Competency Standard (CS)

Firing – Ceramic Products

Level-3

Ceramic Sector

Competency Standard Code: CS-CER-FCP-L3-EN-V1

National Skills Development Authority
Chief Advisor's Office
Government of the People's Republic of Bangladesh

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This Competency Standard for **Firing - Ceramic Products** is a document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the document for providing training consistent with the requirements of industry in order to meet the qualification of individuals who graduated through the established standard via competency-based assessment for a relevant job.

Public and private institutions may use the information contained in this standard for activities benefitting Bangladesh.

Introduction

The NSDA aims to enhance an individual's employability by certifying completeness with skills. NSDA works to expand the skilling capacity of identified public and private training providers qualitatively and quantitatively. It also aims to establish and operationalize a responsive skill ecosystem and delivery mechanism through a combination of Well-defined set of mechanisms and necessary technical supports.

Key priority economic growth sectors identified by the government have been targeted by NSDA to improve current job skills along with existing workforce to ensure required skills to industry standards. Training providers are encouraged and supported to work with industry to address identified skills and knowledge to enable industry growth and increased employment through the provision of market responsive inclusive skills training program. " **Firing - Ceramic Products**" is selected as one of the priority occupations of **Ceramic** Sector. This standard is developed to adopt a demand driven approach to training with effective inputs from Industry Skills Councils, employer associations and employers.

Generally, a competency standard LEorms curriculum, learning materials, assessment and certification of trainees enrolled in Skills Training. Trainees who successfully pass the assessment will receive a qualification in the Bangladesh National Qualification Framework (BNQF) and will be listed on the NSDA's online portal.

This competency standard is developed to improve skills and knowledge in accordance with the job roles, duties and tasks of the occupation and ensure that the required skills and knowledge are aligned to industry requirements. A series of stakeholder consultations, workshops were held to develop this document.

The document also details the format, sequencing, wording and layout of the Competency Standard for an occupation which is comprised of Units of Competence and its corresponding elements.

Overview

A **Competency Standard** is a written specification of the knowledge, skills and attitudes required for the performance of an occupation, trade or job corresponding to the industry standard of performance required in the workplace.

The purpose of a competency standards is to:

- provide a consistent and reliable set of parts for training, recognising and assessing people's skills, and may also have optional support materials
- enable industry recognised qualifications to be awarded through direct assessment of workplace competencies
- encourage the development and delivery of flexible training which suits individual and industry requirements
- encourage learning and assessment in a work-related environment which leads to verifiable workplace outcomes

Competency standards are developed by a working group comprised of occupation specific experts, academicians, representatives from NSDA and ISC to identify the competencies required of an occupation in **Ceramice Sector**.

Competency standards describe the knowledge, skills and attitude needed to perform effectively in the workplace. CS acknowledge that people can achieve technical and vocational competency in many ways by emphaprinting what the learner can do, not how or where they learned to do it.
With competency standards, training and assessment may be conducted at the workplace or at training institute or any combination of these.

Competency standards consist of a number of units of competency. A unit of competency describes a distinct work activity that would normally be undertaken by one person in accordance with industry standards.

Units of competency are documented in a standard format that comprises of:

- unit title
- nominal duration
- unit code
- unit descriptor
- elements and performance criteria
- variables and range statement
- curricular content guide
- assessment evidence guides

Together, all the parts of a unit of competency:

- describe a work activity
- guide the assessor to determine whether the candidate is competent or not yet competent

The ensuing sections of this document comprise of a description of the relevant occupation, trade or job with all the key parts of a unit of competency, including:

- a chart with an overview of all Units of Competency for the relevant occupation, trade or job including the Unit Codes and the Unit of Competency titles and corresponding Elements
- the Competency Standard that includes the Unit of Competency, Unit Descriptor, Elements and Performance Criteria, Range of Variables, Curricular Content Guide and Assessment Evidence Guide.

