****

**REPUBLIC OF KENYA**

**MINISTRY OF LABOR AND SOCIAL PROTECTION**

**STATE DEPARTMENT FOR LABOR AND SKILLS DEVELOPMENT**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**FOOD TECHNICIAN**

**LEVEL 5**

**OCCUPATIONAL STANDARD ISCED CODE: 0721 454A**

Copyright 2024

Ministry of Labor and Social Protection

State Department for Labour and Skills Development

Social Security House, Bishops Rd.

P.O.BOX 40326-0100

Nairobi

Email: [info@labour.go.ke](mailto:info@labour.go.ke)

Website: <https://laboursp.go.ke/>

**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. The State Department for labour and Skills Development is mandated, under executive order No. 1 of 2023, to oversee skills and development among actors; establish sector specific skills councils; and establish and manage the institutional framework for linking industry, skills development, and training. It is in this context that the department has established NSSACs to entrench the sectoral approach to skills development in Kenya.

Among the functions of the NSSACs is to develop NOS to ensure skills development is aligned to demands of the labour market. To ensure uniformity in the development of NOS in Kenya, the State Department of Labour and Skills Development has developed the Guidelines for Development of National Occupational Standards in Kenya.

It is in this context the Ministry of Labour and Social Protection spearheaded development of Food Technologist Level 5 National Occupational Standard (NOS) to inform development of market driven curriculum and assessment frameworks.

The occupational standard is designed and organized with clear performance criteria for each element of a unit of competency. This standard also outlines the required knowledge and skills as well as evidence guide.

It is my believe that this occupational standard will form an important reference document for all stakeholders involved in training, assessment and certification of Food Technologist Level 5 in Kenya.

# ACKNOWLEDGEMENT

This Occupational Standard was developed through the combined effort of various stakeholders from private and public organizations. I am thankful to the management of these organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided input towards the development of this Occupational Standard.

I also thank all the individuals and organizations who participated in the validation of this Occupational Standard

# TABLE OF CONTENTS

[PREFACE ii](#_Toc197154964)

[ACKNOWLEDGEMENT iii](#_Toc197154965)

[TABLE OF CONTENTS iv](#_Toc197154966)

[ABBREVIATIONS AND ACRONYMS v](#_Toc197154967)

[KEY TO UNIT CODE vi](#_Toc197154968)

[OCCIPATIONAL STANDARDARD OVERVIEW 1](#_Toc197154969)

[BASIC UNITS OF COMPETENCY 2](#_Toc197154970)

[APPLY DIGITAL LITERACY 3](#_Toc197154971)

[APPLY COMMUNICATION SKILLS 13](#_Toc197154972)

[APPLY WORK ETHICS AND PRACTICES 18](#_Toc197154973)

[COMMON UNITS OF COMPETENCY 25](#_Toc197154974)

[PERFORM FOOD LABORATORY PRACTICES 26](#_Toc197154975)

[APPLY FOOD PROCESSING AND PRESERVATION PRINCIPLES 31](#_Toc197154976)

[CORE UNITS OF COMPETENCY 35](#_Toc197154977)

[PREPARE FOOD PROCESSING RAW MATERIALS 36](#_Toc197154978)

[MAINTAIN FOOD PLANT HYGIENE 39](#_Toc197154979)

[PROCESS DAIRY PRODUCTS 43](#_Toc197154980)

[PROCESS BAKED PRODUCTS 48](#_Toc197154981)

[PROCESS FRUITS AND VEGETABLE PRODUCTS 52](#_Toc197154982)

[PROCESS CONFECTIONERIES 56](#_Toc197154983)

[PROCESS MEAT PRODUCTS 59](#_Toc197154984)

# ABBREVIATIONS AND ACRONYMS

TVETA Technical and Vocational Education Training Authority

EMC Environmental Management Coordination

EMCA Environmental Management Coordination Act

GMPs Good Manufacturing Practices

GHPs Good Hygiene Practices

NEMA National Environmental Management Authority

ICT Information Communication Technology

KFS Kenya Forest Service

NSSAC National Sector Skills Advisory Committee

TVET Technical and Vocational Education and Training

OSH Occupational Safety and Health

OSHA Occupational Safety and Health Act

OSHS Occupational Safety and Health Standards

PPE Personal protective equipment

# KEY TO UNIT CODE

**Sector / Industry**

**Sub Sector**

**Occupational Area**

**Version Control**

**Unit of Competence Number**

**ISCED level, Program Orientation and Level of Completion**

xx

x

xxx

x

xx

x

# OCCIPATIONAL STANDARDARD OVERVIEW

Food Technician level 5 occupational Standard consist of competencies that a person must achieve to enable them to Prepare food processing raw materials, maintain food plant hygiene, process dairy products, baked product, fruits and vegetables products, confectioneries and meat products

The units of competency leading to food technician level 5 qualification include the following three basic, two common and seven core competencies:

**SUMMARY OF UNITS OF COMPETENCY**

|  |  |
| --- | --- |
| **BASIC UNITS OF COMPETENCY** | |
| UNIT CODE | UNIT TITLE |
| 0611 451 01A | Apply Digital Literacy |
| 0031 441 02A | Apply Communication Skills |
| 0417 441 03A | Apply work ethics and practices |
| COMMON UNITS OF COMPETENCY | |
| 0721 451 04A | Perform Food Laboratory Practices |
| 0721 451 05A | Apply Food processing and preservation Principles |
| CORE UNITS OF COMPETENCY | |
| 0721 451 06A | Prepare food processing raw materials |
| 0721 451 07A | Maintain food plant hygiene |
| 0721 451 08A | Process dairy products |
| 0721 451 09A | Process baked products |
| 0721 451 10A | Process fruits and vegetables products |
| 0721 451 11A | Process confectioneries |
| 0721 451 12A | Process Meat Products |

