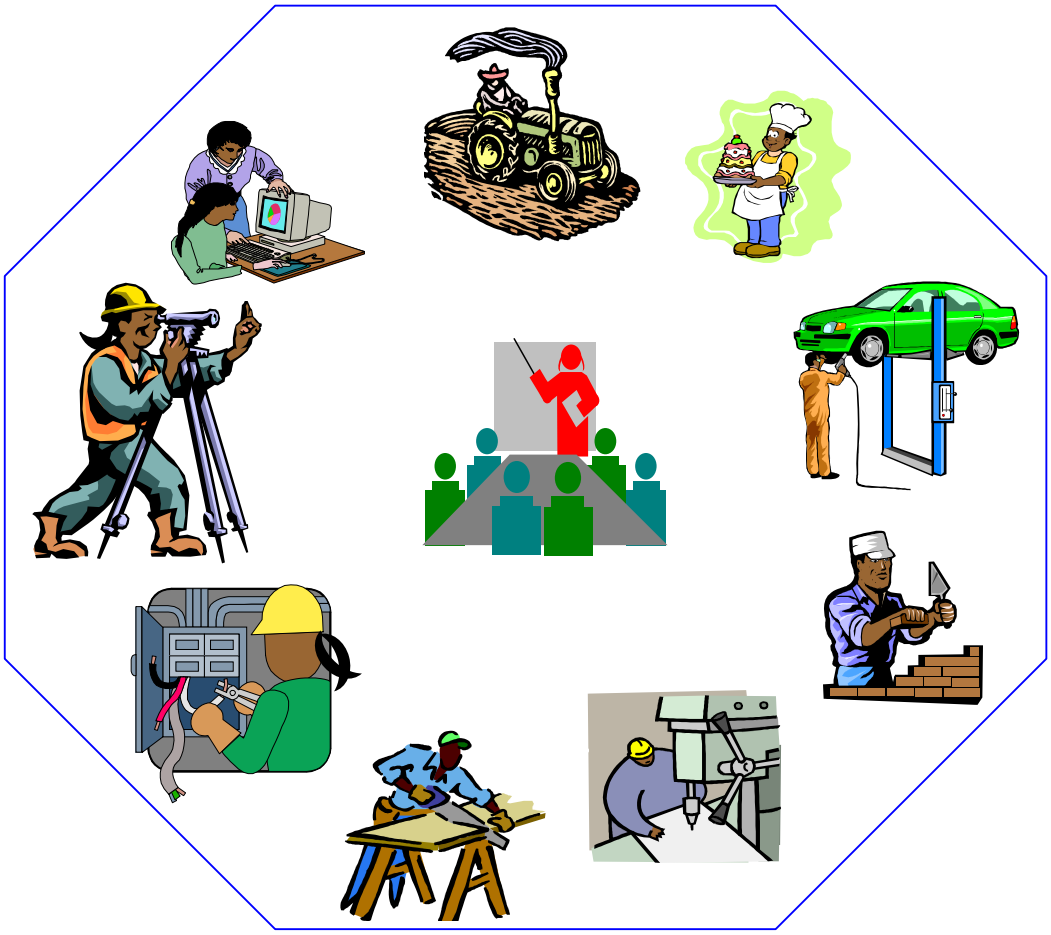
Federal Democratic Republic of Ethiopia

OCCUPATIONAL STANDARD

FOOD PROCESSING OPERATION

NTQF Level IV



Ministry of Education
July 2013

Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopia Occupational Standards (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET-Qualification Framework (NTQF). They are national Ethiopian standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopia Occupational Standard which comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title and NTQF level
- Unit title
- Unit code
- Unit descriptor
- Elements and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the respective level (Unit of Competence Chart) including the Unit Codes and the Unit titles
- contents of each Unit of Competence (competence standard)
- occupational map providing the Technical and Vocational Education and Training (TVET) providers with information and important requirements to consider when designing training programs for this standards and for the individual, a career path

UNIT OF COMPETENCE CHART

Occupational Standard: Food Processing Operations		
Occupational Code: IND FPO		
NTQF Level IV		
IND FPO4 01 0613 Identify, Evaluate & Control Food Safety Hazards	IND FPO4 02 0613 Identify the Physical & Chemical Properties of Materials, Food & Related Products	IND FPO4 03 0613 Apply an Understanding of Legal Requirements of Food Production
IND FPO4 04 0613 Apply Food Processing Technologies	IND FPO4 05 0613 Apply Basic Process Engineering Principles to Food processing	IND FPO4 06 0613 Apply an Understanding of Food Additives
IND FPO4 07 0613 Apply the Principles of Nutrition to Food Processing	IND FPO4 08 0613 Apply Digital Technology in Food Processing	IND FPO4 09 0613 Apply Sensory Analysis in Food Processing
IND FPO4 10 0613 Apply Food Preservation Technologies	IND FPO4 11 0613 Perform Microbiological Procedures in the Food Industry	IND FPO4 12 0613 Conduct Food Safety Audits
IND FPO4 13 0613 Perform Food Test	IND FPO4 14 0613 Document Processes and Procedures for a Food Product	IND FPO4 15 0613 Implement & Monitor Environmentally Sustainable Work Practices
IND FPO4 16 0613 Monitor the Development & Implementation of a Food QA System	IND FPO4 17 0613 Schedule & Manage Production	IND FPO4 18 0613 Plan and Coordinate Maintenance
IND FPO4 19 0613 Prepare & Review Workplace Documentation to Support Good Manufacturing Practice	IND FPO4 20 0613 Identify & Implement Product Safety & Quality for Processing Plant Animal Source Food	IND FPO4 21 0613 Plan and Organize Work