.Competency Standards for National Skill Certificate – 3 in

Firing - Ceramice Sector

Level Descriptors of Skills Sector, BNQF Level 1-6

Level & Job classification	Knowledge Domain	Skills Domain	Responsibility Domain
6-Mid-Level Manager/ Sub Assistant Engineer	Comprehensive actual and theoretical knowledge within a specific work or study area with an awareness of the validity and limits of that knowledge, able to analyse, compare, relate and evaluate.	Specialised and wider range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems. Communicate professional issues and solutions to the team and to external partners/users.	Work under broad guidance and self-motivation to execute strategic and operational plan/s. Lead lower-level management. Diagnose and resolve problems within and among work groups.
5-Supervisor	Broad knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to scrutinize and break LEormation into parts by identifying motives or causes.	Broad range of cognitive and practical skills required to generate solutions to specific problems in one or more work or study areas. Communicate practice-related problems and possible solutions to external partners.	Work under guidance of management and self-direction to resolve specific issues. Lead and take responsibility for the work and actions of group/team members. Bridge between management.
4-Highly Skilled Worker	Broader knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to solve problems to new situations by comparing and applying acquired knowledge.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying the full range of methods, tools, materials and LEormation. Communicate using technical terminology and IT technology with partners and users as per workplace requirements.	Work under minimal supervision in specific contexts in response to workplace requirements. Resolve technical issues in response to workplace requirements and lead/guide a team/ group.
3-Skilled Worker	Moderately broad knowledge in a specific work or study area, able to perceive ideas and abstract from drawing and design according to workplace requirements.	Basic cognitive and practical skills required to use relevant LEormation in order to carry out tasks and to solve routine problems using simple rules and tools. Communicate with his team and limited external partners upholding the values, nature and culture of the workplace	Work or study under supervision with considerable autonomy. Participate in teams and responsible for group coordination.
2-Semi Skilled Worker	Basic understanding of underpinning knowledge in a specific work or study area, able to interpret and apply common occupational terms and instructions.	Skills required to carry out simple tasks, communicate with his team in the workplace presenting and discussing results of his work with required clarity.	Work or study under supervision in a structured context with limited scope of manipulation
1 –Basic Skilled Worker	Elementary understanding of ability to interpret the underpinning knowledge in a specific study area, able to interpret common occupational terms and instructions.	Specific Basic skills required to carry out simple tasks. Interpret occupational terms and present the results of own work within guided work environment/ under supervision.	Work under direct supervision in a structured context with limited range of responsibilities.

List of Abbreviations

NSDA	- National Skills Development Authority
CS	- Competency Standard
SCVC	- Standard and Curriculum Validation Commettee
ISC	- Industry Skills Council
CBLM	- Competency Based Learning Material
UoC	- Unit of Competency
PPE	- Personal Protective Equipemnt
OSH	- Occupational Safety and Health
CBC	- Competency Based Curriculum
CER	- Ceramice Sector
BNQF	- Bangladesh National Qualification Framework
FCP	- Firing – Ceramic Products
STP	- Skills Training Provider
SOP	- Standard Operating Procedure
UoC	- Unit of Competency
4 IR	- 4th Industrial Revolution

Approved by

38th Authority meeting of NSDA

Held on 27.11.2024

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Course Structure

SL	Unit Code and Title		UoC Level	Nominal Hours
Generic Units of Competencies				**45**
1.	GU-02-L1-V1	Apply OSH Procedure in the Workplace	1	15
2.	GU-04-L1-V1	Work in the team environment	1	20
3.	GU-06-L1-V1	Practice House Keeping Procedure	1	10
Sector Specific Units of Competencies				**40**
4.	SU- LE -01-L1-V1	Interpret Fundamentals to work in the Ceramic Sector	1	20
5.	SU- LE -02-L1-V1	Use Measuring and Checking Tools and Instruments	1	20
Occupation Specific Units of Competencies				**190**
6.	OU-CER-FCP-01-L2-V1	Check Pipe and Valve	3	40
7.	OU-CER- FCP -02-L2-V1	Perform the Adjustment of Gas and Air in Kiln	3	50
8.	OU-CER- FCP-03-L2-V1	Perform the Maintenance of Burners	3	100
Total Nominal Hours				**275**

Units & Elements at a Glance:

Generic Units of Competencies (45 hours)

Code	Unit of Competency	Elements of Competency	Duration (Hours)
GU-02-L1-V1	Apply Occupational Safety and Health (OHS) Procedure in the Workplace	1. Identify OSH policies and procedures 2. Follow OSH procedure 3. Report hazards and risks 4. Respond to emergencies 5. Maintain personal well-being	15
GU-04-L1-V1	Work in the Team Environment	1. Define team role and scope 2. Identify individual role and responsibility 3. Participate in team discussions 4. Work as a team member	20
GU-06-L1-V1	Practice House Keeping Procedure	1. Sort and remove unnecessary items 2. Arrange items 3. Maintain work area, tools and equipment 4. Follow standardized work process and procedure 5. Perform work spontaneously	10

Sector Specific Units of Competencies (40 Hours)

Code	Unit of Competency	Elements of Competency	Duration (Hours)
SU-CER-01-L1-V1	Interpret Fundamentals to work in the Ceramic Sector	1. Interpret job roles and responsibilities 2. Identify and observe OSH in the manufacturing industries 3. Plan work activities 4. Work with others	20
SU-CER-02-L1-V1	Use Measuring and Checking Tools and Instruments	1. Prepare for work 2. Select the job to be measured and checked 3. Select measuring and checking tools and instruments 4. Take and check measurements 5. Measurements are recorded and communicated 6. Clean and store measuring and checking instruments	20

Occupation Specific Units of Competencies (190 Hours)

Code	Unit of Competency	Elements of Competency	Hours
OU-CER-FCP-01-L3-V1	Check Pipe and Valve	1. Prepare for work 2. Check air and gas pipe & valve 3. Clean and maintain work area, tools and equipment	40
OU-CER-FCP-02-L3-V1	Perform the Adjustment of Gas and Air in Kiln	1. Follow OSH practices 2. Identify and control leakage of gas and air 3. Adjust ratio of gas and air for combustion 4. Clean and maintain work area, tools and equipment	50
OU-CER-FCP-03-L3-V1	Perform the maintenance of burner	1. Follow OSH practices 2. Identify ignition problems in burner 3. Maintain burner accessories 4. Check and report unmanageable defect 5. Clean and maintain work area, tools and equipment	100