# BASIC UNITS OF COMPETENCY

## APPLY DIGITAL LITERACY

**UNIT CODE: 0611 451 01A**

**UNIT DESCRIPTION:**

This unit covers the competencies required to demonstrate digital literacy. It involves operating computer devices, solving tasks using the Office suite, accessing online/offline data and information, performing online communication and collaboration, applying cybersecurity skills and performing jobs online. It also involves applying job entry techniques.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes that make up workplace functions | **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. Operate computer devices | * 1. C*omputer device* usage is determined as per workplace requirements.   2. *Computer hardware* is identified according to job requirements.   3. *Computer software* is identified according to workplace requirements.   4. Computer devices are turned on or off as per the correct workplace procedure.   5. *Mouse techniques* are applied in solving tasks as per workplace requirements.   6. Keyboardtechniques are applied in solving tasks as per workplace requirements.   7. Computer files and folders are created and managed as per workplace requirements.   8. *Internet connection option*s are identified and applied in connecting computer devices to the Internet.   9. *External devices* are identified and connected to the computer devices as per the job requirement. |
| 1. Solve tasks using Office suite | 1. *Word processing concepts* are applied in solving workplace tasks as per job requirements. 2. Worksheet data is entered and prepared in accordance with work procedures. 3. Worksheet data is built and edited in accordance with workplace procedures. 4. *Data manipulation* on a worksheet is undertaken in accordance with work requirements. 5. Worksheets are saved and printed in accordance with job requirements. 6. *Electronic presentation concepts* are applied in solving workplace tasks as per job requirements. |
| 1. Manage data and information | * 1. Office *internet services* are identified and applied in accordance with office procedures.   2. *Internet access applications* are determined in accordance with office operation procedures.   3. Internet search is performed as per job requirements.   4. Online digital content is downloaded in accordance with workplace requirements.   5. Digital content is identified and backed up in accordance with workplace procedures. |
| 1. Perform online communication and collaboration | * 1. Netiquette principles are observed as per work requirements.   2. Electronic mail communication is executed in accordance with workplace policy.   3. Digital content copyright and licenses are identified and applied according to workplace policies and regulatory requirements.   4. *Online* *collaboration tools* are applied in accordance with workplace policies and regulatory requirements. |
| 1. Apply cybersecurity skills | * 1. *Data protection* and *privacy* is classified in accordance with workplace policies and regulatory requirements.   2. *Internet security threats* are identified as per workplace policies and regulatory requirements.   3. Computer threats and crimes are detected in accordance to Information Management security guidelines   4. *Cybersecurity control measures* are applied in accordance with workplace policies and regulatory requirements. |
| 1. Perform online jobs | * 1. *Online job platforms* are identified as per the job requirements.   2. Online accounts and profiles are created in accordance with the work requirements.   3. Online jobs are identified according to the bidder’s skillset.   4. Online digital identity is managed according to industry best practices.   5. Online job bidding is done as per the specific job requirements.   6. Online tasks are executed according to the job requirements.   7. Personal online payment account is managed in accordance with financial regulations. |
| 1. Apply job entry techniques | * 1. *Job opportunities* are sought based on competencies.   2. A winning resume/CV is developed as per job advertisement.   3. An application/cover letter is developed based on the job advertisement.   4. *Certificates and testimonials* are organized as per resume.   5. *Interview skills* are demonstrated as per job advertisement. |

**RANGE**

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

| **Variable** | **Range** |
| --- | --- |
| 1. Computer devices may include but are not limited to: | * Desktops * Laptops * Smartphones * Tablets * Smartwatches |
| 1. Computer hardware may include but are not limited to: | * The System Unit E.g., Motherboard, CPU, casing, * Input Devices e.g., Pointing, keying, scanning, voice/speech recognition, direct data capture devices. * Output Devices e.g., hardcopy output and softcopy output * Storage Devices e.g., main memory e.g., RAM, secondary storage (Solid state devices, Hard Drives, CDs & DVDs, Memory cards, Flash drives * Computer Ports e.g., HDMI, DVI, VGA, USB type C etc. |
| 1. Computer software may include but are not limited to: | * System software e.g., Operating System (Windows, Macintosh, Linux, Android, iOS) * Application Software e.g., Word Processors, Spreadsheets, Presentations etc. * Utility Software e.g., Antivirus programs |
| 1. External devices may include but are not limited to: | * Printers * Projectors * Smart Boards * Speakers * External storage drives * Digital/Smart TVs |
| 1. Word processing concepts may include but are not limited to: | * Creating word documents * Editing word documents * Formatting word documents * Saving word documents * Printing word documents |
| 1. Mouse techniques may include but are not limited to: | * Clicking * Double-clicking * Right-clicking * Drag and drop |
| 1. Internet connection options may include but are not limited to: | * Mobile Networks/Data Plans * Wireless Hotspots * Cabled (Ethernet/Fiber) * Dial-Up * Satellite * ISDN (Integrated Services Digital Network) |
| 1. Data manipulation may include but are not limited to: | * Use of formulae * Use of functions * Sorting * Filtering * Visual representation using charts |
| 1. Electronic presentation concepts may include but are not limited to: | * Creating slides * Editing slides * Formatting slides * Applying slide effects and transitions * Creating and playing slideshows * Saving presentations * Printing slides and handouts |
| 1. Internet services may include but are not limited to: | * Communication Services * Information Retrieval Services * File Transfer * World Wide Web Services * Web Services * Directory Services * Automatic Network Address Configuration * News Group * Ecommerce |
| 1. Internet access applications/ software may include but are not limited to: | * Browsers * Email Apps * eCommerce Apps |
| 1. Online collaboration tools may include but are not limited to: | * Online Storage * Online productivity applications * Online meetings, * Online learning environments, * Online calendars * Social networks |
| 1. Data protection and privacy may include but not limited to: | * Confidentiality of data/information * Integrity of data/information * Availability of data/information |
| 1. Internet security threats may include but not limited to: | * Malware attacks * Social engineering attacks * Software supply chain attacks * Advanced persistent threats (APT) * Distributed denial of service (DDoS) * Man-in-the-middle attack (MitM) * Password attacks * IoT Attacks * [Phishing Attacks](https://onlinedegrees.sandiego.edu/top-cyber-security-threats/#phishing-attacks) * [Ransomware](https://onlinedegrees.sandiego.edu/top-cyber-security-threats/#ransomware) |
| 1. Security threats control measures may include but not limited to: | * Counter measures against cyber terrorism * Physical Controls * Technical/Logical Controls * Operational Controls |
| 1. Online job platforms may include but are not limited to: | * Remotask * Data annotation. tech * Cloudworker * Upwork * Oneforma * Appen |
| 1. Job opportunities may include but not limited to: | * Self-employment * Service provision * product development * salaried employment |
| 1. Certificates and testimonialsmay include but not limited to: | * Academic credentials * Letters of previous employments/ services rendered * Letters of commendation * Certifications of participation * Awards |
| 1. Interview skills may include but not limited to: | * Listening skills * Grooming * Language command * Articulation of issues * Body language * Time management * Honesty * Generally knowledgeable in current affairs and technical area |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Computer Hardware and Software Concepts
* Computer Security Concepts (Data security and privacy)
* Cyber security threats and control measures
* Understanding Computer Crimes
* Detection and protection against computer crimes
* Laws governing protection of ICT in Kenya
* Digital Identity Management
* Netiquette Principles
* Fundamentals of Copyright and Licenses
* Word processing;
  + - Functions and concepts of word processing;
    - Documents and tables creation and manipulations;
    - Document editing;
    - Document formatting;
    - Word processing utilities
* Spreadsheets;
  + - Meaning, types and importance of spreadsheets;
    - Components of spreadsheets;
    - Functions, formulae, and charts, uses and layout;
    - Data formulation, manipulation and application to cells;
    - Editing & formatting spreadsheets;
* Presentation Packages;
  + - Types of presentation Packages.
    - Creating, formulating, running, editing, printing and presenting slides and handouts
* Networking and Internet;
  + - Internet connectivity.
    - Browser and digital content management;
    - Managing data, information, and digital content
    - Electronic mail and World Wide Web
* Fundamentals of Online Working;
  + - Online Profile Management;
    - e-Portfolio Management;
    - Online Jobs Bidding;
    - Online Payment Systems;
* Job entry techniques
  + - Job searching sites
    - Interview preparation skills
    - Interview handling

