

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR**

**CERAMICS ARTISAN**

**LEVEL 3**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social economic development. Quality education and training will contribute to achievement of Kenya’s development blueprint and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution and this resulted to the formulation of the Policy Framework for Reforming Education and Training. A key feature of this policy is the radical change in the design and delivery of TVET training. This policy document requires that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programmers.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these occupational standards have been developed.

It is my conviction that these occupational standards will play a great role towards development of competent human resource for the Creative Arts and Culture Sector’s growth and development.

**PRINCIPAL SECRETARY**

**VOCATIONAL AND TECHNICAL TRAINING**

**MINISTRY OF EDUCATION**

# PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, “middle-income country providing a high-quality life to all its citizens by the year 2030”. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labor force.

TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) in conjunction with Creative Arts and Culture Sector Skills Advisory Committee (SSAC) have developed these occupational standards.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to the Council Members, Council Secretariat, Ceramics Technology SSAC, expert workers and all those who participated in the development of this occupational standards.

**CHAIRMAN**

**TVET CDACC**

# ACKNOWLEDGMENT

These Occupational Standards have been designed for competency-based training and has independent competencies of learning that allow the trainee flexibility in entry and exit. In developing the occupational standards, significant involvement and support was received from various organizations.

I recognize with appreciation the role of the Ceramics Sector Skills Advisory Committee (SSAC) in ensuring that competencies required by the industry are addressed in the standards. I also thank all stakeholders in the Ceramics Technology sector for their valuable input and all those who participated in the process of developing these occupational standards.

I am convinced that these occupational standards will go a long way in ensuring that workers in Ceramics Technology Sector acquire competencies that will enable them to perform their work more efficiently.

**CHAIRPERSON**

**CERAMICS SECTOR SKILLS ADVISORY COMMITTEE**

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# ABBREVIATIONS AND ACRONYMS

CAC Creative Arts and Culture

CER Ceramics

CDACC Curriculum Development Assessment and Certification Council

BC Basic Competency

CR Core Competency

CC Common Competency

OSHA Occupation Safety and Health Act

PPE Personal Protective Equipment

SSAC Sector Skills Advisory Committee

TVET Technical and Vocational Education and Training

|  |  |
| --- | --- |
|  |  |

# KEY TO UNIT CODE

**CAC/OS/CER/BC/01/3/A**

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Version control

# OVERVIEW

The Ceramics Technology Level 3 qualification consists of competencies that a person must achieve to operate ceramic kilns, operate ceramic tools and equipment, produce ceramic casts, Produce ceramic wares, apply ceramic glazes, perform ceramic finishing processes, produce ceramic jewellery and produce clay and clay bodies

This qualification consists of the following basic and core competencies:

**BASIC COMPITENCY**

|  |  |
| --- | --- |
| **Unit Code** | **Unit Title** |
| CAC/OS/CER/BC/01/3/A | Demonstrate Communication Skills |
| CAC/OS/CER/BC/02/3/A | Demonstrate Numeracy Skills |
| CAC/OS/CER/BC/03/3/A | Demonstrate Digital Literacy |
| CAC/OS/CER/BC/04/3/A | Demonstrate Entrepreneurial Skills |
| CAC/OS/CER/BC/05/3/A | Demonstrate Employability Skills |
| CAC/OS/CER/BC/06/3/A | Demonstrate Environmental Literacy |
| CAC/OS/CER/BC/07/3/A | Demonstrate Occupational Safety and Health Practices |

**CORE COMPETENCY**

|  |  |
| --- | --- |
| **Unit Code** | **Unit Title** |
| CAC/OS/CER/CR/01/3/A | Operate Ceramic Kilns |
| CAC/OS/CER/CR/02/3/A | Operate Ceramic Tools and Equipment |
| CAC/OS/CER/CR/03/3/A | Produce Ceramic Casts |
| CAC/OS/CER/CR/04/3/A | Produce Ceramic Wares |
| CAC/OS/CER/CR/05/3/A | Apply Ceramic Glazes |
| CAC/OS/CER/CR/06/3/A | Perform Ceramic Finishing Processes |
| CAC/OS/CER/CR/07/3/A | Produce Ceramic Jewelry |
| CAC/OS/CER/CR/08/3/A | Produce Clay and Clay Bodies |

# BASIC UNITS OF COMPETENCY

## **DEMONSTRATE COMMUNICATION SKILLS**

**UNIT CODE:** CAC/OS/CER/BC/01/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to demonstrate communication skills. It involves obtaining and conveying workplace information, speaking English at a basic operational level, participating in workplace meetings and discussions, and completing relevant work-related documents.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Obtain and convey workplace information | 1. Specific and relevant information is accessed from ***appropriate sources*** based on standard procedures 2. Effective questioning, active listening and speaking skills are used to gather and convey information based on communication needs 3. Appropriate ***medium*** is used to transfer information and ideas in accordance with workplace guidelines 4. Appropriate non- verbal communication is used as per the communication needs 5. Appropriate lines of communicationwith supervisors and colleagues are identified and followed based on workplace requirements 6. Location and storage of information is undertaken according to workplace procedures 7. Personal interaction is carried out clearly and concisely according to workplace requirements |
| 1. Speak English at a basic operational level | * 1. Participation in simple conversations with work colleagues is undertaken based on familiar topics   2. Simple verbal instructions and requests are responded to according to workplace guidelines   3. ***Routine procedures*** are provided in accordance with workplace policy   4. Likes, dislikes and preferences are expressed based on individual preference   5. Different forms of expression in English are identified in line with workplace requirements |
| 1. Participate in workplace meetings and discussions | * 1. Team meetings are attended on time according to schedules   2. Own opinions are clearly expressed and those of others are listened to in accordance with workplace guidelines   3. Meeting inputs are provided based on the meeting purpose and established ***protocols***   4. ***Workplace interactions*** are conducted as per organizations’ code of conduct   5. Work-related questions are asked and responded based on set protocols   6. Meetings outcomes are interpreted and implemented as per organizations’ objectives |
| 1. Complete relevant work-related documents | * 1. Range of forms relating to conditions of employment are completed according to workplace procedures   2. Workplace data is recorded based on workplace requirements   3. Errors in recording information are identified and acted upon in accordance with workplace policies   4. Reporting requirements are completed according to organizational guidelines |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Appropriate Sources may include but not limited to: | * Various department heads, * organization documents |
| 1. Medium may include but not limited to: | * Method of communication * Physical media * Mechanical media |
| 1. Routine procedures may include but not limited to: | * Day to day activities |
| 1. Protocols may include but not limited to: | * Procedures for doing a task |
| 1. Workplace interactions may include but not limited to: | * Official inter relations |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical
* Active Listening
* Communication
* writing
* Interpretation
* Basic Information Technology (IT)

