific component to be produced.									
LO 4: ***Know how to select appropriate tools***	4.1	List fitting tools									
	4.2	Identify different fitting tools.									
	4.3	Select appropriate tools according to the material type.									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQA Signature (if sampled):	Date:
EQA Signature (if sampled):	Date:

UNIT 009: MEASUREMENT AND MARKING OUT

Unit Reference Number: ENG/FIT/009/L2
NSQ Level: 2
Credit Value: 2
Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to equip learners with basic knowledge and skills for measurement and marking-out operations**.**

Unit assessment requirements/ evidence requirements:

Assessment must be conducted in a real workplace environment where learning and human development occur.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 009: Measurement and Marking Out

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know measurement Units***	1.1	Define measurement.									
	1.2	Explain SI units of measurement.									
	1.3	State measuring units for the following: • Length • Mass • Area • Volume • Temperature									
	1.4	List basic measuring tools.									
	1.5	Use measuring tools to carry out the measurement.									
	1.6	Explain the importance of accuracy in measurement.									
LO 2: ***Know the marking out operation***	2.1	Define marking-out									
	2.2	List basic marking-out tools.									
	2.3	List various methods of marking out.									
	2.4	Perform the marking out operation.									
LO 3: ***Know care for marking and measuring tools***	3.1	Explain how to care for measuring tools.									
	3.2	Carry out care for measuring tools.									
	3.3	Explain how to care for marking-out tools.									
	3.4	Carry out care for marking out tools.									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQA Signature (if sampled):	Date:
EQA Signature (if sampled):	Date:

UNIT 010: CUTTING, GRINDING AND FILLING OPERATIONS

Unit Reference Number: ENG/FIT/010/L2

NSQ Level: 2

Credit Value: 4

Guided Learning Hour: 40 hours

Unit Purpose: This unit is designed to equip learners with the knowledge and skills required for fitting operations**.**

Unit assessment requirements/ evidence requirements:

Assessment must be conducted in a real workplace environment where learning and human development take place.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 010: Cutting, Grinding and Filling Operations

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know cutting operations using a hacksaw***	1.1	Explain the cutting operation									
	1.2	Identify types of hacksaws.									
	1.3	Describe parts of a hacksaw.									
	1.4	Select hacksaw blades									
	1.5	Fix hacksaw blades									
	1.6	demonstrate the proper cutting technique and posture									
	1.7	Carry out the cutting operation using a Hacksaw.									
LO 2: ***Know grinding operations***	2.1	Explain the grinding operation									
	2.2	Explain the importance of grinding operations.									
	2.3	List types of grinding operations									
	2.4	Identify grinding tools									
	2.5	Explain the manual grinding operation.									
	2.6	Perform a manual grinding operation.									
	2.7	Explain the electrical grinding operation.									
	2.8	Perform electrical grinding operation.									
	2.9	Explain the safe use of grinding tools									
LO 3: ***Know Filling Operations***	3.1	Describe Files									
	3.2	Identify classes of files (Mill or saw Files, Swiss pattern, curved tooth, Rasp, Warden.)									
	3.3	Identify type of files (Round, Half round, flat, triangular)									
	3.4	Carry out filling operation properly									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQA Signature (if sampled):	Date:
EQA Signature (if sampled):	Date:

Unit 011: DRILLING AND TAPPING OPERATIONS.

Unit Reference Number: ENG/FIT/011/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills required for Drilling and tapping operations.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real workplace environment where learning and human development training occur. Simulation is allowed in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 011: Drilling and Tapping Operations.

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know how to carry out drilling operations***	1.1	Describe the drilling operation									
	1.2	Identify types of drilling machines.									
	1.3	Carry out proper marking for the drilling operation.									
	1.4	Select Drill bits									
	1.5	Hold the workpiece properly.									
	1.6	Carry out the drilling operation.									
LO 2: ***Know how to carry out the Tapping operation***	2.1	Describe the Tapping operation									
	2.2	Identify taps									
	2.3	Select appropriate taps									
	2.4	Carry out the tapping operation.									
LO 3: ***Know the key considerations in Drilling and tapping***	3.1	Select the right size and type of drill for a tap.									
	3.2	Determine the speed and feed of drilling.									
	3.3	Determine the number of drilling stages required.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 012: FORMING OPERATIONS