**Required skills**

The individual needs to demonstrate the following skills:

* Active listening
* Keyboard Skills
* Mouse Skills
* Analytical skills
* Creativity
* Interpretation Skills
* Communication
* Spreadsheet operations (applying fundamental operations such as addition, subtraction, division and multiplication)
* Computer Use Safety Skills
* Document Editing Skills
* Document Formatting Skills
* Document Printing Skills
* Netiquette Skills
* Internet Browsing Skills
* Problem Solving Skills
* Online Collaboration Skills
* Cybersecurity Skills
* CV writing
* Grooming

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Operated computer devices as per workplace policies and regulations.   2. Solved tasks using the office suite as per workplace policies and regulations.   3. Manage data and information as per workplace policies and regulations.   4. Performed online communication and collaboration as per workplace policies and regulations.   5. Applied cybersecurity skills in accordance with workplace policies and regulations.   6. Executed online tasks according to the job requirements.   7. Searched for job opportunity based on competencies.   8. Prepared job requirement documentations based on job opportunity.   9. Demonstrated interview skills based on the job opportunity. |
| 1. Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 1. Methods of assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Oral assessment   3. Portfolio of evidence   4. Third party report   5. Written tests |
| 1. Context of assessment | Competency may be assessed in:   * 1. Workplace   2. Simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended. |

## APPLY COMMUNICATION SKILLS

**UNIT CODE: 0031 541 02A**

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate communication skills. It involves applying communication channels, written, non-verbal, oral, and group communication skills.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes that make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements that specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| --- | --- |
| 1. Apply communication channels | 1. Specific communication channels are identified and applied based on workplace requirements. 2. Challenges are identified and addressed as per the operational standards of the organization. 3. Communication channels are evaluated to meet workplace needs. |
| 1. Apply written communication skills | * 1. Types of written communication are identified and applied according to the workplace requirements.   2. Written communication needs are identified and implemented according to workplace procedures.   3. Written communication guidelines are analyzed, evaluated, and revised based on workplace needs. |
| 1. Apply non-verbal communication skills | 3.1 Existing non-verbal communication techniques are identified and applied based on organization policy.  3.2 Non-verbal communication techniques are articulated and modeled to enhance inclusivity according to workplace requirements. |
| 1. Apply oral communication skills | 4.1 Types of oral communication are identified and established as per organization policy.  4.2 Pathways of oral communication are identified and established as per organization policy.  4.3 Pathways of oral communication are reviewed according to organization procedures.  4.4 Pathways of oral communication are maintained according to the organization standards. |
| 1. Apply group communication skills | 1. Group *communication strategies* are appliedbased on the workplace needs. 2. Groups are organized in accordance with workplace procedures. 3. Effective questioning, listening and non-verbal communication techniques are used as per needs.   5.4 Group communication challenges are identified and addressed according to the workplace needs. |

**RANGE**

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

| **Variable** | **Range** |
| --- | --- |
| * + - 1. Communication strategies may include but are not limited to: | * Language switch * Comprehension check * Repetition * Asking confirmation * Paraphrasing * Clarification request * Translation * Restructuring * Generalization |
| * + - 1. Effective group interaction may include but not limited to: | * Identifying and evaluating what is occurring within an interaction in a non-judgmental way. * Using active listening. * Making decision about appropriate words, behavior. * Putting together response which is culturally appropriate. * Expressing an individual perspective. * Expressing own philosophy, ideology and background and exploring impact with relevance to communication |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Communication process
* Dynamics of groups
* Styles of group leadership
* Key elements of communications strategy
* Principles of effective communication
* Turn-taking techniques
* Conflict resolution techniques
* Work planning
* Work organization
* Company policies
* Company operations and procedure standards
* Fundamental rights at the workplace
* Personal hygiene
* Accountability
* Workplace problems and how to deal with them

**Required Skills**

The individual needs to demonstrate the following skills:

* Active listening
* Interpretation
* Negotiation
* Writing
* Oral skills
* Creative thinking
* Critical thinking
* Decision making
* Analytical
* Innovation
* Conflict skills
* Leadership
* Problem solving skills
* Management
* Organizational
* Teamwork

**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. Identified and applied specific communication channels based on workplace requirements.   2. Identified and applied specific written communication correspondence according to the workplace requirements.   3. Applied and developed non-verbal strategies to communicate in all areas of the workplace requirements.   4. Established pathways of oral communication as per workplace policy.   5. Applied group communication strategies based on workplace needs. |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Oral assessment   3. Portfolio of evidence   4. Third party report   5. Written tests |
| 1. Context of Assessment | Competency may be assessed in:   * 1. Workplace   2. Simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## APPLY WORK ETHICS AND PRACTICES