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Minutes writing
* Report writing

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   1. Prepared written communication following standard format of the organization 2. Accessed information using communication equipment 3. Spoken English at a basic operational level 4. Made use of relevant terms as an aid to transfer information effectively 5. Conveyed information effectively adopting the formal or informal communication |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | * 1. Direct Observation   2. Interview   3. Written test |
| 1. Context of Assessment | Competency may be assessed   1. On the job 2. Off the job 3. During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## **DEMONSTRATE NUMERACY SKILLS**

**UNIT CODE:** CAC/OS/CER/BC/02/3/A

**UNIT DESCRIPTION:**

This unit covers the competencies required to demonstrate numeracy skills. It involves using whole numbers and money up to one hundred thousand for work, Locating, comparing and using highly familiar measurement for work, using highly familiar maps and diagrams for work, identifying and using some common 2D shapes for work and locating specific information in highly familiar tables, graphs and charts for work

**ELEMENTS AND PERFORMANCE CRITERIA**

| **Element** | **Performance Criteria** |
| --- | --- |
| Elements describe the essential outcomes. | Performance criteria describe the performance needed to demonstrate achievement of the element.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Use whole numbers for work | 1. Whole numbers and money amount up to 100,000 in highly familiar workplace documents and tasks are named and read according to workplace procedures. 2. Understanding of place value and the role of zero is demonstrate according to standard operating procedures. 3. Halves are recognised and understood in workplace as per Standard operating procedures. 4. Whole numbers and money amounting up to 100,000 are organised in size order and are compared as per workplace procedures. 5. Counting is done in numbers as per standard operating procedures. 6. Addition and subtraction of whole numbers and money up to 100,000 done in accordance with workplace requirement 7. Links between operations of addition and subtraction are clearly described as per job requirement. 8. Reasonableness of outcome with prompting and support is checked as per work requirement. 9. Numerical information is recorded, and the result of the task is communicated using informal language and symbolism as per workplace procedures. |
| 1. Locate, compare and use highly familiar measurement for work | 1. Measurements in highly familiar workplace documents and tasks are located as per standard operating procedures 2. Different units of measurements and their uses are identified in accordance with job specifications 3. The comparative relationship between the units of measurement identified as per standard operating procedures. 4. Understanding of conversion of amounts is demonstrated in accordance with requirements. 5. Informal language is used to compare measurements as per workplace procedures. 6. Digital time is well read and am and pm used in reference to time 7. Calendar used appropriately to record information in accordance with organizational events. 8. Basic measurement information is well read and recorded as per the manuals 9. Additions and subtraction of simple quantities done in workplace as per SOPs. |
| 1. Use highly familiar maps and diagrams for work | 1. Familiar items or places are in highly familiar maps and diagrams in accordance with SOPs 2. Simple symbols and pictorial representations are identified in accordance with familiar maps and diagrams 3. Simple oral directions are given to locate objects as per SOPs 4. Simple oral directions followed to locate objects as per job specifications 5. Understanding of informal directional language is demonstrated as per work procedures. |
| 1. Identify and use some common 2D shapes for work | 1. ***Common two-dimensional* shapes** are identified and named as per SOPs 2. Common objects are described in terms of size and shape as per SOPs 3. Common, every day, informal language is used to compare objects in accordance SOPs 4. Common objects are grouped based on shape, size, colour and features as per job requirements |
| 1. Locate specific Information in highly familiar tables, graphs and charts for work | 1. Features of simple tables identified as per work place procedures 2. Specific numerical information located in highly familiar tables using grid movement (up and down columns and across rows) and key as graph and chart manuals 3. Numerical information and data in highly familiar tables compared using appropriate informal language as per workplace procedures. 4. Information related to relevant workplace tasks as per workplace procedures 5. Features of simple graphs and charts identified as per SOPs 6. Specific numerical information located in highly familiar graphs and charts as per workplace procedures. 7. Numerical information and data compared using appropriate informal language as per SOPs. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Common two -dimensional shapes: may include but not limited to: | * + Round/circle   + Square   + Rectangular   + Triangle |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Measuring
* Logical thinking
* Computing
* Drawing of graphs
* Applying mathematical formulas
* Analytical

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Types of common shapes
* Differentiation between two dimensional shapes / objects
* Formulae for calculating area and volume
* Types and purpose of measuring instruments
* Units of measurement and abbreviations
* Fundamental operations (addition, subtraction, division, multiplication)
* Rounding techniques
* Types of fractions
* Different types of tables and graphs
* Meaning of graphs, such as increasing, decreasing, and constant value
* Preparation of basic data, tables & graphs

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |  |
| --- | --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Measured objects or materials as per job requirements   2. Used calculator to perform the four fundamental operations   3. Performed calculations involving money up to one hundred thousand   4. Performed conversions between hours, minutes and seconds   5. Calculated area and volume of regular shapes   6. Created tables and graphs to represent and interpret information | |
| 1. Resource Implications for competence assessment | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written Test   2. Interview   3. Oral Questioning   4. Demonstration |
| 1. Context of Assessment | Competency may be assessed  4.1 On the job  4.2 Off the job  4.3 During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## **DEMONSTRATE DIGITAL LITERACY**