IND FPO4 22 0613 Migrate to New Technology	IND FPO4 23 0613 Establish Quality Standards	IND FPO4 24 0613 Develop Individuals and Team
IND FPO4 25 0613 Utilize Specialized Communication Skills	IND FPO4 26 0613 Manage and Maintain Small/Medium Business Operations	IND FPO4 27 0613 Apply Problem Solving Techniques and Tools

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Identify, Evaluate and Control Food Safety Hazards**
Unit Code	**IND FPO4 01 0613**
Unit Descriptor	This unit of competence covers the skills and knowledge required to identify, evaluate and control food safety hazards for the purposes of validating specific control measures in a food safety program.

Elements	Performance Criteria
1. Identify food safety hazards in a food business	1.1. ***Biological food safety hazards*** that could present a risk in the food at the point of consumption are identified by type, origin and food association and assessed to determine risk level and control requirements. 1.2. Intrinsic and extrinsic ***chemical food safety hazards*** that could present a risk in the food at the point of consumption, including toxin presence, are identified by type, origin and food association and assessed to determine risk level and control requirements. 1.3. ***Physical food safety hazards*** that present a risk in food are identified and assessed to determine control requirements.
2. Control food safety hazards in a food business	2.1. ***Processing hazards*** and related control measures and ***critical limits***, monitoring and recording requirements are established and ***validated*** to eliminate or reduce food safety hazards to acceptable levels. 2.2. Food storage and handling requirements necessary to eliminate or reduce food safety hazards are determined. 2.3. Personal hygiene practices required to eliminate or reduce food safety hazards are established. 2.4. Cleaning and sanitation, housekeeping and pest control practices and procedures required to prevent or reduce food safety hazards are established. 2.5. Other prerequisite programs are developed to eliminate or reduce food safety hazards to acceptable levels.

Variable	Range
Biological food safety hazards	Common biological food safety hazards include but are not limited to: • Salmonella spp • Campylobacter jejuni • Bacillus cereus • Clostridium perfringens

	• Clostridium botulinum • Cryptosporidium • Pathogenic escherichia coli • Giardia • Listeria moncytogenes • Shigella spp • Staphylococcus aureus • Vibrio parahaemolyticus • Yersinia enterocolitica • Hepatitis A virus • Norwalk virus Classifications by type of micro-organism include: • bacteria • viruses • moulds/fungi • parasites • algae
Chemical food safety hazards	Common origins of chemical contamination may include: • cleaning chemicals • pesticides • veterinary residues • chemical additives • allergenic substances • toxic metals • nitrites, nitrates and N-nitroso compounds • polychlorinated biphenyls (PCBs) • plasticizers and packaging migration • phytotoxins • zootoxins
Physical food safety hazards	refer to objects not normally found in food which may cause illness or injury to the consumer
Hazards	is a biological, chemical, or physical agent in, or condition of, food with the potential to cause an adverse health effect in humans
Critical limit	refers to criterion which separates acceptability from unacceptability
Validation	refers to obtaining evidence to confirm that a HACCP-based food safety program is complete and effective and will deliver the expected food safety outcomes
Validation evidence	confirms that control measures are capable of being consistently effective and may include the application of: • existing Australian legislative requirements • challenge tests • peer reviewed scientific papers • targeted scientific reports • validation already carried out in other jurisdictions and recognized by the responsible authority

	• mathematical modelling (e.g. predictive microbiology models) • industry codes of practice (where implementation by food business is verified during audits)
Licensing/certification requirements	are determined by system owners
Acceptable levels	define the level of a particular hazard in the end product that is acceptable to ensure food safety. Acceptable levels are typically defined by: • the Food Standards Code • commonwealth, state or territory legislation or codes • industry codes of practice • international protocols (CODEX Alimentarius) • customer food safety requirements (including intended use)
Prerequisite programs	are also referred to as support programs, such as Good Manufacturing Practice (GMP), Good Agricultural Practice (GAP) and Good Hygiene Practice (GHP). Prerequisite programs can be divided into two categories. Infrastructure and maintenance programs. These may include: • layout, design and construction of buildings and facilities • supplies of air, water, energy and other utilities • equipment, including preventative maintenance, sanitary design and accessibility for maintenance and cleaning • support services, including waste and sewage disposal Operational prerequisite programs. These may include: • personal hygiene • cleaning and sanitation • pest control • measures for the prevention of cross-contamination • packaging and labelling procedures • supplier assurance • chemical storage • employee training • maintenance • calibration • document control • internal audit programs • traceability and recall programs • on-farm food safety schemes • inspecting and testing regimes, including analytical and microbiological testing
Critical control point	is a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level
Food supply chain	refers to a sequence of stages and operations involved in the production, processing, distribution and handling of food from primary production to consumption