**UNIT CODE: 0417 541 03A**

**UNIT DESCRIPTION**

This unit covers competencies required to effectively apply work ethics and practices. It involves the ability to: conduct self-management, promote ethical work practices and values, promote teamwork, manage workplace conflicts, maintain professional and personal development, apply problem-solving and promote customer care.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  **Th**ese 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 Range*** |
| --- | --- |
| 1. **Apply self-management skills** | 1. Personal vision, mission and goals are formulated based on potential and concerning organization objectives and strategic plan 2. Self-esteem and a positive self-image are developed and maintained based on value 3. Emotional intelligence and stress management are demonstrated as per workplace requirements. 4. Assertiveness is developed and maintained based on the requirements of the job. 5. Accountability and responsibility for one's actions are demonstrated based on workplace instructions. 6. Time management, attendance and punctuality are observed as per the organization’s policy. 7. Personal goals are managed as per the organization’s objective 8. Self-strengths and weaknesses are identified based on personal objectives 9. Motivation, initiative and proactivity are utilized as per the organization policy 10. Individual performance is evaluated and monitored according to the agreed targets. |
| 1. **Promote ethical work practices and values** | 1. Integrity is demonstrated as per acceptable norms 2. Codes of conduct is applied as per the workplace requirements 3. Policies and guidelines are observed as per the workplace requirements 4. Professionalism is exercised in line with organizational policies |
| 1. **Promote Team work** | 3.1 *Teams* are formed to enhance productivity based on organization’s objectives  3.2 Duties are assigned to teams under the organization policy.  3.3 Team activities are managed and coordinated as per set objectives.  3.4 Team performance is evaluated based on set targets as per workplace policy.  3.5 *Conflicts* are resolved between team members in line with organization policy.  3.6 Gender and diversity-related issues are identified and mainstreamed in accordance with workplace policy.  3.7 Healthy *relationships* are developed and maintained in line with the workplace.  3.8 Adaptability and flexibility are applied in dealing with team members as per workplace policies |
| 1. **Maintain professional and personal development** | 4.1 *Personal growth and development* needs are identified and assessed in line with the requirements of the job.  *4.2 Training and career opportunities* are identified and utilized based on job requirements.  4.3 *Resources* for training are mobilized and allocated based on organizations and individual skills needs.  4.4 Licenses and certifications relevant to the job and career are obtained and renewed as per policy.  4.5 Recognitions are sought as proof of career advancement in line with professional requirements.  4.6 Work priorities and personal commitments are balanced and managed based on the requirements of the job and personal objectives.  4.7 Dynamism and on-the-job learning are embraced in line with the organization’s goals and objectives. |
| 1. **Apply Problem solving skills** | 5.1 *Creative, innovative* and practical solutions are developed based on the problem  5.2 Independence and initiative in identifying and solving problems are demonstrated based on the requirements of the job.  5.3 Team problems are solved as per the workplace guidelines  5.4 Problem-solving strategies are applied as per the workplace guidelines  5.5 Problems are analyzed and assumptions tested as per the context of data and circumstances |
| 1. **Promote Customer Care** | 6.1 Customers' needs are identified based on their characteristics  6.2 Customer *feedback* is allowed and facilitated in line with organization policies.  6.3 Customer concerns and complaints are analyzed and resolved in line with the set organizational culture.  6.4 Proactive customer outreach programs are implemented as per organizational policies  6.5 Customer retention strategies are developed and implemented in line with the organizational policy |

**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. Feedback may include but not limited to: | * Verbal * Written * Informal * Formal |
| 1. Conflicts include but are not limited to: | * Interpersonal Conflict. * Intrapersonal Conflict. * Intergroup Conflict. * Intragroup Conflict. |
| 1. Relationships may include but not limited to: | * Man/Woman * Trainer/trainee * Employee/employer * Client/service provider * Husband/wife * Boy/girl * Parent/child * Sibling relationships |
| 1. Team may include but not limited to: | * Small work group * Staff in a section/department * Inter-agency group * Virtual teams |
| 1. Personal growth may include but not limited to: | * Growth in the job * Career mobility * Gains and exposure the job gives * Net workings * Benefits that accrue to the individual as a result of noteworthy performance |
| 1. Personal objectives may include but not limited to: | * Long term * Short term * Broad * Specific |
| 1. Trainings and career opportunities may include but not limited to | * Participation in training programs * Serving as Resource Persons in conferences and workshops * Capacity building |
| 1. Resource may include may but not limited to: | * Human * Financial * Technology |
| 1. Creative and innovative 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: | * Artificial Intelligence * Data confidentiality * National cohesion * Open offices |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Work values and ethics
* Company policies and procedures
* Company operations, procedures and standards
* Flexibility and adaptability
* Concept of time and leisure time
* Decision making
* Work planning
* Organizing work
* Monitoring and evaluation
* Record keeping
* Gender and diversity mainstreaming
* Drug and substance abuse
* Professional growth and development
* creativity
* Innovation
* Problem solving
* Customer care
* Mentoring and coaching.
* Emerging issues

**Required Skills**

The individual needs to demonstrate the following skills:

* Active listening
* Critical thinking
* Organizational
* Negotiation
* Monitoring
* Evaluation
* Problem solving
* Decision Making
* Leadership
* Creative/innovative thinking
* Adaptability
* Conflict management
* Emotional intelligence
* Teamwork

**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 require evidence that the candidate:   * 1. Applied self-management skills as per organizational procedures.   2. Promoted ethical practices and values as per organizational procedures.   3. Promoted Teamwork as per workplace assignments.   4. Maintained professional and personal development as per organizational procedures.   5. Applied Problem-solving skills based on work requirements.   6. Identified customer needs based on their characteristics.   7. Gave back Customer feedback in line with organization policies. |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Oral assessment   3. Portfolio of evidence   4. Third party report   5. Written tests |
| 1. Context of Assessment | Competency may be assessed in:   * 1. Workplace   2. Simulated workplace. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# COMMON UNITS OF COMPETENCY