**UNIT CODE:** CAC/OS/CER/BC/03/3/A

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate digital literacy in a working environment. It entails identifying computer software and hardware, applying security measures to data, hardware, software, applying computer software in solving tasks and applying internet and email in communication at workplace.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Identify computer software and hardware | * 1. ***Computer software*** are identified according to manufacturer’s specification   2. ***Appropriate computer hardware*** is identified according to manufacturer’s specification |
| 1. Apply security measures to data, hardware, software | * 1. ***Data security and privacy are classified*** in accordance with the technological situation   2. ***Security and control measures*** are applied in accordance with laws governing protection of ICT   3. Computer threats and crimes are detected in accordance with information management guidelines.   4. Protection against computer crimes is undertaken in accordance with laws governing protection of ICT |
| 1. Apply computer software in solving tasks | * 1. Basic ***word processing concepts*** are applied in resolving workplace tasks as per job requirement.   2. ***Word processing utilities*** are applied in accordance with workplace procedures   3. Data is manipulated on worksheet in accordance with office procedures |
| 1. Apply internet and email in communication at workplace | * 1. Electronic mail is applied in workplace communication in accordance with office procedures   2. Office internet functions are defined and executed in accordance with office procedures   3. ***Network configuration*** and uses are determined in accordance with office operations procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Computer software may include but not limited to: | * Operating system * MS office * Web browser   Media players |
| 1. Computer hardware may include but not limited to: | * Computer Case * Monitor * Keyboard * Mouse * Hard Disk Drive * Motherboard * Video Card |
| 1. Data security and privacy may include but not limited to: | * Confidentiality * Cloud computing * Confidentiality * Cyber terrorism * Integrity -but-curious data serving |
| 1. Security and control measures may include but not limited to: | * Countermeasures and risk reduction * Cyber threat issues * Risk management |
| 1. Word processing concepts may include but not limited to: | * Create * Edit * Print * Documents |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical skills
* Interpretation
* Typing
* Communication
* Computing skills
* Basic ICT skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Input and output devices
* Central processing Unit (CPU)
* Peripherals
* Storage Media
* Software concept
* Types of concept
* Function of computer software
* Data security and privacy
* Security threats and control measures
* Computer crimes
* Detection and protection of computer crimes
* Laws governing protection of ICT
* Word processing;
* Functions and concepts of word processing.
* Documents and tables creation and manipulations
* Mail merging
* Word processing utilities
* Spread sheet;
* Meaning, formulae, function and charts, uses, layout, data manipulation and application to cell
* Networking and Internet;
* Meaning, functions and uses of networking and internet.
* Electronic mail and world wide web
* Emerging trends and issues in ICT;
* Identify and apply emerging trends and issues in ICT
* Challenges posed by emerging trends and issues

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Identified input, output, CPU and storage media devices of computers in accordance to computer specification   2. Identified concepts, types and functions of computer software according to operation manual   3. Identified and controlled security threats   4. Detected and protected computer crimes   5. Applied word processing in office tasks   6. Prepared work sheet and applied data to the cells in accordance to workplace procedures   7. Used Electronic Mail for office communication as per workplace procedure   8. Applied internet and World Wide Web for office tasks in accordance with office procedures   9. Applied laws governing protection of ICT |
| 1. Resource Implications for competence assessment | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written Test   2. Observation   3. Practical assignment   4. Interview   5. Oral Questioning |
| 1. Context of Assessment | Competency may be assessed   1. On the job 2. Off the job 3. During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## **DEMONSTRATE ENTREPRENEURIAL SKILLS**

**UNIT CODE :** CAC/OS/CER/BC/04/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to demonstrate Entrepreneurial skills. It involves developing entrepreneurial culture, identifying entrepreneurial opportunities, starting, operating and growing a small business.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  Bold and italicized terms are elaborated in the Range |
| 1. Develop entrepreneurial culture | 1. ***Entrepreneurship terminologies*** are defined following established procedures. 2. Contribution of entrepreneurship towards national development is identified in accordance to national development goals 3. Self-employment benefit are identified and emphasized to help create a positive attitude 4. Cultural factors that promote or inhibit entrepreneurial development areidentified and emphasis made on entrepreneurial promotion 5. Ways of managing factors that inhibit development of entrepreneurial culture are identified in accordance withcultural background and national social economic situation |
| 1. Identify entrepreneurial opportunities | 2.1 Myths associated with entrepreneurship, types of entrepreneurs and characteristics of entrepreneurship are determined in accordance with the set procedures  2.2 Identification of ***sources of business ideas,*** generation of business ideas is undertaken in accordance with the existing procedure  2.3 Evaluation of business opportunities is undertaken according to prevailing office procedures  2.4 Competencies are matched with business opportunities in accordance with business practices. |
| 1. Start a small business | 3.1 Factors to consider when starting a small business are identified according to business sector.  3.2 ***Forms of business ownership*** are identified and procedure of starting a small business stipulated according to relevant legal requirements  3.3 Procedure of starting a small business is identified as per the legal requirements  3.3 Challenges faced when starting a small business are identified and mitigating factors provided for in accordance prevailing legal and regulatory requirement  3.4 Resource requirement for a small business are specified according to nature of business  3.5 Business life cycle is projected as per the nature of business and national social economic situation |
| 1. Operate a small business | 4.1 Relevant terms are defined in accordance with the set rules  4..3 Small business record is maintained in accordance with office procedures  4.4 Business support services are set up in accordance with the nature and size of business  4.**5** Marketing activities are effected according to the nature and size of business  4.6 Small enterprise business plan is prepared depending on the size and nature of business and the client specification  4.6 Small business resources are run for efficiency and profitability  4.6 Small business records are kept for decision making purposes  4.7 Word processing concepts are applied in the management of small business according to office procedures  4.8 Basic computer application software and emerging trends and concerns are applied in small business management in accordance with office procedures |
| 1. Grow a small business | 5.1 Methods of growing/expanding a small business are identified and implemented in accordance with growth schedule  5.2 Resources for growing small business are identified and implementing  5.3 Small business growth plans are prepared according to growth schedule  5.4 ICT and small business growth schedule is prepared in accordance with office procedures  5.5 Use of computers and technology is incorporated in small scale business growth schedule in accordance with technological trends  5.6 Social media is used for business growth and profitability  5.7 Emerging issues and trends are considered in accordance with business growth schedule and activities  5.8 Community interest is built in product/service according to growth plan  5.9 Business communication is enhanced according to business communication planand profitability  5.10Basic business growth strategies are identified and implemented for increased profitability  5.11 Word processing concepts are applied in growing of small business according to office procedures  5.12 Basic computer application software, programming and emerging trends and concerns are applied in small business growth in accordance with office procedures for growth and profitability |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Entrepreneurship terminologies include but not limited to: | * Intrapreneurship * Enterprise * Business vision. Mission, core values, objectives |
| 1. Sources of business ideas may include but not limited to: | |  | | --- | | * Brainstorming * Personal hobbies * Newspapers, magazines, * Friends and relatives * Accounting/Administrative work * Modern trends and concerns | |
| 1. Forms of business ownership may include but not limited to: | * Sole proprietorship * Partnership * Limited Company * Unlimited Company |

**REQUIRED SKILLS AND KNOWLEDGE**

**Required Skills**

This section describes the skills and knowledge required for this unit of competency.