Growth requirements	which influence the growth of pathogenic micro-organisms may include: • temperature • water activity • gases • pH • time • moisture • nutrients

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: • select a food supply chain and identify: ➢ known biological food safety hazards that could occur across the chain and could present a risk in food at the point of consumption ➢ likely patterns of growth and transmission from source of contamination to onset of consumer symptoms for pathogens likely to occur in the supply chain, including threshold levels ➢ sources of chemical and physical contamination that could present a food safety risk at the time of food consumption, across the chain ➢ impact and indicators of the presence of biological or chemical food safety hazards throughout the food chain ➢ acceptable levels of contamination. These may be established by reference to relevant legislation and/or reference to system requirements • select one stage in the food supply chain (which must be a medium or high risk business or process) and establish or validate control measures and verification records and procedures
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • sources of advice and research on foods, processing methods, production technologies and associated food safety hazards and control methods • ways in which food can cause illness and injury, including incidence and trends in food-borne illness • intrinsic and extrinsic factors that can impact on food safety • common biological food safety hazards (including toxin production and spore formation) and conditions required for survival and growth of each, including growth rates, transmission routes, likely carriers and threshold levels • sources of information on acceptable (and legal) levels of biological, chemical and physical contamination • food supply chains and potential of a breakdown in control at one point to impact other parts of the chain

	• survival and growth requirements of biological food safety hazards • common allergenic substances as described by the Food Standards Code • common control methods necessary to eliminate or reduce the risk of food-borne illness to acceptable levels for each common pathogen, including the role of food storage, temperature control, preservation and process methods, traceability, product shelf-life, cleaning and sanitation, and pest control • methods to detect and minimize the risk of food contamination by personal carriers, including convalescent and symptomless carriers, and related minimum legal illness reporting requirements and personal hygiene procedures • the role of microbiological sampling, swabbing and testing in assessing the presence of biological contamination • methods to determine the appropriateness and effectiveness of control measures and critical limits, including identifying the effect of control measures on the identified food safety hazard, method and feasibility of monitoring, the relationship to other control measures, and the severity of consequences and required corrective action in the event of failure of control • types and causes of acute and chronic chemical food borne illness • the food safety and legal impact of chemical contamination, including residual agricultural and environmental chemicals, residual industrial (including cleaning) chemicals, and chemical contamination as a result of packaging methods and materials • physical hazards that pose a food safety risk • common control methods to eliminate or reduce the risk of chemical or physical food-borne illness to acceptable levels for each common form of chemical and physical food safety hazard, including: ➢ chemicals that pose a food safety risk ➢ common food allergens ➢ physical hazards • the role and requirements of prerequisite programs and procedures to eliminate, prevent or reduce biological, chemical and physical food safety hazards to acceptable levels
Underpinning Skills	Demonstrates skills to: • interpret and apply relevant legislation, codes of practice and technical standards • identify biological, chemical and physical food safety hazards • determine critical control points and critical limits for identified hazards • establish the required procedures, systems and records to monitor critical control points in order to demonstrate that the critical control point is in control

	• specify required corrective actions and corrections to be taken when critical limits are not achieved
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Identify the Physical and Chemical Properties of Materials, Food and Related Products**
Unit Code	**IND FPO4 02 0613**
Unit Descriptor	This unit covers the skills and knowledge required to identify the physical and chemical properties of materials, food and related products. It requires application of this knowledge to a production environment. This unit has application in the food processing industry where knowledge of physical and chemical properties of materials, food and related products is used to inform work in product development, production, testing, communication and problem solving.

Elements	Performance Criteria
1. Apply understanding of common physical phenomena in the food industry	1.1. An understanding of common physical phenomena is applied to explain relevant changes that occur to ingredients and product through the production process. 1.2. Information on the changes that occur is communicated to others in appropriate formats.
2. Apply an understanding of the physical states of matter	2.1. The three states of matter and the atomic changes that occur at each phase are identified. 2.2. The behavior of each type of matter and its relationship to the production process are described. 2.3. The relationship between pressure and temperature is identified in phase transition.
3. Apply an understanding of common food science principles to a production process	3.1. The significance of pH for processing, food safety and cleaning applications is identified. 3.2. The reactions and properties of carbohydrates, proteins and fats can be tracked through a given process. 3.3. The properties of common emulsions, suspensions and solutions can be described. 3.4. Common chemical reactions that occur, factors required to cause a reaction and the effect of reactions can be identified. 3.5. Safe work procedures for processes requiring handling of chemicals and/or involving chemical reactions are reviewed and/or established.
4. Communicate and interpret technical information	4.1. Appropriate technical terms are used to communicate information on properties of food and materials commonly used in the food industry. 4.2. Results and reporting formats are tested to communicate information on composition, properties and reactions are interpreted and applied.

