NATIONAL SKILLS QUALIFICATIONS/NATIONAL OCCUPATIONAL STANDARDS

(NSQ/NOS)

STEEL FRAMEWORK

LEVEL I

SEPTEMBER, 2025

LEVEL I

FABRICATOR ASSISTANT

NATIONAL SKILLS QUALIFICATION
GENERAL INFORMATION
OVERVIEW

This qualification is for those interested in developing a career in steel framework in the construction industry for the award of National Skills Qualifications (NSQ). It is aimed at producing Fabricator Assistant at NSQ level 1, with the competencies to assist in reading drawings and carrying out steel framework fabrications.

QUALIFICATION PURPOSE

This qualification is designed to equip learner with knowledge and skills in installation and maintenance of poultry pen house systems.

QUALIFICATION REQUIREMENTS

All Candidates must:

a. Be at least (15) years of age
b. Be medically fit
c. Be physically fit
d. Be mentally fit (Mental alertness)
e. Have achieved all the Safety and Health mandatory units in the qualification
f. Be a Nigerian citizen
g. Other nationals (International passport, residence permit)
h. Be vetted

QUALIFICATION OBJECTIVES

At the end of this unit, the learner should be able to:

1. Comply with health and safe work practices and instructions
2. Communicate effectively in work environment.
3. Work effectively in a team.
4. Comprehend basic welding science
5. Use of basic tools in welding and fabrication.
6. Measure and mark-out for welding operation.
7. Carry out cutting and grinding operations.
8. Sketch and interpret simple drawings for welding and fabrication.
9. Carry out basic manual metal arc (MMA) welding operations.

10. Carry out basic gas welding operations.
11. Carry out simple plastic welding 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. Work Product (WP)
6. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

NATIONAL SKILLS QUALIFICATION

STEEL FRAMEWORK

LEVEL 1 – FABRICATOR ASSISTANT

Mandatory Units

Unit	Unit Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	CON/SFW/001/L1	Health, safety and environment	2	20
2	CON/SFW/002/L1	Communication system in the work environment	2	20
3	CON/SFW/003/L1	Team work	2	20
4	CON/SFW/004/L1	Basic Welding Science	2	20
5	CON/SFW/005/L1	Basic Tools	2	20
6	CON/SFW/006/L1	Basic Drawing and Interpretation	2	20
7	CON/SFW/007/L1	Measurement and Marking Out	3	30
8	CON/SFW/008/L1	Cutting and Grinding Operation	3	30
9	CON/SFW/009/L1	Arc Welding for Steel Framework (MMA)	3	30
TOTAL			**21**	**210**

NOTE: This is a 21credit unit qualification. To achieve this qualification; Learners are required to achieve all credits units. Each Credit is equivalent to 10 Guided Learning Hours (GLH). The Total Learning Hours will therefore consist of the GLH *plus* the independent learning hours of the candidate, which is generally 50% – 150% of the GLH. ***The actual Total Learning Hours for each Credit will then be a minimum of 15 hours***.

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 = 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 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 a qualification.

UNIT 001: **HEALTH, SAFETY AND ENVIRONMENT**

Unit Reference Number: CON/SFW/001/L1

NSQ Level: 1

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to equip the learner with the knowledge and skills required for health and safety in work environment**.**

Unit Assessment Requirements/ Evidence Requirements:

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

(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 work environment***	1.1	Explain work environment									
	1.2	Explain workshop layout: • Gangway • Work Area • Store • Changing room • Entrance and Exit points • Muster Point • Emergency Exit									
	1.3	Identify safety signs and symbols in a workshop									
	1.4	Identify the positions of the following in the workshop: • First aid box • Fire extinguisher • Sand bucket • Mains switches									
LO 2: ***Know safety rules and regulations in a workplace***	2.1	Explain the importance of working safely in a work environment									
	2.2	List Personal Protective Equipment (PPE) in steel framework operations									
	2.3	Identify Personal Protective Equipment (PPE)									
	2.4	Explain causes of accident in the workshop • Horseplay • Spills • Poor housekeeping • Loose electrical fittings • Inappropriate use of tools and equipment									
	2.5	Explain how to prevent hazards in work environment									