The individual needs to demonstrate the following skills:

* Marketing skills
* Advertising
* Basic book-keeping
* accounting skills
* Communication skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Public relations concepts
* Basic product promotion strategies
* Basic market and feasibility studies
* Basic business ethics
* Building customer relations
* Business models and strategies
* Types and categories of businesses
* Business internal controls
* Relevant national and local legislation and regulations
* Basic quality control and assurance concepts
* Building relations with customer and employees
* Building competitive advantage of the enterprise

**EVIDENCE GUIDE**

This section describes the required skills which supports performance. These skills will need to be considered in the learning and assessment process.

|  |  |  |
| --- | --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   |  | | --- | | 1.1 Demonstrated basic entrepreneurial skills  1.2 Demonstrated ability to conceptualize and plan a micro/small enterprise  1.3 Demonstrated ability to manage/operate a micro/small-scale business  1.4 Demonstrated basic marketing skills | |
| 1. Resource Implications for assessment | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   |  |  | | --- | --- | | 3.1 Written tests  3.2 Oral Questioning  3.3 Observation  3.4 Third Party Report |  | |
| 1. Context of Assessment | |  | | --- | | Competency may be assessed  4.1 On the job  4.2 Off the job  4.3 During industrial attachment | |  | |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## **DEMONSTRATE EMPLOYABILITY SKILLS**

**UNIT CODE:** CAC/OS/CER/BC/05/3/A

**UNIT DESCRIPTON**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating critical safe work habits, demonstrating workplace learning and workplace ethics.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Conduct self-management | 1. Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 2. Emotional intelligence is demonstrated as per workplace requirements. 3. Individual performance is evaluated ~~and monitored~~ according to the agreed targets. 4. Assertiveness is developed and maintained based on the requirements of the job. 5. Accountability and responsibility for own actions are demonstrated based on workplace instructions. 6. Self-esteem and a positive self-image are developed and maintained based on values. 7. Time management, attendance and punctuality are observed as per the organization policy. 8. Goals are managed as per the organization’s objectives 9. Self-strengths and weaknesses are identified based on personal objectives |
| 1. Demonstrate critical safe work habits | 1. Stress is managed in accordance with workplace policy. 2. Punctuality and time consciousness is demonstrated in line with workplace policy. 3. Personal objectives are integrated with organization goals based on organization’s strategic plan. 4. ***Resources*** are utilized in accordance with workplace policy. 5. Work priorities are set in accordance to workplace goals and objectives. 6. Leisure time is recognized and utilized in line with personal objectives. 7. ***Drugs and substances of abuse*** are identified and avoided based on workplace policy. 8. HIV and AIDS prevention awareness is demonstrated in line with workplace policy. 9. Safety consciousness is demonstrated in the workplace based on organization safety policy. 10. ***Emerging issues*** are identified and dealt with in accordance with organization policy. |
| 1. Demonstrate workplace learning | * 1. Learning opportunities are sought and managed based on job requirement and organization policy.   2. Improvement in performance is demonstrated based on courses attended.   3. Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job   4. Time and effort is invested in learning new skills based on job requirements   5. Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy.   6. New systems are developed and maintained in accordance with the requirements of the job.   7. Awareness of personal role in workplace ***innovation*** is demonstrated based on requirements of the job. |
| 1. Demonstrate workplace ethics | 1. Policies and guidelines are observed as per the workplace requirements 2. Self-worth and professionalism is exercised in line with personal goals and organizational policies 3. Code of conduct is observed as per the workplace requirements 4. Integrity is demonstrated as per legal requirement |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Range** | **Variable** |
| 1. Drug and substance abuse may include but not limited to: | Commonly abused   * Alcohol * Tobacco * Miraa * Over-the-counter drugs * Cocaine * Bhang * Glue |
| 1. Feedback may include but not limited to: | * Verbal * Written * Informal * Formal |
| 1. Team may include but not limited to: | * Small work group * Staff in a section/department * Inter-agency group |
| 1. Innovation may include but not limited to: | * New ideas * Original ideas * Different ideas * Methods/procedures * Processes * New tools |
| 1. Emerging issues may include but not limited to: | * Terrorism * Social media * National cohesion * Open offices |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Critical thinking
* Observation
* Organizing
* Record keeping
* Problem solving
* Decision Making
* Resource utilization

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Work values and ethics
* Company policies
* Company operations, procedures and standards
* Occupational Health and safety procedures
* Fundamental rights at work
* Personal hygiene practices
* Workplace communication
* Concept of time
* Time management
* Decision making
* Types of resources
* Work planning
* Organizing work
* Record keeping
* Workplace problems and how to deal with them
* Assertiveness
* Team work
* HIV and AIDS
* Drug and substance abuse
* Safe work habits
* Professional growth and development
* Technology in the workplace
* Innovation
* Emerging issues
  + Social media
  + Terrorism
  + National cohesion

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   * 1. Conducted self-management   2. Demonstrated critical safe work habits   3. Demonstrated workplace learning   4. Demonstrated workplace ethics |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Oral questioning 2. Portfolio of evidence 3. Third Party Reports 4. Written tests |
| 1. Context of Assessment | Competency may be assessed   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## **DEMONSTRATE ENVIRONMENTAL LITERACY**

**UNIT CODE** CAC/OS/CER/BC/06/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to demonstrate environmental literacy. It involves controlling environmental hazard, controlling environmental pollution and demonstrating sustainable resource use.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Control environmental hazard | 1. Storage and handling methods for environmentally hazardous materials are strictly followed according to environmental regulations and OSHS. 2. Disposal methods of hazardous wastes are followed at all times according to environmental regulations and OSHS. 3. ***PPE*** is used according to OSHS. |
| 1. Control environmental Pollution | * 1. ***Environmental pollution******control measures*** are complied with following standard protocol.   2. Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999   3. Methods for minimizing noise pollution complied following environmental regulations. |
| 1. Demonstrate sustainable use of resource | * 1. Methods for minimizing wastage are complied with.   2. ***Waste management procedures*** are employed following principles of 3Rs (Reduce, Reuse, Recycle)   3. Methods for economizing or reducing ***resource*** consumption are practiced. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. PPE may include but not limited to: | * + Mask   + Gloves   + Goggles   + Safety hat   + Overall   + Hearing protector |
| 1. Environmental pollution control measures may include but not limited to: | * 1. Methods for minimizing or stopping spread and ingestion of airborne particles   2. Methods for minimizing or stopping spread and ingestion of gases and fumes   3. Methods for minimizing or stopping spread and ingestion of liquid wastes |
| 1. Waste management procedures may include but not limited to: | 1. Sorting 2. Storing of items 3. Recycling of items 4. Disposal of items |
| 1. Resources may include but not limited to: | * 1. Electric   2. Water   3. Fuel   4. Telecommunications   5. Supplies  1. Materials |
| 1. Workplace environmental hazards may include but not limited to: | 1. Biological hazards 2. Chemical and dust hazards 3. Physical hazards |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Observation
* Writing
* Analytical