Generic Unit of Competenceis

Unit Code and Title	**GU-02-L1-V1: Apply Occupational Safety and Health (OSH) Procedure in the Workplace**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to apply occupational safety and health (OSH) procedure in the workplace. It specifically includes identifying OSH policies and procedures, following OSH procedure, reporting hazards and risks, responding to emergencies, and maintaining personal well-being.
Nominal Hours	**15 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Identify OSH policies and procedures	1.1. **OHS policies** and **safe operating procedures** are accessed and stated 1.2. **Safety signs and symbols** are identified and followed 1.3. Emergency response, evacuation procedures and other contingency measures are determined according to workplace requirements.
2. Follow OSH procedure	2.1 **Personal protective equipment (PPE)** is selected and collected as required 2.2 Personal protective equipment (PPE) is correctly used in accordance with organization OSH procedures and practices 2.3 A clear and tidy workplace is maintained as per workplace standard 2.4 PPE is maintained to keep them operational and compliant with OHS regulations.
3. Report hazards and risks.	3.1 **Hazards** and risks are identified, assessed and controlled 3.2 Incidents arising from hazards and risks are reported to designated authority.
4. Respond to emergencies	4.1 Alarms and warning devices are responded 4.2 Workplace **emergency procedures** are followed 4.3 **Contingency measures** during workplace accidents, fire and other emergencies are recognized and followed in accordance with organization procedures 4.4 Frist aid procedures is applied during emergency situations.
5. Maintain personal well-being	5.1 OHS policies and procedures are adhered to 5.2 OHS awareness programs are participated in as per workplace guidelines and procedures 5.3 Corrective actions are implemented to correct unsafe condition in the workplace 5.4 **"Fit to work" records** are updated and maintained according to workplace requirements.
Range of Variables	

Variables	**Range** (may include but not limited to):
1. OHS policies	1.1. Bangladesh standards for OHS 1.2. Fire Safety Rules and Regulations 1.3. Code of Practice 1.4. Industry Guidelines
2. Safe operating procedures	2.1 Orientation on emergency exits, fire extinguishers, fire escape, etc. 2.2 Emergency procedures 2.3 First Aid procedures 2.4 Tagging procedures 2.5 Use of PPE 2.6 Safety procedures for hazardous substances
3. Safety signs and symbols	3.1 Direction signs (exit, emergency exit, etc.) 3.2 First aid signs 3.3 Danger Tags 3.4 Hazard signs 3.5 Safety tags 3.6 Warning signs
4. Personal Protective Equipment (PPE)	4.1 Gas Mask 4.2 Gloves 4.3 Safety boots 4.4 Face mask 4.5 Overalls 4.6 Goggles and safety glasses 4.7 Sun block 4.8 Chemical/Gas detectors
5. Hazards	5.1 Chemical hazards 5.2 Biological hazards 5.3 Physical Hazards 5.4 Mechanical and Electrical Hazard 5.5 Mental hazard 5.6 Ergonomic hazard
6. Emergency Procedures	6.1 Fire fighting 6.2 Earthquake 6.3 Medical and first aid 6.4 Evacuation
7. Contingency measures	7.1 Evacuation 7.2 Isolation 7.3 Decontamination
8. “Fit to Work” records	8.1 Medical Certificate every year 8.2 Accident reports, if any 8.3 Eye vision certificate

Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency	
1. Critical aspects of competency	Assessment required evidence that the candidate: 1.1 stated OHS policies and safe operating procedures 1.2 followed safety signs and symbols 1.3 used personal protective equipment (PPE) 1.4 maintained workplace clear and tidy 1.5 assessed and Controlled hazards 1.6 followed emergency procedures 1.7 responded to emergencies 1.8 maintained personal well-being
2. Underpinning knowledge	2.1 Define OHS 2.2 OHS Workplace Policies and Procedures 2.3 Work Safety Procedures 2.4 Emergency Procedures 2.5 Hazard control procedure 2.6 Different types of Hazards 2.7 PPE and there uses 2.8 Personal Hygiene Practices 2.9 OHS Awareness
3. Underpinning skills	3.1 Accessing OHS policies 3.2 Handling of PPE 3.3 Handling cleaning tools and equipment 3.4 Writing report 3.5 Responding to emergency procedures
4. Required attitude	4.1 Commitment to occupational health and safety 4.2 Sincere and honest to duties 4.3 Promptness in carrying out activities 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect of peers and seniors in workplace 4.8 Communicate with peers and seniors in workplace
5. Resource implications	5.1 Workplace 5.2 Equipment and outfits appropriate in applying safety measures 5.3 Tools, materials and documentation required 5.4 OHS Policies and Procedures.
6. Methods of assessment	Assessment methods may include but not limited to: 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning

	6.4 Portfolio
7. Context of Assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated workplace after completion of the training module. 7.2 Assessment should be done by an NSDA certified/ nominated assessor.
Accreditation Requirements Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.	