Variable	Range
Handling and processing of product and materials	is consistent with company standards and requirements, legislative requirements, codes, industrial awards and agreements
Identification of molecular structure	can be supported by others and does not necessarily involve use of microscopes in a laboratory

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • identify physical and chemical characteristics of food materials and the impacts of production processes on these characteristics • identify common tests and measures to assess food materials • identify the characteristics of acids and bases and their application in food processing • identify the basic molecular structures of carbohydrates, proteins and fats • distinguish the difference between solutions, suspensions and colloidal systems • identify hazards and control methods in managing hazardous materials • communicate technical information using correct technical terms, flow charts and sketches
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • physical characteristics or phenomena that occur through processing and products and processes where these phenomena can be observed • tests commonly used to measure these phenomena and related units of measurement • molecular changes that occur in states of matter • transition phases that apply in a given production process • role of temperature and pressure in the transition process • differences between a strong acid and a concentrated acid and related units of measurement • classifications of commonly used materials, ingredients and indicators according to ph • typical strengths and concentration levels required for acids and bases commonly used in a production process • basic molecular structures of carbohydrates, proteins and fats • difference between solutions, suspensions and colloidal systems • typical applications of solutions, suspensions and colloidal systems in food processing • factors that the affect stability of colloidal systems • common chemical reactions that occur in food processing

	• role of enzymes in generating biological reactions • safety hazards and control methods • technical information resources
Underpinning Skills	Demonstrate skills to: • identify physical characteristics or phenomena that occur through processing, including the following common physical phenomena, and any additional phenomena appropriate to the production process: ➢ shear and strain ➢ friction ➢ surface tension ➢ pressure ➢ crystallization ➢ total solids ➢ heat and temperature ➢ relative humidity ➢ work/energy input ➢ viscosity ➢ particle size ➢ melting points, boiling points, freezing points ➢ dew/condensation point ➢ other phenomena as appropriate to product/process • identify products and processes where these phenomena can be observed • based on phenomena that can be observed in a production process, develop explanatory sketches or flow charts to communicate how these phenomena affect product and process • identify tests commonly used to measure these phenomena and related units of measurement • identify molecular changes that occur in states of matter, and apply this to an understanding of common applications, such as refrigerant or freeze drying • for transition phases that apply in a given production process, identify the role of temperature and pressure in the transition process • identify the difference between acids and bases • classify commonly used materials, ingredients and indicators according to pH • identify the difference between a strong acid and a concentrated acid and related units of measurement used to describe these acids • identify typical strengths and concentration levels required for acids and bases commonly used in a production process (e.g. cleaning agents) • for cleaning agents, identify compatibility with equipment surface materials

	• identify the significance of pH for processing, food safety and cleaning applications • identify the basic molecular structures of carbohydrates, proteins and fats • identify the processing stages designed to affect the structure of these compounds (e.g. hydrogenation or denaturing proteins in cooking processes of oil) • distinguish the difference between solutions, suspensions and colloidal systems. Colloidal systems include: ➢ emulsions (oil in water/water in oil), sols (solid-liquid/solid-solid), gels and foams (gas-liquid/gas-solid) • identify typical applications of solutions, suspensions and colloidal systems in food processing • distinguish between dispersed particles and the dispersion medium in colloids • identify factors that the affect stability of colloidal systems, including the stages in a production process that can cause a change in the structure of a colloid • identify common chemical reactions that occur in food processing, including both spontaneous and controlled reactions (reactions to be covered include oxidation, enzymic, Maillard and acid-based reactions, and other reactions relevant to a given product type and production process) • identify the role of enzymes in generating biological reactions (e.g. amylase in bread) • identify safety hazards and control methods required when handling chemicals and working with processes that involve chemical reactions • review and/or develop workplace procedures to include advice on hazards and related instructions on control methods, including advice on action required in the event of an incident such as a chemical spill or an emergency • read and interpret technical information to describe food properties and/or reactions, including recognition and application of appropriate units of measurement and terms • use communication skills to interpret and complete work information to support operations of work team or area • demonstrate and support cooperative work practices within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Apply an Understanding of Legal Requirements of Food Production**
Unit Code	**IND FPO4 03 0212**
Unit Descriptor	This unit of competence covers the skills and knowledge required to ensure that food production operations comply with legal requirements. The intent of this unit covers the range of legal requirements applying to food processing activities and facilities but not include requirements related to environmental management, Occupational Health and Safety (OHS) and food safety except being aware of the existence of legislation, its intent and the arrangements in place to ensure compliance.

Elements	Performance Criteria
1. Manage production systems to meet legislative requirements relating to product and processing	1.1. Relevant ***legislation*** and regulations that apply to food production, packaging and labeling are identified. 1.2. The purpose and intent of relevant legislation are identified. 1.3. The roles and responsibilities of authorities responsible for administering legislation are identified. 1.4. Procedures are established and/or reviewed to support compliance with legal requirements.
2. Manage production facilities to meet legislative requirements relating to food premises, equipment design and storage facilities	2.1. Relevant legislation and regulations that apply to food premises, storage facilities and equipment are identified. 2.2. The purpose and intent of relevant legislation are identified. 2.3. The roles and responsibilities of authorities responsible for administering legislation are identified. 2.4. Procedures to support compliance with legal requirements are established and/or reviewed.