## PERFORM FOOD LABORATORY PRACTICES

**UNIT CODE: 0721 451 04A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to perform standard laboratory practices. It involves performing laboratory safety procedures, implementing OSH programs, preparing laboratory reagents, carrying out food microbiological test and proximate analysis.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function (to be stated in active) | **PERFORMANCE CRITERIA**  **These are assessable statements which specify the required level of performance for each of the elements (to be stated in passive voice)**  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Perform laboratory safety procedure | 1. ***Personal Protective Equipment*** (PPE) is donned as per work requirement 2. ***Hazards*** in the workplace are identified based on their *indicators.* 3. ***Risk assessments***are conducted according to the likelihood and severity. 4. Laboratory hazard and riskare controlled based on laboratory safety procedures 5. ***Laboratory waste***is disposed as per workplace requirement 6. Develop***emergency response procedures and preparedness***as per OSHA. 7. Maintain records of hazards, risk assessments and control measures as per legal requirement |
| 1. Implement OSH programs | * 1. Company OSH program is identified, evaluated and reviewed as per legal requirements   2. Company OSH programs are implemented as per OSHA 2007   3. Workers are capacity built on OSH standards and procedures as per legal requirements   4. ***OSH-related records*** are maintained as per legal requirements |
| 1. **Prepare laboratory reagents** | * 1. Personal protective equipment is donned as per work requirement   2. Laboratory reagents and apparatus are assembled as per work requirement   3. Laboratory reagents standardization is carried out as per work requirement |
| 1. **Carry out food microbiological test** | * 1. Apparatus and equipment are sterilized as per laboratory manual procedure   2. Culture media is prepared as per manufacturer’s specification   3. Food sample is cultured as per work place procedures   4. Microbial results are interpreted and documented as per work requirement |
| 1. **Carry out proximate analysis** | * 1. Apparatus and equipment are assembled as per work place procedure   2. Food sample is prepared as per method specification   3. ***Proximate analysis*** is carried out as per work place procedures   4. Proximate analysis results are interpreted and documented as per work requirement |

**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. Personal Protective Equipment include but not limited to: | 1. Lab coats 2. Gloves 3. Hair nets 4. Masks |
| 1. Hazards may include but not limited to: | * 1. Chemical   2. Biological   3. Physical   4. Safety |
| 1. Indicators may include but are not limited to: | * 1. Increased incidents of accidents, injuries   2. Increased occurrence of sickness or health complaints/ symptoms   3. Common complaints of workers related to OSH   4. High absenteeism for work-related reasons |
| 1. Risk assessments may include but are not limited to: | * 1. Health Audit   2. Safety Audit   3. Work Safety and Health Evaluation   4. Work Environment Measurements of Physical and Chemical Hazards |
| 1. Laboratory waste include but not limited to: | * 1. Glassware   2. Food samples   3. Gloves   4. Chemicals |
| 1. Emergency procedures and preparedness may include but are not limited to: | * 1. Fire drill   2. Earthquake drill   3. Basic life support   4. First aid   5. Spillage control   6. Decontamination of chemical and toxic   7. Disaster preparedness/management   8. Use of fire-extinguisher |
| 1. OSH-related Records may include but are not limited to: | * 1. Medical/Health records   2. Incident/accident reports   3. Sickness notifications/sick leave application   4. OSH-related trainings obtained |
| 1. Laboratory reagent includes but not limited to: | * 1. Acids   2. Bases   3. Salts   4. Indicators   5. Distilled water |
| 1. Proximate analysis includes but not limited to: | * 1. Ash   2. Water   3. Protein   4. Lipids |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Food analysis
* Food chemistry
* Food microbiology
* Laboratory techniques
* Regulatory requirements
* Food quality audit
* Waste management
* General OSH principles
* OSHA 2007

**Required Skills**

The individual needs to demonstrate the following skills:

* Skills on preliminary identification of workplace hazards/risks
* Computer application
* Troubleshooting
* Coordinating
* Report writing
* Analytical
* First aid
* Communication
* Observation
* Critical thinking
* Presentation

**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. Donned personal protective equipment (PPE) as per work requirement   2. Identified *Hazards* in the workplace based on their *indicators*   3. Implemented company OSH programs are implemented OSHA 2007   4. Controlled laboratory hazard and risk based on laboratory safety procedures   5. Carried out laboratory reagents standardization as per work requirement   6. Cultured food sample as per work place procedures   7. Interpreted and documented microbial results as per work requirement   8. Carried out proximate analysis is as per work place procedures |
| 1. Resource Implications | The following resources should be provided   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Oral assessment   3. Portfolio of evidence   4. Third party report   5. Written tests |
| 1. Context of Assessment | Competency in this unit may be assessed in;   * 1. Work place   2. Simulated workplace |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended |

**APPLY FOOD PROCESSING AND PRESERVATION PRINCIPLES**

**ISCED UNIT CODE:** 0721 551 05A

**UNIT DESCRIPTION**

This unit specifies the competencies required to apply food processing and preservation principles. It involves performing thermal preservations, performing food dehydrations and performing chemical preservations.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Elements**  These describe the key outcomes which make up workplace function. | **Performance Criteria**  These are assessablestatements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Perform food fermentations | * 1. Fermentation equipment are assembled as per work place procedures   2. Food materials are assembled according to workplace procedures   3. ***Fermentation*** is performed according to product specifications |
| 1. Perform food dehydrations | * 1. Dehydration equipment are assembled as per work place procedures   2. Food materialsare assembled according to workplace procedures   3. ***Dehydration*** is performed according to product specifications |
| 1. Perform chemical preservations | * 1. Equipment is assembled as per work place procedures   2. Food materials and ingredients are assembled according to workplace procedures   3. ***Chemical preservation*** is performed according to product specifications |

**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. Fermentation may include but not limited to: | * Pickling * Sauerkraut making * Yoghurt making * Bread making |
| * + 1. Dehydration may include but not limited to: | * Sun drying * Oven drying * Freeze drying * Smoking * Salting * Concentration |
| * + 1. Chemical preservation may include but not limited to: | * Curing * Use of chemical preservatives * Use of preservative agents |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Food engineering
* Food analysis
* Food microbiology
* Food quality management
* Regulatory requirements for food processing
* Food Packaging principles
* Principles of food preservation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Analytical
* Raw material and product sampling
* Tools and equipment handling
* Chemical substances handling and storage
* Digital literacy
* Team work

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| * + - 1. Critical aspects of competency | Assessment requires evidence that the candidate:   1. Assembled food materials and ingredients according to workplace procedures 2. Performed fermentation according to product specifications 3. Performed dehydration according to product specifications 4. Performed chemical preservation according to product specifications |
| * + - 1. Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| * + - 1. Methods of assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Oral assessment   3. Portfolio of evidence   4. Third party report   5. Written tests |
| * + - 1. Context of assessment | Competency may be assessed in:   * 1. Workplace   2. Simulated workplace |
| * + - 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended. |