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Storage methods of environmentally hazardous materials
* Disposal methods of hazardous wastes
* Usage of PPE Environmental regulations
* OSHS
* Types of pollution
* Environmental pollution control measures
* Different solid wastes
* Solid waste management
* Different noise pollution
* Methods of minimizing noise pollution
* Solid Waste Act
* Methods of minimizing wastage
* Waste management procedures
* Economizing of resource consumption
* Principle of 3Rs

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:  1.1 Controlled environmental hazard  1.2 Controlled environmental pollution  1.3 Demonstrated sustainable resource use |
| 1. Resource Implications for assessment | The following resources should be provided:   * 1. Workplace with storage facilities   2. Tools, materials and equipment relevant to the tasks (ex. Cleaning tools, cleaning materials, trash bags, etc.)   3. PPE   4. Manuals and references |
| 1. Methods of Assessment | Competency in this unit may be assessed through:  3.1 Observation  3.2 Oral questioning  3.3 Written examination |
| 1. Context of Assessment | Competency may be assessed   1. On the job 2. Off the job 3. During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## **DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES**

**UNIT CODE:** CAC/OS/CER/BC/07/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to practice and promote safety and health at work. This entails preparing to practice safety and health at work and complying and promoting compliance of workers to organization’s occupational safety and health instructions and requirements

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Prepare to practice safety and health at work | 1.1 Awareness of legislation that outlines the minimum standards for occupational safety and health requirements/ regulations are emphasized  1.2 Benefits of implementing an occupational safety and health program are identified  1.3 ***Safety requirements/ regulations*** of own work and of other workers are familiarized  1.4 Workplace standards and procedures ***for incidents and Emergencies*** are determined  1.5 ***Prevention and control measures***, including use of ***safety gears/PPE*** (Personal Protective Equipment) to avoid accident, injuries and sickness are identified |
| 1. Comply and promote compliance of workers to organization’s occupational safety and health instructions and requirements | 2.1 Safety instructions and safety signs are followed and disseminated to co-workers  2.2 Safe handling of tools, equipment and materials is learned and shared with co-workers  2.3 Execution of own work and of co-workers is monitored in  according to safe work procedures  2.4 Use of safe guards and safety devices is monitored  2.5 Hazards, incidents, injuries and sickness in the workplace are reported properly following standards and procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. ***Safety requirements / regulations*** may include but are not limited to: | * Building code * Permit to Operate * Occupational Safety and Health Standards |
| 1. ***Incidents and emergencies*** may include but are not limited to: | * Chemical spills * Equipment/vehicle accidents * Explosion * Fire * Gas leak * Injury to personnel * Structural collapse * Toxic and/or flammable vapors emission. |
| 1. ***Prevention and control measures*** may include but are not limited to: | * Eliminate the hazard * Isolate the hazard * Substitute the hazard with a safer alternative * Use administrative controls to reduce the risk * Use engineering controls to reduce the risk * Use personal protective equipment * Safety, Health and Work Environment Evaluation * Periodic and/or special medical examinations of workers |
| 1. ***Safety devices/ PPEs*** (personal protective equipment) May include but are not limited to: | * Arm/Hand guard, gloves * Eye protection (goggles, shield) * Hearing protection (ear muffs, ear plugs) * Hair Net/cap/bonnet * Hard hat * Face protection (mask, shield) * Apron/Gown/coverall/jump suit * Anti-static suits * High-visibility reflective vest |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Observation
* Reporting
* Organizing

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Elements of an effective occupational safety and health program
* Benefits of implementing an occupational safety and health program
* Safety requirements of own work and of other workers
* Standard emergency plan and procedures in the workplace
* Different OSH control measures
* General OSH principles
* Work standards and procedures
* Safe handling procedures of tools, equipment’s and materials
* Standard emergency plan and procedures in the workplace
* Different OSH control measures
* Standard accident and illness reporting procedures in the workplace
* Monitoring system on compliance to work safety and health

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Arranged work area and items in accordance with workplace procedures requirements 2. Followed work standards and procedures based on instructions 3. Applied ***Prevention and control measures*** based on instructions 4. Undertook orientations on ***OSH requirements and regulations*** in line with policy. 5. Provided feedback on occupational health and safety as per workplace instructions. 6. Adhered to workplace procedures for reporting hazards, incidents, injuries and sickness to as per workplace policy. 7. Identified and proposed ***OSH-related training needs*** as per workplace policy. |
| 1. Resource Implications for assessment | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Oral questioning 2. Portfolio of evidence 3. Third Party Reports 4. Written tests |
| 1. Context of Assessment | Competency may be assessed   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE UNITS OF COMPETENCY

## **OPERATE CERAMIC KILNS**

**UNIT CODE:** CAC/OS/CER/CR/01/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to operate ceramic kilns. It involves, preparing for kiln work, identifying firing options and operating and monitoring the kiln.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Prepare for kiln work | 1. Ways in which different kilns may be used for craft work assessed and applied to own practice as per the workplace procedures 2. Appropriate kiln for own work sourced and accessed as per the workplace procedures 3. Key requirements for kiln set-up reviewed as per the workplace procedures 4. Appropriate conditions before starting the firing process confirmed or implemented 5. Ways of using important gears and equipment 6. Potential ***safety issues*** identified and action to address them taken as per the workplace procedures |
| 1. Identify firing options | 1. The firing options for the work being made considered based on workplace procedures 2. Relevant energy source or fuel determined as per the workplace procedures 3. Relevant firing program requirements and optimum firing time established based on the workplace procedures |
| 1. Operate and monitor the kiln | 1. Firing temperatures are set up as per workplace procedures 2. Specific kiln loading and unloading requirements evaluated and performed according to safety standards 3. The necessary conditions to produce the required kiln atmosphere for the specific process determined based on workplace procedures 4. The kiln is fired according to required firing schedule 5. Kiln operation and firing process monitored according to required firing schedule 6. Technical problems in the firing process are identified and resolved as per 7. Appropriate shut-down procedures carried out as per |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. Safety issues May include but not limited to: | * Correct loading techniques * Kiln emissions * Safe use of equipment * Correct management of specific hazards associated with: * Use of personal protective equipment (PPE) to protect against dust and fibers. |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Communication skills
* Evaluation skills
* Problem solving
* Design skills
* Innovation skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Properties and capabilities of the range of firing materials, tools and equipment, including pyro metric instruments
* Properties and specification of different kiln types
* Specific firing processes, including required firing stages, changes to materials, temperature range and timing of each stage of the process
* Workplace health and safety requirements for the set-up, operation and maintenance of kilns.