	2.6	Demonstrate how to prevent hazards in work environment									
LO 3: ***Know first aid procedure***	3.1	Define First Aid									
	3.2	List the items in the First Aid box									
	3.3	Explain how to administer simple First Aid.									
	3.4	Report accident or near-miss to appropriate authority									

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

UNIT 002: COMMUNICATION SYSTEM IN WORK ENVIRONMENT

Unit Reference Number: CON/SFW/002/L1
NSQ Level: 1
Credit Value: 2
Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to equip the learner with the basic knowledge and skills for effective communication in work place**.**

Unit Assessment Requirements/ Evidence Requirements:

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

(This depends on the Trade Areas to be assessed)

Unit 002: Communication System in Work Environment

Learning Outcome (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	Define communication in work environment.									
	1.2	List methods of communication in work environment.									
	1.3	Explain verbal communication in work environment									
	1.4	Explain non-verbal communication in work environment									
LO 2: ***Develop the ability to identify the source of information in a work environment***	2.1	List the sources of information in the work environment									
	2.2	Explain the different information flow systems in a work environment									
	2.3	Report findings correctly as expected in the work environment									
LO 3: ***Know the various communication means in a work environment***	3.1	List communication equipment									
	3.2	Use effectively the various communication equipment in a work environment									
	3.3	Apply appropriate workplace terminologies and jargons									
	3.4	Pass information correctly									

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

UNIT 003: **TEAMWORK**

Unit Reference Number: CON/SFW/003/L1

NSQ Level: **1**

Credit Value: **2**

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills required to develop team spirit and positive working relationship with co-workers.

Unit Assessment Requirements/ Evidence Requirements:

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

(This depends on the Trade Areas to be assessed)

Unit 003: Teamwork

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Develop good working relationship with co-workers***	1.1	Define teamwork									
	1.2	List the importance of teamwork									
	1.3	List the qualities of a team player									
LO 2: ***Take responsibility within the team***	2.1	List own roles and responsibilities within a team.									
	2.2	Perform tasks in line with the team rules and regulations.									
	2.3	Work well in a group.									
LO 3: ***Comply with rule of organisation***	3.1	Explain code of conduct in work environment									
	3.2	Use organisational code of practice									
	3.3	Work in line with organisational standard.									

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

UNIT 004: BASIC WELDING SCIENCE

Unit Reference Number: CON/SFW/004/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hour: 30 Hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills on basic welding science**.**

Unit Assessment Requirements/ Evidence Requirements:

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

(This depends on the Trade Areas to be assessed)

Unit 004: Basic Welding Science

Learning Outcome (LO) The learner will:		Performance Criteria: - (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO1: ***Know basic electricity***	1.1	Define Electricity									
	1.2	Identify sources of electricity									
	1.3	State different types of energy									
	1.4	State how energy is converted									
	1.5	Identify basic electrical components									
	1.6	Differentiate between AC and DC									
	1.7	Explain electrical safety									
LO2: ***Know heat and its effect***	2.1	Define temperature									
	2.2	State the sources of heat									
	2.3	Explain heat transfer methods: • Conduction • Convection • Radiation									
	2.4	State the melting points of steel									
	2.5	Explain the following: • Expansion • Contraction • Heating • Quenching									
	2.6	Explain heat in welding									
	2.7	Explain: • Conductors • Insulators									
	2.8	Identify conductors									
	2.9	Identify Insulators									
LO 3: ***Know change of state of matter***	3.1	Define matter									
	3.2	Identify the three main states of matter									
	3.3	Define change of state									
	3.4	Describe the types of changes of state: • Melting – solid to liquid • Freezing – liquid to solid • Evaporation/Boiling – liquid to gas									

Learning Outcome (LO) The learner will:		Performance Criteria: - (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 4: ***Know types of metals***	4.1	Define metals and non-metals									
	4.2	Identify the main categories of metals:									
	4.3	Explain basic properties of metals									
	4.4	List the different shapes of metals product									
	4.5	Recognize common uses of metals									
LO 5 ***Know types of steel***	5.1	Define steel									
	5.2	List types of steel									
	5.3	Identify types of steel									
	5.4	Explain properties of steel									
	5.5	Identify different shape of steel product									
	5.6	Explain uses of steel									