# CORE UNITS OF COMPETENCY

## PREPARE FOOD PROCESSING RAW MATERIALS

**UNIT CODE: 0721 451 06A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to prepare food processing raw materials. It involves receiving, sorting and cleaning food processing raw materials.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENTS**  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. Receive food processing raw materials | * 1. *Raw materials* are received as per product specifications   2. Documentations of supplies are checked for conformity as per workplace requirements   3. Conforming and non-conforming raw materials are documented as per workplace requirements |
| 1. Sort food processing raw materials | * 1. Raw materials are sorted as per as per workplace requirements   2. Raw materials are graded as per as per workplace requirements   3. Records for sorting and grading raw materials are maintained   as per workplace requirements |
| 1. Clean food processing raw materials | * 1. Raw materials are assembled for cleaning as per workplace procedures   2. Raw materials are cleaned as per workplace procedures   3. Raw material contaminants are disposed as per workplace procedures |

**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. Raw materials may include but not limited to: | 1.1 Milk  1.2 Wheat flour  1.3 Sugar  1.4 Fruits  1.5 Eggs  1.6 Vegetables |

**REQUIRED KNOWLEDGE AND SKILLS**

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

Required knowledge

The individual needs to demonstrate knowledge of:

* Food microbiology
* Food engineering
* Waste disposal
* Regulatory requirements

**Required skills**

The individual needs to demonstrate the following skills:

* Team work
* Raw material sampling
* Critical thinking
* Communication
* Record keeping
* Tools and equipment handling

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Checked documentation of supplies for conformity as per workplace requirement   2. Graded raw materials as per the work requirements   3. Maintained records for sorting and grading of raw materials as per workplace requirements   4. Cleaned raw materials as per workplace procedure |
| 2. Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 3.Methods of assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Oral assessment   3. Portfolio of evidence   4. Third party report   5. Written tests |
| 1. Context of assessment | Competency may be assessed in:   * 1. Work place   2. Simulated workplace |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended |

## MAINTAIN FOOD PLANT HYGIENE

**UNIT CODE: 0721 451 07A**

**UNIT DESCRIPTION**

This unit describes the competencies required to maintain food plant hygiene. It involves cleaning food plant, sanitizing food plant, managing food wastes, controlling environmental pollution and using resources sustainably.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENTS** | **PERFORMANCE CRITERIA** |
| 1. Clean food plant | * 1. *PPEs* are used as per workplace requirements   2. *Cleaning reagents* are prepared as per workplace procedures   3. Cleaning-in- place is carried out as per workplace procedure   4. Cleaning-out-of-place is carried out as per workplace procedure   5. Cleaning records are maintained as per workplace procedures |
| 1. Sanitize food plant | * 1. Sanitization equipment is selected as per workplace procedures   2. Sanitization operations are performed as per workplace procedures   3. Sanitization Records are maintained per workplace procedures |
| 1. Manage food waste | * 1. Waste is collected as per NEMA regulations, 2006   2. Waste is segregated as per NEMA regulations, 2006   3. Waste is disposed as per NEMA regulations, 2006   4. Waste management Records are maintained as per workplace procedures |
| 1. Control environmental pollution | * 1. *Hazardous wastes* are stored as per the Environmental Management and Coordination Act,1999.   2. Hazardous wastes are disposed in accordance with the EMCA 1999 (Toxic and hazardous chemicals and materials management) Regulations 2019   3. *Pollutants* are controlled in accordance with EMCA 1999, Agriculture and food authority act 2022 and KFS Act 2015. |
| 1. Use resources sustainably | * 1. Resource usage is monitored based on Article 69(2) of the Constitution of Kenya   2. *Resource wastage* *minimization* isperformedas per Article 69(2) of the Constitution of Kenya   3. *Environmental conservation measures* are applied as per EMCA 1999 |

**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: | * 1. Hair net   2. Dust coats   3. Gumboots   4. Gloves   5. Masks   6. Safety googles |
| 1. Cleaning reagents may include but not limited to: | 2.1 Detergents  2.2 Sanitizers  2.3 Sterilant |
| 1. Hazardous waste may include but are not limited to: | * 1. Explosives   2. Flammable liquids   3. Flammable solids and substances   4. Oxidizing substances and organic peroxides   5. Toxic and infectious substances   6. Radioactive materials   7. Corrosive substances |
| 1. Pollutants | * 1. Water pollutants   2. Noise pollutants   3. Land pollutants   4. Air pollutants |
| 1. Resource wastage minimization may include but not limited to: | * 1. Resources reuse   2. Resources recycle   3. Quality control improvement   4. Process monitoring   5. Optimization of resources |
| 1. Environmental conservation measuresmay include but are not limited to: | * 1. Green energy technologies   2. Tree planting   3. Public awareness and sensitization   4. Waste management   5. Ecosystems conservation   6. Energy conservation |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Food microbiology
* Food engineering
* Waste disposal
* PPE usage
* Food plant cleaning detergents and sanitizers
* Methods of cleaning
  + Cleaning in place (CIP)
  + Cleaning out of place (COP)
* Regulatory requirements

**Required Skills**

The individual needs to demonstrate the following skills

* Communication
* Team work
* Record keeping
* Problem solving
* Hygiene monitoring
* Cleaning
* Critical thinking
* Tools and equipment handling

**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 cleaning reagents as per workplace procedures   2. Maintained cleaning records as per workplace procedures   3. Performed sanitization of the food plant as per workplace procedures   4. Disposed waste as per NEMA regulations,2006   5. Maintained waste management records as per workplace procedures   6. Disposed hazardous wastes in accordance with the EMCA 1999   7. Controlled pollutants in accordance with EMCA 1999   8. Performed resource wastage minimization as per Article 69(2) of the Constitution of Kenya |
| 1. Resource Implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 3.Methods of Assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Project   3. Portfolio of evidence   4. Third party report   5. Written tests   6. Oral assessment |
| 4.Context of Assessment | Competency may be assessed in:   * 1. Work place   2. Simulated workplace |
| 5.Guidance information for assessment | H Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended |

## PROCESS DAIRY PRODUCTS

**UNIT CODE: 0721 451 08A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to process dairy products. It involves milk grading, pasteurizing raw milk and processing fermented milk products. It also involves Ice-cream making.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| ELEMENTS  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. Perform raw milk quality test | * 1. ***Organoleptic tests*** of milk are carried out according to the dairy requirements   2. ***Chemical tests*** of milk are carried out according to the dairy requirements   3. ***Microbial tests*** of milk are carried out according to the dairy requirements |
| 2. Pasteurize raw milk | 2.1 Milk Pasteurization equipment are assembled as per workplace procedure.  2.2 Raw milk is pasteurized as per workplace procedure  2.3 ***Pasteurization parameters*** are monitored as per pasteurization requirements  2.4 Pasteurized milk is cooled as per workplace procedure  2.5 Pasteurized milk is analyzed as per workplace procedure  2.6 Pasteurization records are maintained as per workplace procedure  2.7 Pasteurized milk is packaged as per product specification |
| 3. Process fermented milk products | 3.1 ***Fermented products*** processing equipment are assembled as per work place procedure  3.2 ***Fermented ingredients***are assembled according to the workplace procedure  3.3 Milk is pasteurized according to product specifications  3.4 Pasteurized milk is fermented according to product specifications  3.5 Fermented products are analyzed according to product specifications  3.6 ***Fermented products*** are packed according to product specifications |
| 4. Process ice-cream | 4.1 Ice-cream processing equipment are assembled as per work place procedures  4.2 ***Ice cream ingredients***are assembled according to workplace procedures  4.3 Ice-cream mix is pasteurized according to product specifications  4.4 Pasteurized ice-cream mix is aerated according to product specifications  4.5 Aerated ice-cream mix is frozen according to product specifications  4.6 Ice-cream is analyzed according to product specifications  4.7 Ice cream is packed according to product specifications  4.8 Packaged ice cream is stored as per product specifications |

**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. Organoleptic tests may include but not limited to: | 1. Colour 2. Odour 3. Foreign material 4. Taste |
| 2. Chemical tests may include but not limited to: | 1. Acidity test 2. Phosphatase test 3. Butterfat test 4. Alcohol test 5. Methylene blue test 6. Resazurin test |
| 3. Microbial tests may include but not limited to: | 3.1 Total plate count  3.2 E*coli* and coliform counts |
| 4. Pasteurization parameters may include but not limited to: | 1. Temperature 2. PH 3. Pressure 4. Time |
| 5. Fermented and Ice cream ingredients may include but not limited to: | 1. Starch 2. Sugar 3. Skimmed milk powder 4. Lactic acid bacteria 5. Flavours 6. Milk |
| 6. Fermented dairy products may include but not limited to: | 1. Yoghurt 2. Mala 3. Cheese |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Food engineering
* Food analysis
* Food microbiology
* Dairy technology
* Food quality management systems
* Regulatory requirements
* Food processing and preservation principles

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Team work
* Tools and equipment handling
* Waste disposal
* Sampling of dairy products
* Record keeping
* Planning
* Problem solving
* Analytical
* Numeracy
* Environmental literacy

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   1. Carried out organoleptic tests of milk according to the dairy requirements 2. Carried out chemical tests of milk according to the dairy requirements 3. Carried outmicrobial tests of milk according to the dairy requirements 4. Monitoredpasteurization parameters as per pasteurization requirements 5. Maintained pasteurization records as per workplace procedure 6. Fermented pasteurized milk according to product specifications 7. Packed fermented products according to product specifications 8. Froze aerated ice-cream mix according to product specifications |
| 2.Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 3.Methods of assessment | Competency in this unit may be assessed through:   1. Practical assessment 2. Oral assessment 3. Portfolio of evidence 4. Third party report 5. Written tests |
| 4.Context of assessment | Competency may be assessed in:   * 1. Work place   2. Simulated workplace |
| 5.Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended |

## PROCESS BAKED PRODUCTS

**UNIT CODE: 0721 451 09A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to process baked products. It involves baking bread, cakes and biscuits.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Elements**  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. Bake bread | * 1. Bread baking equipment are assembled as per work place procedures   2. Bread *ingredients* are prepared for processing according to workplace procedures   3. Bread is processed according to products specifications   4. Bread is analysed according to products specifications   5. Bread is packaged according to product specifications |
| 1. Bake cakes | * 1. Cake baking equipment are assembled as per work place procedure   2. Cake ingredients are prepared for processing according to workplace procedure   3. *Cakes* are processed according to products specifications   4. Cake is analysed according to products specifications   5. Cake is packaged according to products specifications |
| 1. Bake biscuits | * 1. Biscuit baking equipment are assembled as per work place procedure   2. Biscuit ingredients are prepared for processing according to workplace procedure   3. Biscuit is processed according to the products specifications   4. Biscuit is analysed according to products specifications   5. Biscuit is packaged according to products specifications |

**RANGE**

**T**his 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. Ingredients may include but not limited to: | * 1. Wheat flour   2. Sugar   3. Salt   4. Eggs   5. Flavours   6. Water   7. Milk   8. Fat |
| 1. Cakes may include but not limited to: | * 1. Queen cakes   2. Madeira’s   3. Sponge cakes   4. Cream blocks |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Food engineering
* Principles of food processing and preservation
* Food microbiology
* Baking technology
* Food Quality management
* Regulatory requirements

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Digital
* Problem solving
* Record keeping
* Analytical
* Tools and equipment handling
* Team work

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1.Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Processed bread according to product specifications   2. Packaged bread according to product specifications   3. Processed cakes according to product specifications   4. Packaged cakes according to product specifications   5. Processed biscuits according to product specifications   6. Packaged biscuits according to product specifications |
| 2.Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 3.Methods of assessment | Competency in this unit may be assessed through:   1. Practical assessment 2. Oral assessment 3. Portfolio of evidence 4. Third party report 5. Written tests |
| 1. Context of assessment | Competency may be assessed in:   * 1. Work place   2. Simulated workplace |
| 5.Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended |

## PROCESS FRUITS AND VEGETABLE PRODUCTS

**UNIT CODE: 0721 451 10A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to process fruits and vegetables products. It involves processing tomato products, fruit jams, jellies and marmalades.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Elements**  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. Process tomato products | * 1. Tomato processing equipment are assembled as per work place procedure   2. Tomatoes are prepared for processing according to workplace procedure   3. ***Tomato products*** are processed according to product specifications   4. Tomato products are analysed according to product specifications   5. Tomato products are packaged according to product specifications |
| 2. Process fruit jams | * 1. Fruit jam processing equipment are assembled as per work place procedure   2. Fruit jam ingredients are prepared for processing according to workplace procedure   3. Fruit jamis processed according to product specifications   4. Fruit jam is analysed according to product specifications   5. Fruit jam products are packaged according to products specifications |
| 3. Process fruit jellies | * 1. Fruit jellies equipment is assembled as per work place procedure   2. Fruit jelly ingredients are prepared for processing according to workplace procedure   3. Fruit jellies are processed according to product specifications   4. Fruit jellies are analysed according to product specifications   5. Fruit jellies are packaged according to product specifications |
| 4. Process marmalades | * 1. Marmalade processing equipment are assembled as per work place procedure   2. Marmalade ingredients are prepared for processing according to work place procedure   3. Marmalade is processed according to product specifications   4. Marmalade is analysed according to product specifications   5. Marmalade is packaged according to product specifications |