Unit Reference Number: ENG/FIT/012/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide the learner with the basic knowledge of the forming process

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real workplace environment where learning and human development training takes place. Simulation is permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 012: Forming Operations

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know forming Operations***	1.1	Define forming									
	1.2	State types of forming (Bulk forming, Sheet Forming)									
	1.3	Identify types of Bulk forming.									
	1.4	Identify the types of Sheets forming.									
LO 2: ***Know basic sheet metal forming processes***	2.1	Describe the Sheet metal bending process.									
	2.2	Describe the Sheet metal rolling process.									
	2.3	Roll sheet metal into a cylindrical shape									
	2.4	Bend Sheet metal to simple shapes									
LO 3: ***Know basic hammer forming***	3.1	Identify types of hammers.									
	3.2	Describe the various types of hammers used.									
	3.3	Carry out a simple hammering exercise.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 013: FASTENING

Unit Reference Number: ENG/FIT/013/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills required to carry out fastening operations.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real workplace environment where learning and human development training takes place. Simulation is allowed at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 013: Fastening

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know fastening***	1.1	Explain fastening									
	1.2	Describe the purpose of fastening.									
	1.3	List the advantages of fastening.									
	1.4	List the disadvantages of fastening.									
LO 2: ***Know fasteners***	2.1	List and identify types of fasteners									
	2.2	Identify types of fasteners.									
	2.3	Identify the sizes of fasteners.									
	2.4	Select appropriate fasteners									
LO 3: ***Know the fastening process***	3.1	Describe the fastening procedure.									
	3.2	Identify the required tools for fastening.									
	3.3	Carry out a simple fastening operation.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 014: TOOLS HANDLING AND MAINTENANCE

Unit Reference Number: ENG/FIT/014/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills required for proper tool handling and maintenance.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a real workplace environment where learning and human development training takes place. Simulation is permitted in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 014: Tools Handling and Maintenance

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know tools handling***	1.1	Identify tools for the job									
	1.2	Move tools properly.									
	1.3	Mount tools properly during usage									
LO 2: ***Know maintenance and care of tools***	2.1	Identify defects in tools.									
	2.2	Identify an appropriate lubricant for tool protection.									
	2.3	Lubricate tools against corrosion									
	2.4	Store tools in: • Toolbox • Metal cabinet • Holder(chisels)									
LO 3: ***Know the tools requisition procedure and record***	3.1	Explain how to fill out the tool requisition form.									
	3.2	State the procedure for tool requisition.									
	3.3	Request tools for the cutting operation									
	3.4	Return tools after use									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 015: WORKSHOP ELECTRICAL SYSTEMS

Unit Reference Number: ENG/FIT/015/L2
NSQ Level: 2
Credit Value: 2
Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills of introductory workshop electrical systems

Unit assessment requirements/evidence requirements.
Assessment must be conducted in an actual workplace environment where learning and human development training take place. Simulation is permitted in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 015: Workshop on Electrical Systems

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know the introductory workshop on electrical fittings and components***	1.1	Identify basic electrical fittings used in workshops (switches, sockets, plugs, lighting points, fuses, and extension outlets, etc.)									
	1.2	Classify electrical fittings according to their functions and ratings (e.g., lighting, power, control)									
	1.3	Identify basic electrical symbols, signs, and Colour codes used in the workshop.									
LO 2: ***Know basic electrical faults***	2.1	Identify simple electrical faults (e.g., blown fuse, loose connection, faulty switch) through visual inspection.									
	2.2	Report electrical faults promptly to qualified electrical technicians.									
	2.3	Explain the logout and tagout procedure.									
LO 3: ***Know basic electrical routine checks***	3.1	Perform physical checks on the machine's electrical interface connections.									
	3.2	Perform physical checks on the machine's electrical insulation.									
	3.3	Collaborate with electrical technicians during preventive maintenance operations.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

NATIONAL BOARD FOR TECHNICAL EDUCATION

NATIONAL OCCUPATIONAL STANDARDS/ NATIONAL SKILLS QUALIFICATIONS

(NOS/NSQ)

FITTING

LEVEL III

October, 2025

NATIONAL SKILLS QUALIFICATION
GENERAL INFORMATION
OVERVIEW

This qualification is designed for learners interested in pursuing a career in Fitting for the award of National Skills Qualifications (NSQ). It aims to develop a semi-skilled worker or assistant in fitting operations at NSQ Level 3, equipped with the competencies necessary to support the Engineering Sector.