Unit Code and Title	GU-04-L1-V1: Work in the Team Environment
Unit Descriptor	This unit covers the knowledge, skills and attitudes (KSA) required in working in a team environment. It includes defining team role and scope, identifying individual role and responsibility. Participating in team discussions and working as a team member.
Nominal Hours	**20 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Define team role and scope	1.1. Role and objectives of the team are defined 1.2. Team structure, responsibilities and reporting relations are identified from team discussions and other external sources.
2. Identify individual role and responsibility	2.1 Individual roles and responsibilities of **team members** are identified 2.2 Reporting relationships among team members are defined and clarified 2.3 Reporting relationships external to the team are defined and clarified.
3. Participate in team discussions	3.1 Ideas related to team plans are contributed 3.2 Recommendations for improving team work are put forward.
4. Work as a team member	4.1. Effective forms of communication are used to interact with team members 4.2. Communication channels are followed 4.3. OHS practices are followed.
Range of Variables	
Variables	**Range** (may include but not limited to):
1. Sources of information	1.1 Standard Operating Procedures 1.2 Job Description 1.3 Operations Manual 1.4 Organizational Structure
2. Team Members	2.1 Coach/mentor 2.2 Supervisor/Manager 2.3 Peers/Colleagues 2.4 Employee representative
3. Workplace context	3.1 National Laws and Statutes 3.2 Standard Operating Procedures 3.3 Workplace Rules and Regulations
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency	
1. Critical aspects of competency	Assessment required evidence that the candidate: 1.1 demonstrated knowledge in working in a team environment.

	1.2 satisfied the requirements mentioned in the Performance Criteria and Range of Variables.
2. Underpinning knowledge	2.1 Team Structure, Role and Responsibility 2.2 Individual Members' Roles and Responsibilities 2.3 Communication Flow and Reporting Structures 2.4 Team Planning 2.5 Interpersonal Communication Skills 2.6 Team Meeting Procedures 2.7 OHS Practices.
3. Underpinning skills	3.1 Identifying the role and responsibility of the team 3.2 Identifying roles and responsibilities of individual members 3.3 Participating in team discussions 3.4 Working as a team member.
4. Underpinning Attitudes	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.5 Respect for rights of peers and seniors in workplace 4.6 Communication with peers and seniors in Workplace.
5. Resource implications	5.1 Pens 5.2 Telephone 5.3 Computer 5.4 Writing materials 5.5 Online communication
6. Methods of assessment	Assessment methods may include but not limited to: 6.1. Demonstration 6.2. Oral questioning 6.3. Written test 6.4. Portfolio
7. Context of assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated workplace after completion of the training module. 7.2 Assessment should be done by a NSDA certified/nominated assessor.
Accreditation Requirements Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.	

Unit Code and Title	GU-06-L1-V1: Practice House Keeping Procedure
Unit Descriptor	This unit covers the knowledge, skills and attitude required to Practice housekeeping procedure. It specifically includes sorting and removing unnecessary items, arranging items, maintaining work area, tools and equipment, following standardized work process and procedure and performing work spontaneously.
Nominal Hours	**10 Hours**
Elements of Competency	**Performance Criteria** **Bold underlined** terms are elaborated in the Range of Variables
1. Sort and remove unnecessary items	1.1 Reusable, recyclable materials are sorted in accordance with company/office procedures 1.2 **Unnecessary items** are removed and disposed of in accordance with company or office procedures.
2. Arrange items	2.1 Items are arranged in accordance with company/office housekeeping procedures 2.2 Work area is arranged according to job requirements 2.3 Activities are prioritized based on instructions. 2.4 Items are provided with clear and visible **identification marks** based on procedure 2.5 Safety equipment and evacuation passages are kept clear and accessible based on instructions.
3. Maintain work area, tools and equipment	3.1 Cleanliness and orderliness of work area is maintained in accordance with company/office procedures 3.2 Tools and equipment are cleaned in accordance with manufacturer's instructions/manual 3.3 **Minor repairs** are performed on tools and equipment in accordance with manufacturer's instruction/manual 3.4 Defective tools and equipment are reported to immediate supervisor.
4. Follow standardized work process and procedure	4.1 Materials for common use are maintained in designated area based on procedures 4.2 Work is performed according to standard work procedures. Abnormal incidents are reported to immediate supervisor.
5. Perform work spontaneously	5.1 Work is performed as per instruction 5.2 Company and office **decorum** are followed and complied with 5.3 Work is performed in accordance with OSH requirements.
Range of Variables	

Variable	**Range** (may include but not limited to):
1. Unnecessary items	1.1 Non-recyclable materials 1.2 Pictures, posters and other materials not related to work activity 1.3 Unserviceable tools and equipment 1.4 Waste materials
2. Identification marks	2.1 Color coding 2.2 Labels 2.3 Tags
3. Minor repairs	3.1 Application of lubricants 3.2 Replacement of parts 3.3 Sharpening of tools 3.4 Tightening of nuts, bolts and screws
4. Decorum	4.1 Behavior 4.2 Company/office rules and regulations 4.3 Company/office uniform
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 sorted and removes unnecessary items 1.2 arranged items 1.3 maintained work area, tools and equipment 1.4 followed standardized work process and procedures 1.5 performed work spontaneously.
2. Underpinning knowledge	2.1 Environmental requirements relative to work safety 2.2 Principles of 5S 2.3 Reading skills required to interpret instructions 2.4 Work process and procedures 2.5 Work-related documentation requirements.
3. Underpinning skills	3.1 Arranging items 3.2 Maintaining work area, tools and equipment 3.3 Following standardizing work process.
4. Underpinning attitude	1.1 Commitment to occupational health and safety 1.2 Promptness in carrying out activities 1.3 Sincere and honest to duties 1.4 Environmental concerns 1.5 Eagerness to learn 1.6 Tidiness and timeliness 1.7 Respect for rights of peers and seniors in workplace 1.8 Communication with peers and seniors in workplace.