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

UNIT 005: **BASIC TOOLS FOR STEEL FABRICATION**

Unit Reference Number: CON/SFW/005/L1

NSQ Level: 1

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 steel fabrication operations

Unit Assessment Requirements/ Evidence Requirements:

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

(This depends on the Trade Areas to be assessed)

Unit 005: Basic Tools for Steel Fabrication

Learning Outcome (LO) The learner will:		Performance Criteria: (PC) The learner will:	Evidence Type					Evidence Ref. Page Number			
LO 1: Know basic tools	1.1	Explain basic tools									
	1.2	List basic tools for each of the following fitting operations: • Measuring • Marking Out • Cutting • Grinding • Handling • Sharpening • Shaping • Fastening tools									
	1.3	Use appropriate tools for measuring and marking - out operations									
	1.4	Use appropriate tools for cutting operation									
	1.5	Use appropriate tools for grinding									
	1.6	Use appropriate tools for fastening									
	1.7	Use appropriate tools for sharpening and shaping									
	1.8	Use appropriate tools for handling activities									
	1.9	Safe use of tools									
LO 2: Know maintenance and care of tools	2.1	Check tools for defects before use.									
	2.2	Describe pressure requirement on application of tools.									
	2.3	Identify appropriate lubricant for tools protection									
	2.4	Lubricate tools against corrosion									
	2.5	Store properly in: toolbox, metal cabinet holder (chisels), rack.									
	2.6	Clean tools after usage									

LO 3: Know tools requisition record	3.1	Explain how to fill tool requisition form									
	3.2	State the procedure for tool requisition									
	3.3	Request tools for cutting operation									
	3.4	Explain the process of tool issuing and returning									
	3.5	Return tools after use									

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

UNIT 006: **BASIC DRAWING AND INTERPRETATION**

Unit Reference Number: CON/SFW/005/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hour: 30 hours

Unit Purpose: This unit is designed to equip the learner with the knowledge and skills in sketching and interpretation of drawings**.**

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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 006: Basic Drawing and Interpretation

Learning Outcome (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	Identify basic elements of a drawing: • Lines • Symbols • Dimensions • Scale • Title block • Views									
	1.3	Explain simple isometric shapes									
	1.4	Explain the use of angles and symbols in drawing									
	1.5	Sketch a simple drawing									
LO 2: ***Know simple dimensions in drawing.***	2.1	Explain dimensions									
	2.2	List types of dimensions									
	2.3	Produce a simple drawing with dimensions									
LO 3: ***Know interpretation of simple drawing***	3.1	Explain how to interpret simple drawing. • Dimensions • Symbols • Reference points. • Lines • Views									
	3.2	Obtain information on pattern from a given drawing									
	3.3	Obtain information on dimension from a given drawing									
	3.4	Obtain information on materials from a given drawing									

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

UNIT 007: **MEASUREMENT AND MARKING OUT**

Unit Reference Number: CON/SFW/007/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hour: 30 Hours

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

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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: Measurement and Marking-Out

Learning Outcome (LO) The learner will:		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know measurement operation***	1.1	Define measurement									
	1.2	Explain units of measurements									
	1.3	Convert imperial to metric for the following: length, mass, area, volume and temperature									
	1.4	Measure length using metric.									
	1.5	Identify common measuring tools									
	1.6	Measure length, diameter and thickness using appropriate tools.									
	1.7	Explain the importance of accuracy in measurement									
	1.8	Explain tolerance in measurement									
LO 2: ***Know marking out operation***	2.1	Define marking-out									
	2.2	List basic marking out tools									
	2.3	List various methods of marking									
	2.4	Explain material preparation for marking out									
	2.5	Carryout marking out operation using appropriate tools.									
	2.6	Explain the use of template in 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 of the 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 008: CUTTING AND GRINDING OPERATIONS

Unit Reference Number: CON/SFW/008/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hour: 30 hours

Unit Purpose: This unit is designed to equip learners with basic knowledge and skills in cutting and grinding operations**.**

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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 008: Cutting and Grinding Operations