This qualification is subject to review as needed.

QUALIFICATION PURPOSE

This qualification is targeted at developing competence in assisting with Fitting.

QUALIFICATION REQUIREMENTS

All Candidates must:

1. Be medically fit
2. Be physically fit
3. Be mentally fit (Mental alertness)
4. Have achieved all the mandatory units in the qualification
5. Be vetted

QUALIFICATION OBJECTIVES

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

1. Apply occupational health, safety, and environmental guidelines
2. Communicate appropriately in a working environment with team members
3. Work in an environment as a team member.
4. Perform fitting operations including drilling, boring, reaming, etc.
5. Measure and mark out materials during fabrication
6. Perform the Thread cutting operation by tap and die.
7. Set up, operate and maintain the arc welding machine.
8. Demonstrate competence in pipe works such as cutting, bending and threading.
9. Perform assembly operations

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be conducted in a real workplace setting where learning and human development take place. Simulation is not permitted at 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. Work Product (WP)
6. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

NATIONAL SKILLS QUALIFICATION (NSQ) TABLE
LEVEL 3: FITTING

MANDATORY UNITS

Unit	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	ENG/FIT/001/L3	Health, Safety and Environment	2	20
2	ENG/FIT/003/L3	Communication	2	20
3	ENG/FIT/002/L3	Teamwork	2	20
4	ENG/FIT/004/L3	Tolerance, Fits and Limits	3	30
5	ENG/FIT/005/L3	Drilling, Boring, Counterboring, Reaming and Countersinking Operations	4	40
6	ENG/FIT/006/L3	Thread Cutting Operations (Tap and Die)	3	30
7	ENG/FIT/007/L3	Introduction to Arc Welding Operations	2	20
8	ENG/FIT/008/L3	Introduction to Gas Welding and Cutting operations	2	20
9	ENG/FIT/009/L3	Welding Equipment Handling and Maintenance	2	20
10	ENG/FIT/010/L3	Pipe work (Marking, Cutting, Grinding, Bending and Threading)	4	40
11	ENG/FIT/011/L3	Assembly Operations	3	30
SUB TOTAL			**29**	**290**

OPTIONAL UNIT

Unit	Unit Reference Number	Unit Title	Credit Value
ENG/FIT/012/L3	Basic Sheet Metal Work	3	30
TOTAL		**32**	**320**

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 Skill Qualification Framework NSQF.
Unit Credit Value	The value that has been given to the unit based on the expected learning time for an average learner. 1 Credit = 10 learning hours
Unit Aim	Provides a brief outline of the unit content.
Learning Outcome	A statement of what a learner will know, understand or be able to do, as a result of a process of learning.
Assessment Criteria	A description of the requirements a learner must achieve to demonstrate that a Learning Outcome has been met.
Unit Assessment Guidance	Any additional guidance provided to support the assessment of the unit.
Unit Guided Learning Hours	The average number of hours of supervised or directed study time or assessment required to achieve a qualification or unit of a qualification.

UNIT 001: HEALTH, SAFETY AND ENVIRONMENT

Unit Reference Number: ENG/FIT/001/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to provide trainees with the knowledge and skills necessary for health and safety in the work environment**.**

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be conducted in a real workplace setting where learning and human development take place. Simulation is not permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 001: Health, Safety and Environment