**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. Tomato products may include but not limited to: | 1. Ketchup 2. Paste 3. Juice 4. Sauce |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Food microbiology
* Food engineering
* Principles of food processing and preservation
* Fruits and vegetables technology
* Food quality management systems
* Waste disposal
* Regulatory requirements

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Digital literacy
* Planning
* Problem solving
* Analytical
* Team work
* Sampling of fruits and vegetables
* Tools and equipment handling
* Record keeping

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1.Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Processedtomato products according to product specifications   2. Packaged tomato products according to product specifications   3. Processed fruit jamaccording to product specifications   4. Packaged fruit jam products according to products specifications   5. Processed fruit jellies according to product specifications   6. Packaged fruit jellies according to product specifications   7. Processed fruit marmaladesaccording to product specifications   8. Packaged fruit marmalades according to product specifications |
| 2.Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 3.Methods of assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Oral assessment   3. Portfolio of evidence   4. Third party report   5. Written tests |
| 4.Context of assessment | Competency may be assessed in:  4.1 Work place  4.2 Simulated workplace environment |
| 5.Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended |

## PROCESS CONFECTIONERIES

**UNIT CODE: 0721 451 11A**

**UNIT DESCRIPTION:** This unit specifies the competencies required to process confectioneries. It involves processing candies, highly boiled sweets and fondants.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Elements**  **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. Process candies** | * 1. Candies***ingredients*** are assembled according to workplace procedures   2. Candies are processed according to product specifications   3. Candies are analysed according to product specifications   4. Candies are packaged according to product specifications |
| **2. Process high boiled sweets** | * 1. High boiled sweets ingredients are assembled according to workplace procedures   2. High boiled sweets are processed according to product specifications   3. High boiled sweets are analysed according to product specifications   4. High boiled sweets are packaged according to product specifications |
| **3. Process fondants** | * 1. Fondants ingredients are assembled according to workplace procedures   2. Fondants are processed according to product specifications   3. Fondants are analysed according to product specifications   4. Fondants are packaged according to product specifications |

**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** |
| **Ingredientsmay include but not limited to;** | 1. Water 2. Sugar 3. Colour 4. Flavour |

**REQUIRED KNOWLEDGE AND SKILLS**

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

Required knowledge

The individual needs to demonstrate knowledge of:

* Food engineering
* Food chemistry
* Food microbiology
* Sugar technology
* Food quality management system
* Food processing and preservation
* Regulatory requirements

Required skills

The individual needs to demonstrate the following skills:

* Communication
* **Team work**
* **Numeracy**
* **Problem solving**
* **Analytical**
* **Tools and equipment handling**

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| **1. Critical aspects of competency** | Assessment requires evidence that the candidate:   * 1. Processed candies ingredients according to product specifications   2. Packaged candies according to product specification   3. Processed high boiled sweets according to product specifications   4. Packaged high boiled sweets according to product specification   5. Fondants are processed according to product specifications   6. Packaged fondants according to product specifications |
| **2. Resource implications** | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| **3.Methods of assessment** | Competency in this unit may be assessed through:   1. Practical assessment 2. Oral assessment 3. Portfolio of evidence 4. Third party report 5. Written tests |
| **4.Context of assessment** | Competency may be assessed in:   * 1. Work place   2. Simulated workplace |
| **5.Guidance information for assessment** | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended |

## PROCESS MEAT PRODUCTS

**ISCED UNIT CODE: 0721 451 12A**

**UNIT DESCRIPTION**

This unit specifies the competencies required to process meat products. It involves processing beef, fish and poultry products.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **Elements**  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. Process beef products | 1. Animal is slaughtered according to workplace procedures 2. Beef processing equipment are assembled as per workplace procedures 3. Beef processing ingredients are assembled as per workplace procedure 4. Beef is prepared according to beef processing procedures 5. ***Beef products*** are processed according to product specifications 6. Beef products are analysed according to product specifications 7. Beef products are packaged according to product specifications |
| 2. Process fish products | * 1. Fish is acquired according work place procedures   2. Fish processing equipment are assembled as per workplace procedures   3. Fish processing ingredients are assembled as per workplace procedures   4. Fish is prepared according to fish processing procedures   5. ***Fish products*** are processed according to product specification   6. Fish products are analysed according to product specifications   7. Fish products are packaged according to product specifications |
| 3. Process poultry products | * 1. Poultry is slaughtered according work place procedures   2. Poultry processing equipment are assembled as per workplace procedures   3. Poultry processing ingredients are assembled as per workplace procedures   4. Poultry is prepared according to workplace procedures   5. ***Poultry products*** are processed according to product specifications   6. Poultry products are analysed according to product specifications   7. Poultry products are packaged according to product specifications |

**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. Beef products may include but not limited to: | * Sausages * Meat loaf * Meat ham * Frankfurters * Meat burgers * Biltong meats |
| 1. Fish products may include but not limited to: | * Fillets * Fish balls * Fish kebabs |
| 1. Poultry products may include but not limited to: | * Eggs * Poultry meat * Chicken meat ball * Chicken ham |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Food engineering
* Food analysis
* Food microbiology
* Food quality management system
* Technology of meat products
* Regulatory requirements
* Principles of food processing and preservation

**Required skills**

The individual needs to demonstrate the following skills:

* Communication
* Planning
* Problem solving
* Microbiological and chemical analysis
* Raw material and product sampling
* Tools and equipment handling
* Team work

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   1. Processed beef products according to product specifications 2. Packaged beef products according to product specifications 3. Processed fish products according to product specifications 4. Packaged fish products according to product specifications 5. Processed poultry products according to product specifications 6. Packaged poultry products according to product specifications |
| 1. Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 1. Methods of assessment | Competency in this unit may be assessed through:   1. Practical assessment 2. Oral assessment 3. Portfolio of evidence 4. Project 5. Third party report 6. Written tests |
| 1. Context of assessment | Competency may be assessed in:   * 1. Workplace   2. Simulated workplace |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended. |