Learning Outcome (LO) The learner will:		Performance Criteria: - (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know cutting operations***	1.1	Explain cutting operation									
	1.2	List various methods of cutting									
	1.3	List cutting tools									
	1.4	Explain the right cutting technique and posture									
	1.5	Explain how to prepare materials before cutting									
	1.6	Carry out cutting operation using appropriate tools									
	1.7	Describe safe use of cutting tools									
LO 2: ***Know grinding operations***	2.1	Define grinding operation									
	2.2	Explain the importance of grinding operations									
	2.3	List types of grinding operations									
	2.4	Identify parts of a grinder									
	2.5	List grinding tools									
	2.6	Perform manual grinding operation									
	2.7	Perform electrical grinding operation.									
	2.8	Identify grinding hazards and safety precautions									
	2.9	Describe safe use of grinding tools									
LO 3: ***Know the proper handling of cutting and grinding tools***	3.1	Explain the procedure for changing worn out cutting and grinding disc									
	3.2	Carry out replacement of worn out cutting and grinding disc									
	3.3	Explain the care for various cutting tools									
	3.4	Explain the care for various grinding tools									

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

UNIT 009: **ARC WELDING FOR STEEL FRAMEWORK**

Unit Reference Number: CON/SFW/009/L1

NSQ Level: 1

Credit Value: 3

Guided Learning Hour: 30 hours

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

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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 009: Arc Welding for Steel Framework

Learning Outcome (LO) The learner will:		Performance Criteria: - (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know safety precautions in arc welding***	1.1	Identify hazards in arc welding operations									
	1.2	List the Personal Protective Equipment's (PPE) used in arc welding processes									
	1.3	Describe the features of arc welding tools/equipment: • AC/DC Welding Machine • Hammer • Chipping Hammer • Welding Goggle • Face Shield • Face Mask • Welding Tong • Electrode Holder • Welding Return Lead • Workbench • Wire Brush • Jigs and Fixtures • Grinders									
	1.4	Explain the safety precautions in handling arc welding equipment: • Avoid oil/grease on work piece • Ensure proper connection of power cables • Ensure avoidance of moisture/wet surface on machines and work environment • Ensure safe handling of machines and equipment									
LO 2: ***Know the fundamentals of arc welding processes***	2.1	Define welding									
	2.2	List types of arc welding processes such as: • Manual Metal Arc (MMA), • Tungsten Inert Gas (TIG), • Flux Cored Arc Welding (FCAW), • Metal-Inert Gas/Metal-Active Gas (MIG/MAG).									

Learning Outcome (LO) The learner will:		Performance Criteria: - (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
	2.3	Explain the advantages and disadvantages of arc welding processes in 2.2									
LO 3: ***Know MMA welding machines***	3.1	Explain types of MMA welding machines									
	3.2	Explain the operational features of types of MMA (AC and DC) welding machines									
	3.3	Explain the operational sequence of MMA welding machines									
	3.4	Identify various welding machine									
	3.5	Set appropriate current in 3.1									
LO 4: ***Know welding consumables***	4.1	Explain welding consumables									
	4.2	List consumables for welding such as; • Electrodes, • Cutting, • Grinding • Polishing discs									
	4.3	Select appropriate welding consumables for a given task									
	4.4	Know how to store consumables correctly									
LO 5: ***Know the types of materials***	5.1	List types of materials for arc welding such as: • Sheet metal, • Angle iron, • Flat bar, • Rods • Pipes									
	5.2	Identify types of materials for arc welding									
	5.3	List basic properties of materials									
LO 6: ***Know the use of MMA welding Machine***	6.1	Set up MMA welding machine									
	6.2	Set up the appropriate variables in the welding machine									
	6.3	Prepare material for welding									
	6.4	Select the appropriate electrodes for welding									
	6.5	Carry out tack welding operation									
	6.6	Carry out complete welding operation									

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

LEVEL II

NATIONAL SKILLS QUALIFICATIONS/NATIONAL OCCUPATIONAL STANDARDS

(NSQ/NOS)

STEEL FRAMEWORK

LEVEL 2

SEPTEMBER, 2025

NATIONAL SKILLS QUALIFICATION

NSQ LEVEL 2- INTERMEDIATE FABRICATOR

GENERAL INFORMATION

OVERVIEW

This qualification is for those interested in developing a career in steel framework in the construction industry for the award of National Skills Qualifications (NSQ). It is aimed at producing Intermediate Fabricator at NSQ level II with the competencies to assist in reading drawings and carrying out steel framework fabrications.