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1 ***Know health and safety rules in the work environment***	1.1	Familiarise yourself with the work environment.									
	1.2	Explain safe work practices when working with welding equipment.									
	1.3	List Personal Protective Equipment (PPE) in welding operations.									
	1.4	Identify Personal Protective Equipment (PPE)									
	1.5	List common hazards in welding operations.									
	1.6	Use Personal Protective Equipment (PPE).									
	1.7	Explain preventive measures for 1.5 above.									
	1.8	Explain how to respond to an accident in the work environment.									
	1.9	Explain the accident report procedure.									
	1.10	Explain first aid procedures.									
LO 2 ***Know safety guidelines for welding operations***	2.1	Explain different regulations guiding welding practice (NIS ISO 15012-4)									
	2.2	Identify safety signs and codes in the welding workshop.									
	2.3	Observe health and safety signs always.									
	2.4	Work safely to protect oneself and others.									
LO 3 ***Know fire safety***	3.1	Explain classes of fire									
	3.2	Explain the causes of fire outbreaks in a work environment.									
	3.3	Explain the emergency and fire procedure.									
	3.4	List methods of extinguishing fire.									
	3.5	List types of fire extinguishers.									
	3.6	Demonstrate the proper use of an appropriate fire extinguisher.									
	3.7	Follow the fire and safety procedure.									

LO 4 ***Practice good housekeeping***	4.1	Explain good housekeeping procedures before fitting operations: • Ensure cleanliness of work environment • Proper positioning of tools, equipment and consumables • Ensure gangways are free from obstacles • Shield your work area • Proper illumination of the work area • Proper ventilation of the work area									
	4.2	Explain good housekeeping procedures during fitting operations: • Ensure the work environment is constantly clean • Ensure welding positioners are securely in place • Ensure work area is free from hot electrode stubs, work piece, water, oil/grease, and paint. • Proper placement of electrical cables and gas hoses									
	4.3	Explain good housekeeping procedures after welding operations: • Gather all tools, equipment, and consumables after operations. • Clean all tools, equipment, and work area. • Store tools and equipment appropriately • Switch off mains									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQAM Signature (if sampled)	Date:
EQAM Signature (if sampled)	**Date:**

UNIT 002: COMMUNICATION

Unit Reference Number: ENG/FIT/002/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit aims to provide trainees with the knowledge and skills necessary for effective communication in the workplace**.**

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be conducted in a real workplace setting where learning and human development take place. Simulation is not permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 002: Communication

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1 ***Communicate effectively in the work environment.***	1.1	Explain communication in the work environment.									
	1.2	Explain methods of communication in the work environment.									
	1.3	Explain verbal communication in the workplace.									
	1.4	Explain non-verbal communication in the workplace.									
	1.5	Use verbal and non-verbal means to convey necessary information, such as body language and signs.									
	1.6	Interpret symbols and signs Correctly									
LO 2 ***Develop the ability to identify sources of information in a work environment***	2.1	Identify sources of information in the work environment									
	2.2	Relate well with sources of information.									
	2.3	Use the different information flow systems in a work environment.									
	2.4	Use the information gathered to address challenges in a work environment									
	2.5	Report findings correctly as expected in the work environment.									
LO 3 ***Demonstrate the use of various communication means in a work environment***	3.1	Locate the various communication equipment in the work environment									
	3.2	Use the various communication equipment effectively in a work environment.									
	3.3	Pass information correctly using symbols, signs and codes.									
	3.4	Obey instructions in line with the ethics of the work environment.									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQAM Signature (if sampled)	Date:
EQAM Signature (if sampled)	**Date:**

UNIT 003: TEAMWORK

Unit Reference Number: ENG/FIT/003/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to impart to learners the knowledge and skills required to develop a team spirit and positive working relationships with co-workers**.**

UNIT ASSESSMENT/EVIDENCE REQUIREMENTS:

Assessment must be conducted in a real workplace setting where learning and human development take place. Simulation is not permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 003: Teamwork

LEARNING OBJECTIVE (LO) **The learner will:**		PERFORMANCE CRITERIA (PC) **The learner can:**	Evidence Type					Evidence Ref. Page Number			
LO 1 ***Exhibit a good working relationship with co-workers.***	1.1	Work positively with co-workers.									
	1.2	Assist team members when required.									
	1.3	Maintain open communication with co-workers.									
	1.4	Report to the supervisor when requests for assistance fall outside the area of responsibility.									
LO 2 ***Take responsibility within the team***	2.1	Recognise own roles and responsibilities within a team or group.									
	2.2	Perform individual tasks in line with the team rules and regulations.									
	2.3	Participate well in group work.									
LO 3 ***Comply with the rules of organisation.***	3.1	Explain the organisational code of Conduct									
	3.2	Use the organisational code of practice.									
	3.3	Work in line with organisational standards.									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQAM Signature (if sampled)	Date:
EQAM Signature (if sampled)	**Date:**

Unit 004: TOLERANCE, FITS AND LIMITS

Unit Reference Number: ENG/FIT/004/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30 hours

Unit purpose: This unit is designed to provide learners with the knowledge and skills related to tolerance, fits, and limits.