2. Resource implications	The following resources must be provided: 5.1 work place procedure 5.2 materials relevant to the proposed activity 5.3 all tools, equipment, material and documentation required. 5.4 relevant specifications or work instructions.
6. Methods of assessment	Methods of assessment may include but not limited to: 3.1 written test 3.2 demonstration 3.3 oral questioning 3.4 portfolio
4. Context of assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated work place after Completion of the training module 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Sector Specific Unit of Competencies

Unit Code and Title	**SU-CER-01-L1-V1: Interpret Fundamentals to Work in the Ceramic Sector**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to interpret fundamentals to work in the ceramic sector It specifically includes the tasks of interpreting job roles and responsibilities, identifying and observing OSH in the manufacturing industries, planning work activities and working with others.
Nominal Hours	**20 Hours**
Elements of Competency	**Performance Criteria** **Bold and Underlined** terms are elaborated in the Range of Variables
1. Interpret job roles and responsibilities	1.1 Job roles and responsibilities in the manufacturing industry are interpreted; 1.2 Relationship within the manufacturing industry employees is identified.
2. Identify and observe OSH in the manufacturing industries	2.1. OSH in the manufacturing industries is identified and observed; 2.2. Safe work practices are followed when using equipment in the work environment.
3. Plan work activities	3.1 Common goals, objectives and tasks are interpreted and clarified with appropriate persons; 3.2 Individual tasks are determined and agreed on according to workplace environment.
4. Work with others	4.1 **Effective interpersonal skills** are applied to interact with others and to contribute to activities and objectives; 4.2 Assigned tasks are performed in accordance with job requirements, specifications and workplace environment; 4.3 **Work requirements** are confirmed with colleagues.
Range of Variables	
Variable	**Range** (may include but not limited to):
1. Effective interpersonal skills	1.1 Basic listening and speaking skills, use terminology and jargon 1.2 Communication and receiving feedback 1.3 Interpretation of instructions 1.4 Basic principles of effective communication
2. Work requirements	2.1 Work requirements as directed in verbal or written in specifications or procedures
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent and meet the requirements of the current version of the Unit of Competency	
1. Critical Aspects of Competency	1. 1 Followed job role accordance with industries requirement. 1. 2 Developed relationship with industries fellow 1. 3 Identified different types of Hazards 1. 4 Used PPE 1. 5 Applied effective interpersonal skills to achieve the goals of industry.

2. Underpinning Knowledge	2.1 Key duties/responsibilities of Manufacturing technician 2.2 Responsibilities of Supervisors 2.3 Responsibilities of Employers 2.4 Responsibilities of Workers 2.5 Common Hazards 2.6 Ways to reduce the risk 2.7 Common goals of the manufacturing Industry.
3. Underpinning Skills	3.1 Improving Employee Employer Relationships 3.2 Creating a Positive Relationship with Employees 3.3 Observing OHS in manufacturing industry 3.4 Identifying OHS policies and procedures 3.5 Following personal work safety practices 3.6 Reporting hazards and risks 3.7 Responding to emergency procedures 3.8 Maintaining physical well-being in the workplace.
4. Required Attitudes	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers and seniors in workplace
5. Resource Implications	The following resources must be provided: 5.1 Workplace 5.2 Tools and equipment appropriate to workplace 5.3 Materials relevant to the proposed activity 5.4 Equipment and outfits appropriate in applying safety measures 5.5 OHS Policies and Procedures.
6. Methods of Assessment	Methods of assessment may include but not limited to: 6.1 Written Test 6.2 Demonstration 6.3 Oral Questioning 6.4 Portfolio
7. Context of Assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated workplace after completion of the training module. 7.2 Assessment should be done by an NSDA certified/ nominated assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of

qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Unit Code and Title	**SU-CER-02-L1-V1: Use Measuring and Checking Tools and Instruments**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to use measuring and checking tools and instruments. It includes the tasks of preparing for work, selecting the job, selecting measuring and checking tools and instruments, taking and checking measurements, recording measurements, cleaning and storing measuring and checking instruments.
Nominal Hours	**20 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the range of variables
1. Prepare for work	1.1 Safe work practices are observed and **Personal Protective Equipment (PPE)** worn as required for the work performed 1.2 **Hazards** are identified and risks are minimized and controlled. 1.3 **Measuring and checking tools and instruments** are selected and collected for use.
2. Select the job to be measured and checked	2.1 Jobs to be measured are identified 2.2 Jobs to be checked are identified 2.3 **Documents** and specifications are interpreted.
3. Select measuring and checking tools and instruments	3.1 Measuring and checking instrument are selected according to job requirements 3.2 Tolerance and/or clearance, limits are interpreted from the drawing.
4. Take and check measurements	4.1 Measuring and checking instruments are calibrated to ensure accurate reading/measurement 4.2 **Routine adjustments** are done as required 4.3 **Measurements** are taken as per supplied drawing or manual 4.4 Measurements are checked against job requirement.
5. Measurements are recorded and communicated	5.1 Measurements are recorded on form/drawings/sketches as per company procedures 5.2 Recorded measurements are interpreted and communicated to supervisor.
6. Clean and store measuring and checking instruments	6.1 Measuring and checking instruments are cleaned 6.2 Measuring instruments are stored as per industry procedure.
Range of Variables	
Variable	**Range** (May include but not limited to)
1. Personal Protective Equipment (PPE)	1.1 Safety shoes 1.2 Safety belt 1.3 Goggles 1.4 Hand gloves 1.5 Safety helmet 1.6 Overall apron 1.7 Safety Mask

	1.8 Ear plug
2. Hazards	2.1 Physical hazard 2.2 Chemical hazard 2.3 Electrical and mechanical hazard 2.4 Biological hazard 2.5 Ergonomic hazard 2.6 Mental hazard
3. Measuring and checking tools and instruments	3.1 **Measuring tools** ▪ Measuring tape ▪ Slide/Vernier Calipers ▪ Steel Rules ▪ Micrometer ▪ Thermocouple 3.2 **Checking tools** ▪ inside calipers ▪ outside calipers ▪ Filler gauge ▪ Optical Pyrometer 3.3 **Measuring instruments** ▪ Pressure gauge ▪ Sprit level ▪ Weighing scale ▪ Buller ring
4. Documents	4.1 Drawings 4.2 Sketches 4.3 Technical manuals 4.4 Specifications 4.5 Written instructions
5. Routine adjustment	5.1 Calibration 5.2 Simple zeroing 5.3 Scale adjustment 5.4 Reference adjustment
6. Measurements	6.1 Measuring length 6.2 Clearances 6.3 Time 6.4 Temperature 6.5 Glossing
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent and recent andmeet the requirements of the current version of the Unit of Competency.	
1. Critical aspects of competency	1.1 followed osh practices 1.2 identified the proper graduated measuring instrument 1.3 took measurement 1.4 recorded measurement 1.5 interpreted written inspection.

2. Underpinning knowledge	2.1 Relevant OSH. 2.2 Principles of using different measuring instruments. 2.3 Workplace standard. 2.4 List and use of measuring and checking tools and instruments 2.5 Sequence of using the instruments. 2.6 Maintaining rules of instruments. 2.7 Methods of using instruments 2.8 Calibration of instrument.
3. Underpinning skill	3.1 Practicing workplace safety 3.2 Using PPE 3.3 Using instruments 3.4 interpreting and following data sheet, instruction and manuals, technical drawing 3.5 Performing measurement 3.6 Keeping record and report 3.7 Calibrating of instrument.
4. Underpinning attitudes	4.1 Commitment to occupational health and safety 4.2 Environmental concerns 4.3 Eagerness to learn 4.4 Tidiness and timeliness 4.5 Respect for rights of peers and seniors in workplace.
5. Resource implications	5.1 Adequate workplaces 5.2 Materials for proposed activities 5.3 Measuring and checking tools and instruments appropriate to propose activities 5.4 Information and documentation 5.5 Manual, Codes, Standards and reference materials.
6. Methods of assessment	Assessment methods may include but not limited to: 6.1 Demonstration 6.2 Oral questioning 6.3 Written test 6.4 Portfolio
7. Context of assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated work place after Completion of the training module 7.2 Assessment should be done by NSDA certified assessor.
Accreditation Requirements Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.	

Occupation Specific Unit of Competencies

Unit Code and Title	OU-CER-FCP-01-L3-V1: Check Pipe and Valve
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to check pipe and valve. It includes preparing for work, checking air and gas pipe & valve and cleaning and maintaining work area, tools and equipment.
Nominal Hours	**40 Hours**
Elements of Competency	**Performance Criteria** **Bold & Italicized** terms are elaborated in the Range of Variables
1. Prepare for work	1.1 Health and hygiene environment is observed 1.2 **Personal Protective Equipment (PPE)** is selected and worn as per job requirements 1.3 Personal hygiene is maintained consider ing organizational and job requirement 1.4 Occupational Safety and Health (OSH) is observed and followed 1.5 Work schedule for checking pipe and valve is collected 1.6 **Tools and materials** are selected and collected 1.7 Tools and equipment need to be used are cleaned.
2. Check air and gas pipe & valve	2.1 Air and gas valve related leakage are checked 2.2 **Valve** position is checked 2.3 Gas and air filters are checked and cleaned to clear the jam 2.4 Displaced positions of valve are placed in appropriate alignment 2.5 Leakage of air and gas pipe/valve are identified 2.6 Solenoid valve is checked as per Standard Operating Procedure (SOP) 2.7 Leakage and other identified defects are reported to the appriate authority.
3. Clean and maintain work area, tools and equipment	3.1 Identified defects are reported to the authority 3.2 Tools are cleaned, maintained and stored as per workplace procedures 3.3 Work area is cleared and waste materials are removed in accordance with workplace and environmental standard.
Range of Variables	
Variable	**Range** (may include but not limited to:)