This qualification is subject to review based on the requirements of the relevant sector.

QUALIFICATION PURPOSE

This qualification is for those interested in developing a career in steel framework in the construction industry for the award of National Skills Qualifications (NSQ). It is aimed at producing Intermediate Fabricator at NSQ level II, with the competencies to assist in reading drawings and carrying out steel framework fabrications.

QUALIFICATION REQUIREMENTS

All Candidates must:

a. Be at least (15) years of age
b. Be medically fit
c. Be physically fit
d. Be mentally fit (Mental alertness)
e. Have achieved all the Safety and Health mandatory units in the qualification
f. Be a Nigerian citizen
g. Other nationals (International passport, residence permit)
h. Be vetted

QUALIFICATION OBJECTIVES

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

1. Comply with safe work practices and instructions
2. Communicate effectively in work environment.
3. Work effectively in a team.
4. Draw and interpret fabrication drawing
5. Assist in the preparation and interpretation fabrication materials
6. Carry out Fabrication activities
7. Erect Structural Steel Assemblies at Sites

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. Work Product (WP)
6. Assignment (ASS)

(This depends on the Trade Areas to be assessed)

NATIONAL SKILLS QUALIFICATION

STEEL FRAMEWORK

NSQ LEVEL 2 – INTERMEDIATE FABRICATOR

Mandatory Units

Unit	Reference Number	Unit Title	Credit Value	Guided Learning Hours
1	CON/SFW/001/L2	Health, Safety and Environment	2	20
2	CON/SFW/002/L2	Communication system in the work environment	2	20
3	CON/SFW/003/L2	Teamwork	2	20
4	CON/SFW/004/L2	Fabrication Drawing	4	40
5	CON/SFW/005/L2	Fabrication Materials Preparation and Inspection	5	50
6	CON/SFW/006/L2	Fabrication Operations	5	50
7	CON/SFW/007/L2	Erect Structural Steel Assemblies At Site	5	50
Total			**25**	**250**

NOTE: This is a 25credit unit qualification. To achieve this qualification; Learners are required to achieve 20 Credits from the mandatory and at least 4 credits from the optional units. Each Credit is equivalent to 10 Guided Learning Hours (GLH). The Total Learning Hours will therefore consist of the GLH *plus* the independent learning hours of the candidate, which is generally 50% – 150% of the GLH. ***The actual Total Learning Hours for each Credit will then be a minimum of 15 hours***.

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 = 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 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 a qualification.

UNIT 001: **HEALTH, SAFETY AND ENVIRONMENT**

Unit Reference Number: CON/SFW/001/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to equip the learner with the knowledge and skills of health and safety in work environment**.**

Unit Assessment Requirements/ Evidence Requirements:

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

(This depends on the Trade Areas to be assessed)

Unit 001: Health, Safety and Environment

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know health and safety rules in work environment***	1.1	Familiarize yourself with work environment									
	1.2	Explain safe work practice when working with welding equipment.									
	1.3	List Personal Protective Equipment (PPE)									
	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 accident in work environment.									
	1.9	Explain 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 self and others									
LO 3: ***Know fire safety***	3.1	Explain classes of fire									
	3.2	Explain causes of fire outbreak in a work environment									
	3.3	Explain emergency and fire procedure									
	3.4	List methods of extinguishing fire									
	3.5	List types of fire extinguishers									
	3.6	Demonstrate how to use appropriate fire extinguisher.									
	3.7	Follow fire and safety procedure									

LO 4: ***Know good housekeeping practices***	4.1	Explain good housekeeping procedures before welding 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 welding operations: • Ensure 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, paint. • Proper placement of electrical cables and gas hoses.									
	4.3	Explain good housekeeping procedures after welding operations: • Assemble 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 SYSTEM IN WORK ENVIRONMENT

Unit Reference Number: CON/SFW/002/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to equip the learners with knowledge and skills for effective communication in workplace

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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 System in Work Environment

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know how to communicate effectively in the work environment***	1.1	Explain communication in work environment.									
	1.2	Explain methods of communication in work environment.									
	1.3	Explain verbal communication in work environment									
	1.4	Explain non-verbal communication in work environment									
	1.5	Use verbal and non-verbal means to convey necessary information e.g.: • Body language, • Signs, etc.									
	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 information gathered to address challenges in a work environment									
	2.5	Report findings correctly as expected in the work environment									
LO 3: ***Know the use of various communication means in a work environment***	3.1	Locate the various communication equipment in the work environment									
	3.2	Use effectively the various communication equipment in a work environment									
	3.3	Pass information correctly using symbols, signs and codes.									
	3.4	Obey instructions in line with ethics of the work environment.									