Unit assessment requirements/evidence requirements.

Assessment must take place in a real-world workplace setting where learning and human development training happen. Simulation is allowed at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 004: Tolerance, Fits and Limits

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know the standard Tolerance in fitting***	1.1	Describe tolerance									
	1.2	Explain the use of tolerance.									
	1.3	Identify types of tolerance (Unilateral, Bilateral)									
	1.4	Explain fundamental deviations									
	1.5	Describe the advantages of tolerance.									
	1.6	List tolerance grades and their application.									
LO 2: Know Limits	2.1	Describe Upper Limits									
	2.2	Describe Lower Limits									
	2.3	Describe the application of limits.									
LO 3: ***Know Fits***	3.1	Describe fits									
	3.2	Describe whole basis fits.									
	3.3	Describe shaft basis fits. Select fits									
	3.4	Apply Clearance, transition, and interference fits.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 005: DRILLING, BORING, COUNTERBORING, REAMING AND COUNTERSINKING OPERATIONS

Unit Reference Number: ENG/FIT/005/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40 hours

Unit purpose: This unit is designed to provide learners with the knowledge and skills required for drilling, boring, counter boring, reaming, and countersinking operations.

Unit assessment requirements/evidence requirements.
Assessment must take place in a real workplace environment where learning and human development training occur. Simulation is permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 005: Drilling, Boring, Counterboring, Reaming and Countersinking Operations

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know drilling Operation***	1.1	Describe the purpose of the drilling operation									
	1.2	State types of Drilling machines									
	1.3	Identify types of Drilling machines.									
	1.4	Carry out marking for the drilling operation.									
	1.5	Carry out punching for the drilling operation.									
	1.6	Select Drill bits and hold the workpiece properly.									
	1.7	Carry out drilling operation.									
LO 2: ***Know drill bits***	2.1	Describe drill bit									
	2.2	Identify parts of a drill bit.									
	2.3	List types of drill bits									
	2.4	Perform drill bit grinding.									
	2.5	Check the angle of the edge to ensure it is sharp.									
LO 3: ***Know boring operation***	3.1	Describe boring									
	3.2	Describe the purpose of boring.									
	3.3	Explain boring operation									
	3.4	Identify boring tools									
	3.5	Carry out a simple, straightforward operation.									
LO 4: ***Know the Counter boring operation***	4.1	Describe counter boring									
	4.2	Describe the purpose of counter boring.									
	4.3	Explain the counter boring operation.									
	4.4	Carryout a simple, straightforward operation.									
LO 5: ***Know the Reaming operation***	5.1	Describe the purpose of reaming.									
	5.2	List categories of reamer									

	5.3	Describe types of straight reamers.										
	5.4	Carry out a simple reaming operation.										
LO 6: ***Know Countersinking***	6.1	Describe the purpose of countersinking										
	6.2	Describe countersink parameters										
	6.3	Explain the use of countersinking.										
	6.4	Differentiate between countersinking and counterboring.										
	6.5	Carry out a simple countersinking operation.										