Variable	Range
Legislation	to be covered by this unit includes: • Food Standards Code • food safety legislation (including provisions covering the design of food premises and equipment) • customs and excise legislation (for alcohol-based ingredients/materials) • dangerous goods legislation • import and export legislation • additional legislation as appropriate to product, process and market • environmental protection legislation

Evidence Guide	
Critical Aspects of Competence	Must Demonstrate evidence of ability to: • identify legal requirements for the packing, production and labelling operations of a food production enterprise • assess systems, roles and procedures in place • identify legal requirements for facilities and equipment and assess compliance • establish and/or review procedures to support compliance with legal requirements.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • legal responsibilities of a food processing company relating to product content and packaging • the purpose and intent of relevant legislation • potential hazards that could be introduced as a result of equipment design and configuration • associated risks in handling chemicals and dangerous goods • recording requirements to comply with legislative requirements • relevant authorities responsible for administering legislation and their roles
Underpinning Skills	• identify the legal responsibilities of a food processing company, including responsibilities relating to: ➢ product content (Food Standards Code) ➢ product packaging and labeling, including use of nutritional information panels (Food Standards Code) ➢ design requirements of food premises and equipment ➢ requirements of storage facilities used for materials, ingredients and final product ➢ other requirements as appropriate to the product and/or market (e.g. import and/or export legislation) • identify and/or develop specifications and procedures to ensure that legal responsibilities related to product content and packaging are achieved • inspect plant design to identify potential hazards that could be introduced as a result of equipment design and configuration, such as overhead pipes or equipment where dust could collect and fall into food • where hazards are identified, apply the hierarchy of control to identify opportunities to remove or control the risk • identify storage facilities across a production site • identify the dangerous goods stored on site and confirm that storage of these goods (type and quantity) meets legal requirements • confirm that employees required to handle chemicals and dangerous goods are advised of the associated risks, that this information is available in a form appropriate to the audience and that material safety data sheets are available

	• develop and/or review recording systems to confirm compliance with legislative requirements and ensure that employees responsible for recording information are informed of these responsibilities • establish internal review/audit procedures to confirm that legislative responsibilities are met • identify the relevant authority responsible for administering the legislation • identify the rights and responsibilities of related officers to access the production site • use communication skills to interpret and complete work information to support operations of work team or area • demonstrate and support cooperative work practices within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard : Food Processing Operations Level IV	
Unit of Competence	**Apply Food Processing Technologies**
Unit Code	**IND FPO4 04 0613**
Unit Descriptor	This unit covers the skills and knowledge required to apply food processing technologies and to review their effectiveness and efficiency based on an understanding of food science and technology.

Elements	Performance Criteria
1. Carry out fermentation as part of food or beverage production	1.1 ***Materials and equipment*** for a ***fermentation*** process are prepared. 1.2 A fermentation process is applied and monitored. 1.3 The fermented product is tested and evaluated.
2. Review a fermentation process for a commercial food product	2.1 The Critical Control Points (CCPs) and critical limits for product safety are reviewed. 2.2 Operating procedures are reviewed for food safety and quality in fermentation. 2.3 The food safety and production plans are reviewed for the fermentation process. 2.4 Environmental impacts and associated costs are reviewed for fermentation in commercial food production.
3. Carry out concentration and drying as part of food or beverage production	3.1 ***Materials and equipment*** for a ***concentration and drying*** process are prepared. 3.2 A concentration and drying process is applied and monitored. 3.3 The concentrated and dried food product is tested and evaluated.
4. Review a concentration and drying process for a commercial food product	4.1 The CCPs and critical limits for product safety are reviewed. 4.2 Operating procedures are reviewed for food safety and quality in fermentation 4.3 The food safety and production plan are reviewed for the fermentation process. 4.4 Environmental impacts and associated costs are reviewed for fermentation in commercial food production.
5. Carry out cooking or steaming as part of food or beverage production	5.1 ***Materials and equipment for a cooking or steaming*** process are prepared. 5.2 A cooking or steaming process is applied and monitored. 5.3 The cooked or steamed food product is tested and evaluated.

6. Review a cooking or steaming operation for a commercial food product	5.1 The CCPs and critical limits for product safety are reviewed. 5.2 Operating procedures are reviewed for food safety and quality in fermentation. 5.3 The food safety and production plan is reviewed for the cooking or streaming process. 5.4 Environmental impacts and associated costs are reviewed for fermentation in commercial food production.

Variables	**Range**
Materials and equipment for fermentation	• Fermentation equipment may include water baths, cabinets, tunnels, multipurpose tanks, and fermentation tanks. • Materials used in fermentation may include raw materials/pre-processed materials to be fermented, starters such as single strain starters, and multiple strain cultures, mixed strains.
Methods of fermentation	Fermentation processes in industry may include lactic acid fermentation and alcohol fermentation.
Materials and equipment for concentration and drying	Heating and cooling systems, hygiene and sanitation equipment, drying, dehydration and systems, concentration systems and other relevant food processing equipment.
Methods of concentration and drying	• Methods used to concentrate foods include evaporation, filtration, reverse osmosis and freeze concentration. • Methods used to dry foods include sun drying, cabinet, spray, drum drying and freeze dehydration
Materials and equipment for cooking or steaming	Equipment typically includes weighing and measuring equipment; sieves; blending and mixing equipment; cooking equipment or shell and tube heat exchangers/cookers (continuous processing).
Occupational health and safety requirements	• Codes of practice • Material Safety Data Sheet • Enterprise specific requirements.
Regulations	• Ethiopian and international standards including: • industry guidelines and codes of practice • industry regulations • Ethiopian Food Standards Code and food regulators • ISO Standards and codex alimentarius

Evidence Guide	
Critical Aspects of competence	Critical aspects of assessment must include evidence of: applying methods for fermentation or concentration and drying or cooking or steaming; determining processes and critical limits for processing a food product; documenting physical, biochemical and biological changes to food products and testing criteria; and analyzing process controls for a food processing operation, based on product testing.