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

UNIT 003: **TEAMWORK**

Unit Reference Number: CON/SFW/003/L2

NSQ Level: 2

Credit Value: 2

Guided Learning Hour: 20 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills required to develop team spirit and positive working relationship with co-workers**.**

Unit Assessment Requirements/ Evidence Requirements:

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

(This depends on the Trade Areas to be assessed)

Unit 003: Teamwork

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know how to exhibit 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 request for assistance falls outside area of responsibility.									
LO 2: ***Know how to take responsibility within the team***	2.1	Recognize 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: ***Know how to comply with rules of organisation***	3.1	Explain organisational code of Conduct									
	3.2	Use organisational code of practice									
	3.3	Work in line with organisational standard.									

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

UNIT 004: FABRICATION DRAWING

Unit Reference Number: CON/SFW/004/L2

NSQ Level: 2

Credit Value: 4

Guided Learning Hour: 40 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills in the use of fabrication drawings**.**

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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 004: Fabrication Drawing

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know fabrication drawing***	1.1	Explain fabrication drawing									
	1.2	List the components of fabrication drawing									
	1.3	Explain how to interpret fabrication drawing									
LO 2: ***Know component drawing.***	2.1	Explain component of drawing									
	2.2	Identify drawing components and its dimensions from fabrication drawing									
	2.3	Produce simple component of drawing									
LO 3: ***Know how to interpret fabrication drawing***	3.1	Obtain welding details from fabrication drawing									
	3.2	Obtain fitting details from fabrication drawing									
	3.3	Obtain information on materials from fabrication drawing									
	3.4	Obtain information on reference documents and applicable standards									

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

UNIT 005: **FABRICATION MATERIALS PREPARATION AND INSPECTION**

Unit Reference Number: CON/SFW/005/L2

NSQ Level: 2

Credit Value: 5

Guided Learning Hour: 50 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills required in assisting in preparation and interpretation of fabrication materials.

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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 005: Fabrication Materials Preparation and Inspection

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know fabrication materials***	1.1	Identify correct sections/pieces for processing as per requirement									
	1.2	Assist in checking the stampings on the sections/pieces to confirm its dimensions									
	1.3	Assist in confirming that quality inspection has been conducted for required materials									
	1.4	Assist in checking the materials for any physical damage like distortion, corrosion, bending, cracks, etc.									
	1.5	Assist in ensuring that material sorting and moving is done safely and following standard practices									
LO 2: ***Know surface preparations of materials***	2.1	Assist in checking the surface of the material to identify the types of impurities on it									
	2.2	Obtain approval for employing different methods of cleaning from concerned supervisor									
	2.3	Identify the materials required for cleaning and their quantities									
	2.4	Assist in checking the application of procedures like heating, chemical cleaning, scrubbing, water, jet, etc. as per requirement									
	2.5	Assist in checking the markings prior to commencing edge preparation									
LO 3: ***Know surface protection procedure***	3.1	Identify material for surface protection									
	3.2	Identify the right application for surface protection material									
	3.3	Apply surface protection material in accordance to specification under supervision									

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

UNIT 006: FABRICATION OPERATIONS

Unit reference number: CON/SFW/006/L2

NSQ level: 2

Credit value: 5

Guided learning hour: 50 hours

Unit Purpose: This unit is designed to equip the learner with knowledge and skills required to assist in fabrication operation

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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 006: Fabrication Operations