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Ways in which different kilns may be used for craft work assessed and applied to own practice as per the workplace procedures 2. Appropriate conditions before starting the firing process confirmed or implemented 3. Potential safety issues identified and action to address them taken as per the workplace procedures 4. The firing options for the work being made considered based on workplace procedures 5. Relevant firing program requirements and optimum firing time established based on the workplace procedures 6. Specific kiln loading and unloading requirements evaluated and performed according to safety standards 7. The necessary conditions to produce the required kiln atmosphere for the specific process determined based on workplace procedures 8. Technical problems in the firing process are identified and resolved 9. Appropriate shut-down procedures carried out |
| 1. Resource Implications for competence certification | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector is recommended. |

## **OPERATE CERAMIC TOOLS AND EQUIPMENT**

**UNIT CODE:** CAC/OS/CER/CR/02/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to operate ceramic tools and equipment. It involves, using ceramic tools and equipment to produce ceramic wares and maintaining ceramic tools and equipment.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Use ceramic tools and equipment to produce ceramic wares | 1. Materials for tools fabrication are identified and assembled according to work requirements 2. ***Method of making ceramic wares*** is determined based on the available equipment, client order and aesthetics 3. Ceramic tools and equipment are used for finishing the ceramic wares according to the client order |
| 1. Maintain ceramic tools and equipment | 1. ***Ceramic tools*** are cleaned, oiled and reset regularly. 2. Ceramic tools are checked regularly and those with bluntness referred for sharpening. 3. ***Electrical equipment*** is checked for loose wires, faulty equipment tagged and technical specialists referred to for repair as required. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. Methods of making ceramic wares May include but not limited to: | * Casting * Throwing * Slabbing * Coiling |
| 1. Ceramic tools May include but not limited to: | * Scissors * Fettling Knives * Ceramic Modelling kit |
| 1. Electrical equipment May include but not limited to: | * Electric kiln * Potter’s wheel * Filter press * Blunger * Pug mill * Jigger/Jolley machines * Weighing balances |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving
* Design skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Types of ceramic tools and equipment
* Operating ceramic tools and equipment
* Methods of making basic ceramic tools and equipment
* Ways of fabricating ceramic tools and equipment

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Materials for tools fabrication are identified and assembled according to work requirements 2. Method of making ceramic wares is determined based on the available equipment, client order and aesthetics 3. Ceramic tools and equipment are used for finishing the ceramic wares according to the client order 4. Ceramic tools are cleaned, oiled and reset regularly. 5. Ceramic tools are checked regularly and those with bluntness referred for sharpening. 6. Electrical equipment is checked for loose wires, faulty equipment tagged and technical specialists referred to for repair as required |
| 1. Resource Implications for competence certification | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector |

## **PRODUCE CERAMIC CASTS**

**UNIT CODE:** CAC/OS/CER/CR/03/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to produce casts. It involves It involves selecting casting resources, performing casting process and performing maintenance and storage.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Select casting resources | 1. Appropriate materials, tools and equipment for the project are selected based on workplace procedures 2. Correct quantities are ensured per the ceramic cast specification 3. Current materials, technologies and options for making a casting are chosen based on workplace procedures 4. The safety issues that affect casting work are established based on workplace procedures |
| 1. Perform casting process | 1. Different techniques and equipment selected are used to achieve desired outcomes 2. Existing working moulds evaluated to assess aesthetic, functional and technical issues 3. The production and limitations of a variety of slip evaluated as per the workplace procedures 4. Specifications for the various cast models are used as per the intended products 5. ***casting materials*** are used to meet specific work needs 6. Technical issues in casting process are recognized and resolved based on workplace procedures 7. Different finishing tools are selected and used to achieve desired outcomes 8. Different outcomes and effects accomplished through experimentation with various materials 9. Cast wares are fired as per workplace procedures 10. Cast wares are sorted as per workplace procedures |
| 1. Perform maintenance and storage | 1. Safe strategies for the use of casting models, moulds casting materials, tools and equipment are applied based on workplace procedures 2. Safe strategies for maintenance of casting models, moulds casting materials, tools and equipment are applied based on workplace procedures 3. Safe strategies for storage of casting models, moulds casting materials, tools and equipment are applied based on workplace procedures 4. Occupation safety and health in relation to cast disposal as per workplace procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. Casting materials May include but are not limited to: | * Slip * Sodium Silicate * Talc * Kaolin * Feldspar * silica |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Interpersonal skills
* Communication skills
* Evaluation skills
* Problem solving

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Current technologies and equipment used for casting and their application to different purposes
* The properties and applications of materials commonly used for casting in the relevant work context
* Reasons for the use of materials and techniques to achieve particular effects
* Common technical problems that arise in casting
* Workplace health and safety requirements for casting in the relevant work context.

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills, knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Appropriate materials, tools and equipment for the project are selected based on workplace procedures   2. Correct quantities of materials are calculated as per the workplace procedures   3. The safety issues that affect casting work are established based on workplace procedures   4. Existing working moulds evaluated to assess aesthetic, functional and technical issues   5. The production and limitations of a variety of slip evaluated as per the workplace procedures   6. casting materials are used to meet specific work needs   7. Technical issues in casting process are recognized and resolved based on workplace procedures   8. Different finishing tools are selected and used to achieve desired outcomes   9. Safe strategies for storage of casting models, moulds casting materials, tools and equipment are applied based on workplace procedures |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector |

## **PRODUCE CERAMIC WARES**

**UNIT CODE:** CAC/OS/CER/CR/04/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to produce ceramic wares. It involves organizing ceramic ware resources, creating ceramic wares and performing ceramic decoration.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Organize ceramic ware resources | 1. Specific resource requirements for the chosen work are identified 2. Cost and other constraints that impact on development of the work evaluated based on workplace procedures 3. Required resources coordinated and set up according to safety requirements |
| 1. Create ceramic wares | 1. Ideas and approaches reviewed based on ongoing experience with production of own work 2. Equipment, tools and materials handled based on workplace procedures 3. Ceramic work created using techniques and materials considering applying elements and principles of design 4. ***Methods of ceramic ware finishing*** are elaborated as per the workplace procedures 5. ***Tools used in ceramic finishing*** are chosen depending on the ceramic ware to be produced 6. Required finishing resources coordinated and set up according to safety requirements 7. Ceramic finishing carried based on shape and design of the ceramic ware 8. Ceramic wares are fired as per workplace procedures 9. Sorting and grading of ceramic wares depending on the ceramic ware specification and functionality |
| 1. Perform ceramic decoration | 1. ***Techniques for decorating ceramic wares*** elaborated as per the specifications and functionality of the ceramic ware 2. Required resources for performing ceramic decoration are selected as per decoration techniques to be used 3. Required resources coordinated and set up according to safety requirements 4. Use various decoration techniques as per workplace procedures 5. Finished ceramic wares are stored as per the workplace procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. Methods of ceramic ware finishing May include but are not limited to: | * Trimming * Sponging * Sanding * Engobe * Slip trailing * burnishing |
| 1. Tools used in ceramic finishing May include but are not limited to: | * Sponges * Needles * Wooden kit * Brushes * Cutting wire |
| 1. Techniques for decorating ceramic wares May include but are not limited to: | * Under glaze * Carved lines * Spraying glazes * Colored slip decoration * On-glaze * Ceramic decals * Screen printing |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Communication skills
* Evaluation skills
* Problem solving
* Critical thinking
* Design skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Basic intellectual property considerations when making ceramics
* Methods of exploring techniques to achieve different effects in ceramic work
* Key characteristics, key interrelationships and use in ceramics
* Key physical features and uses, cleaning and maintenance techniques and storage requirements
* Physical properties and capabilities of a range of materials and techniques used to produce ceramic work
* Work space requirements for producing ceramic work including ways of organizing space and equipment for efficient work operation
* Procedures for working safely with ceramics materials, tools and equipment.
* Methods of ceramic ware finishing
* Techniques for decorating ceramic wares

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Required resources coordinated and set up according to safety requirements   2. Equipment, tools and materials handled based on workplace procedures   3. Ceramic work created using techniques and materials considering applying elements and principles of design   4. Methods of ceramic ware finishing are elaborated as per the workplace procedures   5. Ceramic finishing carried based on shape and design of the ceramic ware   6. Techniques for decorating ceramic wares elaborated as per the specifications and functionality of the ceramic ware   7. Finished ceramic wares are stored as per the workplace procedures |
| 1. Resource Implications for competence certification | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector |

## **APPLY CERAMIC GLAZES**

**UNIT CODE:** CAC/OS/CER/CR/05/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to apply ceramic glazes. It involves identifying techniques for glazing ceramic items, testing ready glaze recipes, performing ceramic glazing and performing glaze finishing processes

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Identify techniques for glazing ceramic wares | 1. Relevant ideas and approaches from other practitioners are adapted and used as per the workplace policy 2. ***Methods of glazing ceramic items*** are identified according to workplace procedures 3. ***Types of glazes*** are identified according to workplace procedures 4. Intellectual property requirements are complied with according to laws governing intellectual property rights 5. Ideas are refined and tested based on workplace procedures |
| 1. Test ready glaze recipes | 1. Specific safety and sustainability issues for glaze work are responded to base on glaze research based on workplace procedures 2. Existing ***glaze recipes*** on various clay bodies are modified and tested depending on the intended end products 3. Different effects are achieved based on various maturing temperatures |
| 1. Perform ceramic glazing | 1. Recipes and ***glaze application techniques*** are selected and used based on own judgment 2. Surfaces are decorated with glaze using techniques and tools selected from own experimentation 3. The glazed wares are fired at the appropriate temperature and kiln atmosphere to get the desired effects 4. Glazes are modified to correct faults and technical problems corrected to achieve intended products |
| 1. Perform glaze finishing process | 1. ***Methods of glaze finishing*** are elaborated as per the workplace procedures 2. ***Tools, materials and equipment used in glaze finishing*** are chosen depending on the glaze to be produced 3. Glaze finishing carried based on its application 4. Re-glazing of glaze defects as per workplace procedures 5. The glazes are labeled and stored according to industry recommendations |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. Methods of glazing ceramic items May include but not limited to: | * Dipping * Pouring * Spraying * graffito |
| 1. Types of glazes May include but not limited to: | * Low fire * High fire |
| 1. Glaze recipes May include but not limited to: | * Silicates * Potassium * Calcium * Magnesium |
| 1. Glaze application techniques may include but not limited to: | * Brushing * Dipping * Spraying * Graffito |
| 1. Methods of glaze finishing May include but not limited to: | * Sponging * Waxing * burnishing |
| 1. Tools used in glaze finishing May include but not limited to: | * Wooden tool kit * Ceramic Knife * Spraying gun |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Communication skills
* Evaluation skills
* Design skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* The basic aspects of contemporary glazed ceramics practice
* The drying characteristics of clay body and dried sample at various firing stages
* The features of a range of basic glazing techniques and how they work to achieve different decorative effects in glazed ceramic work
* Techniques used to decorate ware surfaces
* The benefits and disadvantages glaze decoration
* Key safety requirements for ceramic work.

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Methods of glazing ceramic items are identified according to workplace procedures   2. Specific safety and sustainability issues for glaze work are responded to base on glaze research based on workplace procedures   3. ready glaze recipes on various clay bodies are modified and tested depending on the intended end products   4. Different effects are achieved based on various maturing temperatures   5. Surfaces are decorated with glaze using techniques and tools selected from own experimentation   6. The glazed wares are fired at the appropriate temperature and kiln atmosphere to get the desired effects   7. Glazes are modified to correct faults and technical problems to achieve intended products   8. Glaze finishing carried based on its application   9. The glazes are labeled and stored according to industry recommendations |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector |

## **PERFORM CERAMIC FINISHING PROCESSES**

**UNIT CODE:** CAC/OS/CER/CR/06/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to perform specialized finishing processes. It involves, setting up finishing work space, identifying finishing options, applying finishing techniques and carrying out ceramic grading.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Set up ceramic finishing work space | 1. Tools and equipment are reviewed depending on intended products 2. Assembled work place tools and equipment as per the work place procedures 3. Work place conditions are ensured as per the workplace procedures 4. Safety issues are identified and addressed in accordance with the industrial property requirements |
| 1. Apply ceramic finishing techniques | 1. finishing options are identified for the specific wares depending on client order 2. Specific requirements for tools, equipment, materials are determined in conformity with desired products 3. Finishing techniques applied to ceramic wares as per the client specifications 4. Basic problems in the finishing process are identified and resolved accordingly |
| 1. Carry out grading | 1. Finished Ceramic wares are sorted according to set out requirements 2. Finished Defective ceramic wares are re- glazed as per workplace procedures 3. Finished Ceramic wares are packaged and stored as per workplace procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. Ceramic finishing techniques may include but not limited to: | * Glazing * Texturing * Graffito * Carving * Enamel * decal |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Communication skills
* Designing skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Understanding of emerging trends in finishing
* Understanding of finishing materials, tools, equipment
* Understanding of basic problems in finishing process and how they can be resolved
* application of different materials to achieve different effects when doing ceramic finishing process
* Basic sustainability issues associated with the materials
* Work health and safety procedures required for finishing activities

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Assembled work place tools and equipment as per the work place procedures 2. Work place conditions are ensured as per the workplace procedures 3. Safety issues are identified and addressed in accordance with the industrial property requirements 4. Finishing techniques applied to ceramic wares as per the client specifications 5. Produced a ceramic ware as per client specification 6. Defective ceramic wares are re- glazed as per workplace procedures 7. Ceramic wares are packaged and stored as per workplace procedures |
| 1. Resource Implications | The following resources must be provided:   * 1. Functional ceramic workshop |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector |

## **PRODUCE CERAMIC JEWELLERY**

**UNIT CODE:** CAC/OS/CER/CR/07/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to produce ceramic jewellery. It involves preparing ceramic jewellery resources, creating ceramic jewellery and applying jewellery finishing techniques

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Prepare ceramic jewellery resources | 1. Identify ideas to evaluate ceramic jewellery techniques to achieve the best outcomes 2. Identify different jewellery techniques in accordance with market trends 3. Specific resource requirements are identified based on the chosen work 4. Required resources are set up and organized according to safety requirements |
| 1. Create ceramic jewellery | 1. Adapt available equipment, tools and materials to achieve different effects 2. Assessed professional potential and presentation requirements of ceramic jewellery to be produced 3. Evaluated cost of developing own jewellery based on availability of resources 4. Ceramic jewellery pieces are created as per the laid down procedures 5. Ideas to refine ceramic jewellery work discussed and executed based on specifications given 6. Equipment, tools and materials are handled safely |
| 1. Apply ceramic jewellery ***finishing techniques*** | 1. Jewellery finishing technique to be used is identified as per the provided specifications 2. Tools and equipment for jewellery finishing are assembled based on workplace procedure 3. Jewellery finishing techniques are carried out as per standard operating procedures 4. Finished ceramic jewellery is decorated as per the clients’ specification 5. Grading, storing and packaging of finished jewellery as per workplace procedures |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. finishing techniques may include but not limited to: | * Addition of fixtures * Burnishing * Threading * Filing * Smoothing * grinding |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Communication skills
* Evaluation skills
* Design skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Methods used for making jewellery-making
* How the works of other practitioners may be used to inform individual practice?
* Ways of using a wide range of jewellery-making techniques
* Tools and equipment used to produce jewellery, and maintenance requirements
* List of suppliers of resources for professional jewellery-making
* Observation of work place safety procedures

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Use of different jewellery techniques in accordance with market trends   2. Required resources are set up and organized according to safety requirements   3. Adapt available equipment, tools and materials to achieve different effects   4. Ceramic jewellery pieces are created as per the laid down procedures   5. Equipment, tools and materials are handled safely   6. Jewellery finishing technique to be used is identified as per the provided specifications   7. Jewellery finishing techniques are carried out as per standard operating procedures   8. Finished ceramic jewellery is decorated as per the clients’ specification   9. Grading and storing of finished jewellery as per workplace procedures |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector |

## **PRODUCE CLAY AND CLAY BODIES**

**UNIT CODE:** CAC/OS/CER/CR/8/3/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to produce clay and clay bodies. It involves, identifying clay and clay body materials, processing clay batches and storing clay and clay bodies

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the **key outcomes** which make up **workplace function**. | **PERFORMANCE CRITERIA**  These are **assessable** statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Identify clay and clay body materials | 1. Sources of clay and clay materials are identified depending on the ceramic project needs 2. Different ***types of clays*** to be used are identified based on ceramic ware to be made |
| 1. Process clay batches | 1. Raw materials are received and stored as per the workplace procedures 2. Clay batching is carried out based on ***firing temperatures*** and types of wares to be made 3. ***Equipment*** is operated to produce clay with the correct moisture content in accordance with industrial production standards 4. Offloading and shutting down of mixing equipment is carried out in accordance with workplace specifications 5. Routine maintenance is carried out according to workplace specifications |
| 1. Store clay and clay bodies | 1. Materials are safely stored based on the workplace procedures 2. Packaging and labelling of clay and clay bodies based on the workplace procedures 3. Routine moisture control is carried in accordance with workplace specifications |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variables** | **Range** |
| 1. Types of clays May include but not limited to: | * Earthen ware * Ball clay * Stone ware * Porcelain |
| 1. Firing temperatures May include but not limited to: | * 12600C for stoneware * 13500C for porcelain |
| 1. Equipment May include but not limited to: | * Ball mill * Blunger * Filter press and filter * Mortar and pestle * Power consumption gauge * Pug mill * Sieves and screens * Tanks and silos * Tempering machine * Thermometer * Weighing equipment * Penetrometers * Balances |
| 1. Materials May include but not limited to: | * Silica * Kaolin * feldspar |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Organizing skills
* Communication skills
* Problem solving skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Source of raw materials
* Operation of the preparation equipment
* Consistency of the prepared materials
* Material variations
* Equipment malfunction

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate   1. Identified sources of clay and clay materials depending on the ceramic project needs 2. Identified different types of clays to be used based on ceramic ware to be produced 3. Carried out clay batching based on firing temperatures and types of wares to be made 4. Operated equipment to produce clay with the correct moisture content in accordance with industrial production standards 5. Offloading and shutting down of mixing equipment in accordance with specifications 6. Routine maintenance is carried in accordance with specifications 7. Materials are safely stored based on the workplace procedures 8. Clay and clay bodies are packaged and labelled 9. Routine moisture control is carried in accordance with workplace specifications |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place 3. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Written tests   2. Third party reports   3. Oral questioning   4. Interview   5. Observation |
| 1. Context of Assessment | Assessment could be conducted:   * On-the-job * Off-the–job * During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with related units in the sector |