Underpinning Knowledge	• biochemical principles of fermentation, including - lactic acid fermentation and alcohol fermentation. • the major micro-organism groups used in fermentation, including Lactococcus, Steptococcus, Leuconostoc, Pediococcus, Lactobacillus bacterial species, yeasts and moulds • the microbial growth phases - Lag phase, Log phase, Stationary phase and Death phase • materials used in the fermentation process, including raw materials/ pre-processed materials and starter cultures (single strain starters, multiple strain cultures, mixed strains) • quality control processes and procedures used to assess fermented food products. • Concentration and drying: ➢ the principles of heat transfer in the concentration of food ➢ the principles of heat transfer in the drying of food ➢ the various methods of concentration of foods, including evaporation, filtration, reverse osmosis and freeze concentration ➢ the various methods of dehydrating foods, including cabinet, spray, drying and freeze dehydration ➢ quality control process and procedures used to assess concentrated and dried food products. • Cooking or steaming: ➢ purpose and basic principles of heat sterilization and effect on physical, chemical, micro-biological and organoleptic characteristics of the cooked product ➢ basic operating principles of equipment including safe operating procedures ➢ quality characteristics and conditioning required of ingredients used and their role in the product. Conditioning may include reconstituting dry ingredients and bringing ingredients to a required temperature ➢ effect of ingredient quality/condition on the process. This may include variables such as temperature, viscosity/texture, microbial load and acidity quality ➢ heat treatment requirements for low and/or high acid foods as appropriate to production requirements ➢ stages and changes which occur during the blending and heat treatment stages ➢ quality requirements of the cooked product. ➢ relationship between time and temperature in the cooking process
Underpinning Skills	Ability to: • Fermentation: ➢ recognize the biochemical principles of fermentation in production

	➢ establish the role of micro-organisms in the fermentation process ➢ identify materials used in the fermentation process, including raw materials/pre-processed materials and starter cultures ➢ recognize the equipment used in the production of fermented food products ➢ apply appropriate quality control processes and procedures to assess fermented food products ➢ ferment samples of food successfully • Concentration and drying: ➢ recognize the principles of concentration in production, including: ➢ the aim of concentration in food processing ➢ the need for concentration in food processing ➢ heat transfer mechanism • recognize the principles of drying in food production, including: ➢ the aim of drying in food processing ➢ the need for drying in food processing ➢ heat transfer mechanism ➢ concentrate samples of food successfully ➢ dry samples of food successfully ➢ apply appropriate quality control processes and procedures to assess food products • Cooking or steaming: ➢ sequence ingredient addition to meet recipe specifications. • start, monitor and adjust processing equipment to achieve required outcomes. Typical parameters monitored include: ➢ time and temperature ➢ agitation settings ➢ weights ➢ flow rates ➢ flow diversion ➢ characteristics of the mix such as color, viscosity, density, and consistency ➢ take corrective action in response to out-of-specification results
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Apply Basic Process Engineering Principles to Food Processing**
Unit Code	**IND FPO4 05 0613**
Unit Descriptor	This unit of competence provides an introduction to process engineering concepts. It covers the skills and knowledge required to map production processes, measure outputs (yields, material variances) and apply an understanding of the basic principles of systems and equipment commonly used in the food processing industry. Application of this unit includes systems and equipment used for heat transfer, refrigeration, pumping and evaporation/drying.

Elements	Performance Criteria
1. Map a production process	1.1. The scope of a production process to be mapped is identified. 1.2. Appropriate process mapping symbols are selected and used. 1.3. A map is developed that identifies the relationship of each step in the process.
2. Calculate yields and efficiencies of a production process	2.1. Inputs to and outputs of a production processing system are identified. 2.2. Information required to monitor performance of a production process is collected. 2.3. ***Calculate*** yields, efficiencies and material variances.
3. Apply principles of fluid flow to a production process	3.1. Fluid properties that affect flow are identified. 3.2. Components and related equipment used in the pumping system are identified. 3.3. Features of the system design that affect performance of the pumping system are identified. 3.4. The effect of pumping on the fluid properties is identified. 3.5. The operating capacity of pumping systems used in the production process is established. 3.6. Procedures for the safe use of pumping equipment are reviewed and/or established.
4. Apply principles of heat transfer to a production process	4.1. Types of heat transfer are identified. 4.2. Methods and related equipment used to transfer heat are identified. 4.3. Types of heat transfer media are identified. 4.4. Operating principles of cooling, chilling and freezing processes are identified.