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 1: ***Know joint preparation activities***	1.1	Identify the components to be assembled as per drawings or specification									
	1.2	Assist in selecting suitable jigs and fixtures for smooth execution of work									
	1.3	Assist in inspecting instruments, consumables, tools and equipment visually for their working conditions									
	1.4	Assist in inspecting materials before placing on fabrication platform for any distortions or deformities									
	1.5	Assist in performing calculation of dimensions from drawings if required									
	1.6	Assist in measuring the sections to identify the locations									
	1.7	Assist in ensuring that joints for connections of different components of assemblies are complying with the specifications and drawing									
LO 2: ***Know fitting operations***	2.1	Carry out measurement and marking out for a given task									
	2.2	Carry out cutting operation of materials using appropriate tools for a given task									
	2.3	Carry out grinding operation using appropriate tools for a given task									
LO 3: ***Know drilling operations***	3.1	Describe drilling operations									
	3.2	List drilling tools and accessories									
	3.3	Select appropriate drill bits for a given task									
	3.4	Carry out drilling operations									
	3.5	Assist in checking for defects associated with 3.4 above									
	3.6	Assist in carrying out corrective measures on identity defects									

Learning Outcome (LO) **The learner will:**		**Performance Criteria: - (PC)** **The learner can:**	**Evidence Type**					**Evidence Ref. Page Number**			
LO 4: Know welding operation	4.1	Differentiate between shop welding drawing and blueprint									
	4.2	List types of weld and welding symbols									
	4.3	Use welding symbols for a given task									
	4.4	Identify standards applicable to welding drawings									
	4.5	Interpret various components of a welding drawing									
	4.6	List drawing terminologies									
	4.7	Use welding drawing terminologies for a given task									
	4.8	Explain weld joint									
	4.9	List types of weld joints									
	4.10	Carry out the following weld joints preparation: • Tee joints • Butt joints • Corner joints • Edge joints • Lap joints									
	4.11	State the need for joint preparations									
	4.12	Differentiate between square and grove edge preparations									

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

UNIT 007: **ERECT STRUCTURAL FRAME STEEL AT SITE**

Unit reference number: CON/SFW/007/L2

NSQ level: 2

Credit value: 5

Guided learning hour: 50 Hours

Unit Purpose: This unit is designed to equip the learner with the knowledge and skills required to erect structural steel frame at site**.**

Unit Assessment Requirements/ Evidence Requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out. Simulation is allowed in 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: Erect structural frame steel at sites

Learning Outcome (LO) The learner will:		Performance Criteria: - (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
LO 1: ***Know preparatory works required to be completed prior to erection***	1.1	Check that proper access is available to the erection site									
	1.2	Assist in checking for survey marks and reference points and									
	1.3	Carry out necessary measurements to ascertain exact location of erection									
	1.4	Assist in checking that base plates or other level correction provisions are available at the base of erection as per requirement									
	1.5	Assist in checking for provisions for bolting, welding and post-tensioning connections as per drawing									
	1.6	Assist to ensure that designed area of bearing in the platform or support is available for efficient erection of the components									
	1.7	Check the area of erection for desired accessibility of load lifting equipment									
LO 2: ***Know how to erect structural steel frame as per the drawing***	2.1	Check for hazardous situations at erection site, such as presence of live electric cables, absence of proper barricading, excessive wind speed.									
	2.2	Report hazardous situations at erection site, if any.									
	2.3	Check availability of all materials and support equipment (identified by the supervisor and required to proceed with the work) and report any shortfalls									
	2.4	Explain factors that determine material selection for any specific task									
	2.5	Assist in installing shoring and bracing materials as specified									
	2.6	Pull, push and hold suspended structural steel frame/components approximately to their exact location by hand or suitable means during lowering of the load									
	2.7	Communicate efficiently to the signalman or operator for precise									

Learning Outcome (LO) The learner will:		Performance Criteria: - (PC) The learner can:	Evidence Type					Evidence Ref. Page Number			
		movements required to place the object at an accurate location									
	2.8	Place the steel frame/components to their accurate locations efficiently and make required adjustments as per erection requirement									
	2.9	Ensure proper alignment of the erected steel frame/component by carrying out required checks using appropriate measuring tools and instruments									
LO 3: ***Know riveting operations***	3.1	Explain riveting as a joining process									
	3.2	List tools and accessories used in riveting operation									
	3.3	Perform riveting operation									
	3.4	Assist in Checking for faults in riveting operation									
	3.5	Assist in Carry out corrective measures on riveting operation									
LO 4: ***Know bolts and nuts fastening operations***	4.1	Explain bolt and nut as a mechanical fastening method									
	4.2	List types of bolts and nuts									
	4.3	List types of tools used for bolts and nuts fastening									
	4.4	Demonstrate the uses of bolts and nuts									