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 006: THREAD CUTTING OPERATIONS

Unit Reference Number: ENG/FIT/006/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30 hours

Unit purpose: This unit is designed to provide the learner with the knowledge and skills required for thread cutting operations.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in an authentic workplace setting where learning and human development training takes place. Simulation is permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 006: Thread Cutting Operations

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know thread cutting***	1.1	Describe thread cutting									
	1.2	List methods of tread cutting in fitting.									
	1.3	Describe the use of thread cutting in fitting.									
LO 2: ***Know the Tapping operation***	2.1	Describe the tapping operation.									
	2.2	Select tap sizes									
	2.3	Carry out the tapping exercise.									
LO 3: ***Know*** die threading ***operation***	3.1	Describe die threading operation.									
	3.2	Select die sizes									
	3.3	Carry out die exercise.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

UNIT 007: INTRODUCTION TO ARC WELDING OPERATIONS

Unit Reference Number: ENG/FIT/007/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to provide the trainee with the basic knowledge and skills of the manual metal arc (MMA) welding process**.**

Unit assessment requirements/evidence requirements.
Assessment must be conducted in an authentic workplace setting where learning and human development training takes place. Simulation is permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 007: Introduction to Arc Welding Operations

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know the fundamentals of welding machines***	1.1	Define welding									
	1.2	List the types of arc welding machines, including Manual Metal Arc (MMA), Tungsten Inert Gas (TIG), Flux Cored Arc Welding (FCAW), and Metal-Inert Gas/Metal-Active Gas (MIG/MAG).									
	1.3	Explain the advantages and disadvantages of arc welding machines.									
	1.4	Identify various parts of the arc welding machine.									
LO 2: ***Know the arc welding process***	2.1	Describe Arc welding									
	2.2	Explain the operational features of Arc welding.									
	2.3	Demonstrate the arc welding process.									
LO 3: ***Know the welding electrode***	3.1	Explain the operations of arc welding Electrode.									
	3.2	List the classification of arc welding electrodes.									
	3.3	Select a welding electrode for a given task.									
	3.4	Regulate voltage/current for a welding electrode for a given gauge.									
LO 4: ***Carry out the welding operation***	4.1	Describe various types of welding									
	4.2	Carry out material preparation for welding									
	4.3	Set up the welding machine and select the electrode.									
	4.4	Carry out tack welding operation.									
	4.5	Carry out the whole welding operation.									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQAM Signature (if sampled)	Date:
EQAM Signature (if sampled)	**Date:**

UNIT 008: INTRODUCTION TO GAS CUTTING OPERATIONS

Unit Reference Number: ENG/FIT/008/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to provide trainees with the basic knowledge and skills required for gas cutting operations**.**

Unit assessment requirements/evidence requirements:

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

Assessment methods to be used include:

1. Direct Observation (DO)
2. Personal statement/Learning Journal (PS/LJ)
3. Questions and Answers (QA)
4. Witness Testimony (WT)
5. Assignment (ASS)
6. Work Products (WP)

(This depends on the Trade Areas to be assessed)

Unit 008: Introduction to Gas Cutting Operations

LEARNING OBJECTIVE (LO) **The learner will:**		PERFORMANCE CRITERIA (PC) **The learner can:**	Evidence Type					Evidence Ref. Page Number			
LO 1 ***Know gas cutting equipment***	1.1	Explain the features of gas cutting equipment									
	1.2	Explain colour codes in gas cutting equipment.									
	1.3	Describe gas regulators									
LO 2 ***Know gas heating operations***	2.1	Describe gas heating									
	2.2	Describe the procedures for gas heating.									
	2.3	Select the proper heating nozzle.									
	2.4	Carry out gas heating.									
LO 3 ***Know gas cutting operations.***	3.1	Describe gas cutting									
	3.3	Identify consumables for gas cutting operations.									
	3.4	Select appropriate accessories for gas cutting operations.									
	3.5	Carry out gas cutting operations on sheet metal.									

Learner's Signature:	Date:
Assessor's Signature:	Date:
IQAM Signature (if sampled)	Date:
EQAM Signature (if sampled)	**Date:**

Unit 009: WELDING EQUIPMENT HANDLING AND MAINTENANCE

Unit Reference Number: ENG/FIT/009/L3

NSQ Level: 3

Credit Value: 2

Guided Learning Hours: 20 hours

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills required to handle and maintain welding equipment.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a genuine workplace environment where learning and human development training take place. Simulation is permitted in this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 009: Welding Equipment Handling and Maintenance