	4.5. The effect of heat transfer on product/material properties is identified. 4.6. The operating capacity of heat transfer equipment used in the production process is established. 4.7. Procedures for the safe use of heat transfer equipment are reviewed and/or established.
5. Apply principles of evaporation to a production process	5.1. Methods and related equipment used for evaporation are identified. 5.2. The effect of evaporation on product/material properties is identified. 5.3. Tests used to determine the concentration of a liquid are identified. 5.4. The operating capacity of evaporation equipment used in the production process is established. 5.5. ***Procedures and policies*** are reviewed and/or established for the safe use of evaporation equipment.
6. Apply principles of drying to a production process	6.1. Methods and related equipment used for drying are identified. 6.2. The effect of drying on product/material properties is identified. 6.3. Tests used to determine moisture content of materials and/or product is identified. 6.4. The operating capacity of drying equipment used in the production process is established. 6.5. Procedures for the safe use of drying equipment are reviewed and/or established.
7. Apply principles of process control to management of production processes	7.1. Sensors and instrumentation providing input information to the control system are located. 7.2. Consequences of a system malfunction are identified.

Variable	**Range**
Calculation	of yields, efficiencies and material variances may involve: • use of software programs and systems, such as SAP • application of a relevant formula
Policies and procedures	Uses of processing equipment and related work processes are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of OHS and environmental impact

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • map a production process

	• apply engineering principles to a food production context • perform required calculations.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • the basic operating features and components of pumps commonly used and typical applications, such as: ➢ rotodynamic (centrifugal) pumps ➢ positive displacement pumps, including reciprocating piston pumps, rotary pumps (including gear and lobe pumps), screw pumps, eccentric rotor pumps (including progressive cavity or mono pumps) and flexible vane pumps • related components of the pumping system, including valves, taps and pipe work, and where required, Australian standards and workplace protocols for indicating materials carried by pipe work • features in the pumping system design that affects pumping efficiencies, including length of pipe work, number and placement of valves and fittings, height of inlet and discharge points, internal surface and diameter of the pipe • the following terms: ➢ pressure and pressure drop ➢ velocity ➢ head • typical applications in the food industry and the heat transfer medium used • equipment components of a drying process • heat transfer requirements and equipment used in a production process • tests carried out to determine process outcomes on material/product • operational and safety features of drying equipment • inspections required to identify signs of faulty performance and/or wear • main types of sensors used in food processing to provide input data to control systems and how these sensors operate
Underpinning Skills	• establish and apply process mapping protocols and symbols used in the workplace to describe a production process • identify the inputs to a production process and the outputs of a production process • identify the data required to calculate yields, efficiencies and material variances • locate sources of information in the workplace, such as printing reports from information management systems • calculate yields, efficiencies and material variances using software or application of a formula • identify properties of fluids that affect fluid flow, including viscosity, temperature and size, and distribution of particulates

	• identify types of pumping equipment appropriate for different types of liquids • identify tests or measures taken to monitor operation of pumps and related performance information • apply information to describe pump system capacity in a production process • identify features in the pumping system design that affects pumping efficiencies, including length of pipe work, number and placement of valves and fittings, height of inlet and discharge points, internal surface and diameter of the pipe • identify possible effects of pumping on liquid properties • identify operational and safety features of pumps used in a production process, including inspections required to identify signs of faulty performance and/or wear • review and/or establish procedures to define safe pump operation and maintenance • identify heat transfer methods and types of equipment commonly used in the food industry, such as: ➢ retorts ➢ jacketed vessels/kettles ➢ heat exchangers, including plate, tubular and scraped surface ➢ cooling tunnels ➢ refrigeration circuits ➢ chillers and freezers • identify typical applications in the food industry and the heat transfer medium used for each heat transfer method • identify the effects of heat transfer on properties of materials/products, including possible consequences where the heat transfer process is not operated within specified parameters • distinguish between conduction, convection and radiation in the application of heat • identify the properties of heat and steam, including an understanding of the terms latent heat, saturated and supersaturated steam • identify the heat transfer requirements and equipment used in a production process, including mapping the stages and equipment used in a heat transfer process and holding stages • identify tests or measures taken to monitor performance of heat transfer equipment and related expression of performance information • apply information to describe heat transfer process capacity in a production process • identify operational and safety features of heat transfer equipment used in a production process, including inspections required to identify signs of faulty performance and/or wear

	• review and/or establish procedures to define safe operation and maintenance of heat transfer processes and equipment used in a production process
	• identify the effects of evaporation on product, such as:
	  ➢ physical property changes such as crystallisation, increased solids/viscosity
	  ➢ intensification of flavour and concentration of acids
	  ➢ changes in microbiological characteristics due to application of heat and reduction of moisture/water activity
	• identify the equipment components of an evaporation process, such as:
	  ➢ heat transfer surface (rising film, falling film, forced circulation and plate)
	  ➢ vapour separator
	  ➢ vapour condenser
	  ➢ vacuum unit
	• map the stages and equipment used in an evaporation process
	• identify tests or measures taken to monitor performance of an evaporation process and related expression of performance information
	• apply information to describe evaporation process capacity in a production process
	• identify tests carried out to determine material/product solids and related terms (common test methods include baume, refractive index and brix)
	• identify the processing parameters, time required to achieve the target result and steam required
	• identify operational and safety features of evaporation equipment used in a production process, including inspections required to identify signs of faulty performance and/or wear
	• review and/or establish procedures to define safe operation and maintenance of evaporation processes and equipment used in a production process
	• identify the effects of drying on product, such as:
	  ➢ changes that occur at each stage of the drying process
	  ➢ reduction in weight and bulk
	  ➢ changes in microbiological characteristics due to application of heat and reduction of moisture/water activity
	• identify the equipment components of a drying process, such as:
	  ➢ hot air drying (fluidised bed driers, spray driers, belt trough driers, and air lift driers) and freeze drying (vacuum)
	• map the stages and equipment used in a drying process
	• identify tests or measures taken to monitor performance of a drying process and related expression of performance information