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

LIST OF PARTICIPANTS FOR PRE-CRITIQUE

S/N	NAME	ADDRESS	EMAIL
1.	Bldr. Ogunleye Olasoji	CORBON	Ogunleye.soji976@gmail.com
2.	Aminu Kangiwa	COREN	kangiwaaminu@gmail.com
3.	Olugbade Fatai Omolade	CORBON	Olugbadeniob101@gmail.com
4.	Said S. Adenike	NIOB	adenikesaid@gmail.com
5.	Sunday joseph	NIOB	sundaywusu@gmail.com
6.	Garba Hamzat Kolawole	CORBON	Garba.hamzat@gmail.com
7.	Mary Atinuke Kolawole	NIOB	Tinukolawole54@gmail.com
8.	Folashade Laja	NIOB	lajashade@yahoo.com
9.	Olayinka Mercy Momoh	CORBON	ynkmomoh@yahoo.com
10.	Asimiyu Bashir S	CORBON	bldrbsa@yahoo.com
NBTE STAFF			
11.	Prof. I.M. Bugaje	Executive Secretary, NBTE Kaduna	es@nbte.gov.ng
12.	Prof. Diya'uddeen B. Hassan	SA/ES, NBTE Kaduna	
13.	Dr. Musa Hatim Koko	Director, CDD	hatimlion@gmail.com
14.	Ruqayya Muhammad Robiu	NBTE	teekaytaheer@gmail.com
15.	Salisu Lawan	NBTE	Muhammadauna.mu@gmail.com

SALESIANS OF DON BOSCO, AFRICA NIGERIA NIGER (ANN) PROVINCE

16	Rev Fr Peter Morba	Provincial, ANN Province	provincial@donboscann.org
17	Rev Fr James Ailen	Vice Provincial, ANN	v.provincial@donboscann.org
18	Rev Fr Raphael Airoboman	Provincial Economer	p.economer@donboscoann.org
19	Rev Fr Felix Olamide	Provincial Youth Delegate	youth.ministry@donboscoann.org
20	Cletus Linus Etukakpan	Provincial TVET Coordinator	ptvetoffice@donboscoann.org

LIST OF PARTICIPANTS FOR FINAL CRITIQUE AND VALIDATION

S/N	NAME	ADDRESS	EMAIL
1	Bldr. Edidiong Boniface Ekanem	CORBON, Abuja	edidiongbekanem@gmail.com
2	Bldr. Jummai Agidani	Baze University Abuja	Jummai.agidani@bazeuniversity.edu.ng
3	Bldr. Usman Abdulmumin Okehi FNIOB	FHM Consults Limited, Abuja	mittabdul@yahoo.com
NBTE STAFF			
4	Prof. I.M. Bugaje	Executive Secretary, NBTE Kaduna	es@nbte.gov.ng
5	Prof. Diya'uddeen B. Hassan	SA/ES, NBTE Kaduna	
6	Dr. Musa Hatim Koko	Director, CDD	hatimlion@gmail.com
7	Engr. Salisu Lawan	NBTE	Salisulataura@gmail.com
8	Tukur Tahir Mahmud	NBTE	teekaytaheer@gmail.com

SALESIANS OF DON BOSCO, AFRICA NIGERIA NIGER (ANN) PROVINCE

9	Rev Fr Peter Morba	Provincial, ANN Province	provincial@donboscann.org
10	Rev Fr James Ailen	Vice Provincial, ANN	v.provincial@donboscann.org
11	Rev Fr Raphael Airoboman	Provincial Economer	p.economer@donboscoann.org
12	Rev Fr Felix Olamide	Provincial Youth Delegate	youth.ministry@donboscoann.org
13	Cletus Linus Etukakpan	Provincial TVET Coordinator	ptvetoffice@donboscoann.org