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know the handling of welding equipment***	1.1	Assemble and disassemble welding equipment properly									
	1.2	Arrange the welding cable/hose properly.									
	1.3	Store welding equipment properly									
	1.4	Move Welding equipment safely.									
LO 2: ***Clean welding equipment***	2.1	Describe welding equipment cleaning best practices.									
	2.2	Describe the impact of cleanliness on equipment life.									
	2.3	Identify recommended cleaning tools and materials.									
	2.4	Describe the steps of cleaning welding equipment.									
LO 3: ***Know how to inspect and maintain welding equipment***	3.1	Carryout routine inspections on welding cables/hoses.									
	3.2	Carryout basic maintenance on welding equipment.									
	3.3	Replace damaged components of welding equipment without delay.									
	3.4	Keep a record of the maintenance of welding equipment.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 010: PIPE WORK

Unit Reference Number: ENG/FIT/010/L3

NSQ Level: 3

Credit Value: 4

Guided Learning Hours: 40 hours

Unit Purpose: This unit is designed to provide the learner with the knowledge and skills required in Pipe work.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a genuine workplace environment where learning and human development training take place. Simulation is permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 010: Pipe Work

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know the fundamentals of metal pipe works***	1.1	Describe metal pipe work									
	1.2	List types of metal pipe by material									
	1.3	List types of metal pipe by shape									
	1.4	Describe the scope of metal pipe work.									
LO 2: ***Know metal pipe cutting***	2.1	Describe metal pipe cutting.									
	2.2	Identify tools for metal pipe cutting.									
	2.3	Carry out metal pipe cutting.									
LO 3: ***Know metal pipe bending***	3.1	Describe metal pipe bending.									
	3.2	Identify tools for metal pipe bending.									
	3.3	Carry out metal pipe bending.									
LO 4: ***Know metal pipe Threading***	4.1	Describe metal pipe threading (Deicing)									
	4.2	Describe the purpose of metal pipe threading.									
	4.3	Identify tools for metal pipe Threading.									
	4.4	Carry out metal pipe bending.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 011: INTRODUCTION TO ASSEMBLY OPERATIONS

Unit Reference Number: ENG/FIT/011/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30 hours

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for assembly operations in a fitting work environment.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in a genuine workplace environment where learning and human development training take place. Simulation is permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 011: Introduction to Assembly Operations

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know the principles of assembly***	1.1	Describe the assembly operation									
	1.2	Explain the purpose of the assembly operation.									
	1.3	Describe types of assembly.									
	1.4	Identify parts to be assembled.									
LO 2: ***Know the Methods of Assembly***	2.1	List the categories of assembly operations									
	2.2	Describe permanent joining									
	2.3	Describe mechanical joining									
	2.4	Carry out basic assembly of parts.									
LO 3: ***Know assembly part handling***	3.1	Describe key aspects of assembly part handling (movement, sorting, Storage, etc.)									
	3.2	Explain why proper part handling is essential.									
	3.3	Demonstrate Assembly part handling.									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (If sampled)	Date:
EQA Signature (if sampled)	**Date:**

Unit 012: BASIC SHEET METAL WORK

Unit Reference Number: ENG/FIT/012/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30 hours

Unit Purpose: This unit is designed to provide learners with the knowledge and skills required for basic sheet metal operations.

Unit assessment requirements/evidence requirements.
Assessment must be conducted in an actual workplace setting where learning and human development training takes place. Simulation is permitted at this unit and level.

Assessment methods to be used include:

1. Direct Observation (DO)
2. Question and Answers (QA)
3. Witness Testimony (WT)
4. Personal statement (PS)

(This depends on the Trade Areas to be assessed)

Unit 012: Basic Sheet Metal Work

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know sheet metal***	1.1	Describe sheet metal work									
	1.2	Identify sheet metal thickness/gauge.									
	1.3	Identify the Sheet metal material.									
LO 2: ***Know sheet metal work equipment***	2.1	Describe the shearing machine.									
	2.2	Describe the bending machine.									
	2.3	Describe the Rolling machine.									
LO 3: ***Carry out sheet metal work***	3.1	Cut sheet metal to size.									
	3.2	Bend sheet metal to the required angle									
	3.3	Roll sheet metal to the desired shape									

Learner's Signature:	Date
Assessor's Signature:	Date:
IQA Signature (if sampled)	Date:
EQA Signature (if sampled)	**Date:**

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