1. Personal Protective Equipment (PPE)	1.1 Musk 1.2 Hair nets 1.3 Gloves 1.4 Apron 1.5 Safety shoes
2. Tools and material	2.1 Screwdriver 2.2 Pliers 2.3 Wrench 2.4 Thread tape 2.5 Gasket 2.6 Asbestos rope 2.7 Insulation fibre ▪ Fibre blanket ▪ Fibre rope ▪ Cera fibre
3. Valve	3.1 Ball gate valve 3.2 Butterfly valve 3.3 Sliding valve
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidences that the candidate: 1.1 interpreted pipe and valve related leakage; 1.2 identified pipe leakage; 1.3 placed displaced position valve in right alignment; and 1.4 checked solenoid valve.
2. Underpinning knowledge	2.1 Air and gas pipe related leakage 2.2 Air and gas valve related leakage 2.3 Type of valve 2.4 Solenoid valve checking procedure 2.5 Color code of pipe 2.6 Air and gas Leakage rectifying process.
3. Underpinning skills	3.1 Checking valve position 3.2 Applying techniques for placing displaced position valves 3.3 Identifying air and gas leakage on pipe and valve 3.4 Checking solenoid valve 3.5 Identifying water leakage 3.6 Applying techniques to rectify leakage.

4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 7 Respect for rights of peers and seniors at workplace 4.8 Communication with peers and seniors at workplace.
5. Resource implication	The following resources must be provided 5.1 Workplace (actual or simulated) 5.2 Tools and equipment appropriate to workplace 5.3 Materials relevant to the proposed activity 5.4 Equipment and outfits appropriate in applying safety measures 5.5 OHS policies and procedures.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated work place after Completion of the training module 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

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Unit Code and Title	**OU-CER-FCP-02-L3-V1: Perform the Adjustment of Gas and Air in Kiln**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform the adjustment of gas and air in kiln. It includes following OSH practices, identifying and controlling leakage of gas and air, adjusting ratio of gas and air for combustion and cleaning and maintaining work area, tools and equipment.
Nominal Hours	**50 Hours**
Elements of Competency	**Performance Criteria** **Bold & Italicized** terms are elaborated in the Range of Variables
1. Follow OSH practices	1.1 Health and hygiene environment is observed 1.2 **Personal Protective Equipment (PPE)** is selected and worn as per job requirements 1.3 Personal hygiene is maintained considering organizational and job requirement 1.4 Occupational Safety and Health (OSH) practices is observed 1.5 Tools need to be used are cleaned.
2. Identify and control leakage of gas and air	2.1 Gas/air leakage are identified 2.2 Leakage of gas are detected during kiln firing according to industry standard 2.3 Leakage of gas are stopped during kiln firing 2.4 Leakage of air are detected during kiln firing 2.5 Leakage of air are stopped during kiln firing.
3. Adjust ratio of gas and air for combustion	3.1 **Instruments for controlling air and gas** ratio are selected and used 3.2 Complete and incomplete combustion in kiln and **kiln atmosphere** are detected 3.3 **Reasons of complete and incomplete combustions** are identified 3.4 Standby blower is operated as per requirement of combustion 3.5 Desired combustion ratio in kiln are adjusted and controlled.

4. Clean and maintain work area, tools and equipment	4.1 Tools and equipment are cleaned, maintained and stored as per workplace procedures 4.2 Faulty and defective equipment is tagged and reported in accordance with workplace procedures 4.3 Work area is cleared and waste removed following workplace procedures 4.4 Waste materials are removed in accordance with workplace standards.
Range of Variables	
Variable	**Range** (may include but not limited to:)
1. Personal Protective Equipment (PPE)	1.1 Musk 1.2 Gloves 1.3 Apron 1.4 Safety shoe
2. Instruments for controlling air and gas	2.1 Pressure gauge 2.2 Mano meter 2.3 Optical pyrometer 2.4 Thermocouple
3. Reasons of complete and incomplete combustions	3.1 Insufficient air supply from blower 3.2 Lose Belt tension 3.3 Burn motor 3.4 Mal functioning of motor pully and bearing 3.5 Displace blower from motor 3.6 Voltage fluctuation to trip motor
4. Kiln atmosphere	4.1 Preheating 4.2 Oxidation firing 4.3 Cooling
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidences that the candidate: 1.1 identified gas *I* air leakage 1.2 stopped leakage of air *I* gas during kiln firing 1.3 detected complete and incomplete combustion in kiln and kiln atmosphere 1.4 adjusted and controlled combustion ratio in kiln.

2. Underpinning knowledge	2.1 Types of valves 2.2 Procedure to control gas leakage 2.3 Procedure to control air leakage 2.4 Usages of air and gas controlling instrument 2.5 Air and fuel ratio for combustion 2.6 Flow of air and gas in kiln 2.7 Reasons of complete and incomplete combustions 2.8 Use of standby blower 2.9 Kiln atmosphere 2.10 Oxydation, reduction and neutral firing 2.11 Instruments for controlling air and gas ratio.
3. Underpinning skills	3.1 Controlling flow rate of gas in kiln 3.2 Controlling flow rate of air in kiln 3.3 Maintaining desire combustion ratio in kiln.
4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace 4.8 Communication with peers and seniors at workplace.
5. Resource implication	The following resources must be provided: 5.1 Workplace (actual or simulated) 5.2 Tools and equipment appropriate to workplace 5.3 Materials relevant to the proposed activity 5.4 Equipment and outfits appropriate in applying safety measures 5.5 OHS policies and procedures.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test; 6.2 demonstration; 6.3 oral questioning; and 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated work place after Completion of the training module 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

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Unit Code and Title	**OU-CER-FCP-02-L3-V1: Perform the Maintenance of Burners**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform the maintenance of burners. It includes following OSH practices, identifying ignition problems in burner, maintaining burner accessories, checking and reporting unmanageable defect and cleaning and maintain work area, tools and equipment.
Nominal Hours	**100 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Prepare for works	1.1 Health and hygiene environment is observed 1.2 **Personal Protective Equipment (PPE)** is selected and worn as per job requirements 1.3 Personal hygiene is maintained considering organizational and job requirement 1.4 **Tools** need to be used are cleaned.
2. Identify ignition problems in burner	2.1 **Burners** are identified 2.2 **Defects** in burner are detected 2.3 **Firing mode** is checked 2.4 **Flame size and color** is recognized during firing 2.5 **Reasons of burner failure** is detected.
3. Maintain burner accessories	3.1 **Burner accessories** are separated from kiln 3.2 Burner accessories is cleaned as per job requirement 3.3 In case of permanent damage / blockage in burner accessories is replaced 3.4 Electric power is supplied to check required voltage and safety for spark plug sparking 3.5 Gas filter is cleaned according to manufacturer's procedure.
4. Check and report unmanageable defect	4.1 Burner control switch board problems are identified 4.2 Function of igniter and flame detecting electrode is checked 4.3 Unmanageable defects are reported to designated authority.

5. Clean and maintain work area, tools and equipment	5.1 Tools are cleaned, maintained and stored as per workplace procedures 5.2 Faulty and defective equipment is tagged and reported in accordance with workplace procedures 5.3 Work area is cleared and waste materials are removed in accordance with workplace standards.
Range of Variables	
Variable	**Range** (may include but not limited to:)
1. Personal Protective Equipment (PPE)	1.1 Musk 1.2 Asbestos gloves 1.3 Apron 1.4 Safety shoes 1.5 Helmet 1.6 Safety goggles 1.7 Air plug
2. Tools	1.1 Open ended wrenches 1.2 Socket wrenches 1.3 Assorted screwdriver 1.4 Allen key set 1.5 Wire brush 1.6 Pliers
3. Burner	3.1 Ray tube burner 3.2 Normal tube burner
4. Defects	4.1 Ignition problem 4.2 Jam in nozzle 4.3 Leakage of burner tube
5. Firing Mode	5.1 Oxydization 5.2 Reduction 5.3 Neutral
6. Flame size/length and color	6.1 Long flame 6.2 Short flame 6.3 Yellow colour 6.4 Bluish colour
7. Reasons of burner failure	7.1 Improper air and gas pressure 7.2 Fault of ignition plug
8. Burner accessories	8.1 View finder 8.2 Nozzle 8.3 Spark plug 8.4 Burner tube

Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidences that the candidate: 1.1 detected defects in burner 1.2 recognized flame size and color during firing 1.3 changed nozzle and tips of burner 1.4 cleaned burner and spark plug 1.5 cleaned gas filte.
2. Underpinning knowledge	2.1 Working procedure of burner 2.2 Burner accessories 2.3 Nozzle and tube of burne 2.4 Burner, spark plug and gas filter cleaning procedure. 2.5 Flame size and color during firing 2.6 Carbon removal procedure of burner 2.7 Burners defects.
3. Underpinning skills	3.1 Changing burner and nozzle 3.2 Cleaning the spark plug 3.3 Changing burner tub 3.4 Maintaining burner accessories.
4. Required attitudes	4.1 Commitment to occupational safety and health. 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace 4.8 Communication with peers and seniors at workplace.
5. Resource implication	The following resources must be provided: 5.1 Workplace (actual or simulated) 5.2 Tools and equipment appropriate to workplace 5.3 Materials relevant to the proposed activity 5.4 Equipment and outfits appropriate in applying safety measures 5.5 OHS policies and procedures.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 Written test 6.2 Demonstration 6.3 Oral questioning 6.4 Portfolio.
7. Context of assessment	7.1 Competency assessment must be done in a training center or in an actual or simulated work place after Completion of the training module 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

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References

1. Competency Standard on Packing-Tiles, Tableware and Sanitary, BTEB

Development of Competency Standard

The Competency Standards for National Skills Certificate Level-3 in Firing – Ceramic Products is developed by NSDA on 13 November, 2024.

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Validation of Competency Standard

The Competency Standards for National Skills Certificate Level-3 in Firing – Ceramic Products is Validated by NSDA on 17 November, 2024.

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