	• describe drying process • identify tests carried out to determine process outcomes on material/product • identify the processing parameters, time and energy required to achieve the target result • identify operational and safety features of drying equipment used in a production process, including inspections required to identify signs of faulty performance and/or wear • review and/or establish procedures to define safe operation and maintenance of drying processes and equipment used in a production process • identify the main types of sensors used in food processing to provide input data to control systems and how these sensors operate • identify the location and operation of sensors and related data input devices to a control system on equipment used in a production process • for a given production process, identify the criticality of system control and consequences of a system malfunction or power outage • develop and/or review procedures to be followed in the event of a system malfunction or power outage • use communication skills to interpret and complete work information to support operations of work team or area • demonstrate and support cooperative work practices within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Apply an Understanding of Food Additives**
Unit Code	**IND FPO4 06 0613**
Unit Descriptor	This unit of competence covers the skills and knowledge required to recognize the characteristics and functions of food additives, preservatives, colors and flavors used in food products. This unit is designed to provide an overview of food additives. It is not designed to meet the competence requirements of the person who specifies additives, preservatives, colors or flavors to be used in food. Analysis of the properties of food additives may also be done by a specialist.

Elements	Performance Criteria
1. Identify additives used in food	1.1. Types of food additives and common additives used in food products are identified. 1.2. Functions of food additives are identified. 1.3. Legal requirements relating to use of food additives are identified. 1.4. Legal and quality consequences of incorrect additive addition are identified
2. Manage use of additives in a production process	2.1. Additives used in product range produced in the production process are identified. 2.2. Methods of addition are suited to food additive and production requirements. 2.3. ***Procedures and policies*** are reviewed and/or established for safe handling and addition of food additives. 2.4. Handling, use and disposal of additives are conducted in accordance with environmental standards.

Variable	Range
Policies and procedures	Handling of food additives, preservatives, colors and flavors and related work processes are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of OHS and environmental impact
Groupings include but are not limited to:	• preservatives • anti-oxidants • acidulants • organoleptic and nutritional modification agents • colors and flavors, including synthetic and natural, oil and water soluble and lakes (dispersion in oil - applying to colors only) and technological aids

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • identify legal, company and quality standards for food additives • identify main additives and groupings • describe the function and user requirements for additives • manage the use of additives to ensure product quality standards are achieved
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • types of food additives and common additives used in food products • the functions of food additives commonly used in food • coding system used to describe food additives, colors and flavors • legal requirements relating to additives used as established by the Food Standards Code • typical quantities used and related units of measurement • preparation requirements, such as forming and breaking emulsions, and preparation of solutions • addition systems and related equipment requirements • Occupational Health and Safety (OHS)issues related to handling of additives • consequences of incorrect additive addition, including Food Standards Code as it relates to food additives used in a given product range • the quality and food safety hazards of incorrect addition • handling and processing conditions that affect the characteristics of colors and flavors
Underpinning Skills	Demonstrate skills to: • identify common food additives and group them by function • identify common types of additives used in the food industry • identify the functions of food additives commonly used in food, such as: ➢ texture modifying agents ➢ organoleptic and nutritional modifying agents, including flavors, colors, flavor enhancers, sugar-free sweeteners, minerals, vitamins and food acids ➢ shelf-life enhancing agents, including preservatives, anti-oxidants and food acids ➢ technological aids, including humectants, enzymes, propellants, flour treatment, caking agents and bleaching agents • identify additives, colors and flavors used in product range produced in the workplace, including:

	➢ coding system used to describe food additives, colors and flavors ➢ legal requirements relating to additives used as established by the Food Standards Code ➢ function in the food product ➢ typical quantities used and related units of measurement ➢ preparation requirements, and forming and breaking emulsions, and preparation of solutions where required ➢ addition systems and related equipment requirements ➢ health and safety issues related to handling of additives ➢ process recording requirements ➢ consequences of incorrect additive addition, including the Food Standards Code as it relates to food additives used in a given product range • review and/or establish procedures to describe storage, handling and processing conditions that affect the characteristics of colors and flavors, such as: ➢ changes in pH ➢ temperature change ➢ exposure to light ➢ exposure to humidity ➢ packaging materials • review and/or establish procedures to describe the method of preparation and addition of additives to food products produced in the workplace • provide examples of incorrect addition of food additives that could occur in the production process, determine appropriate corrective action within company policy and level of authority • use communication skills to interpret and complete work information to support operations of work team or area • demonstrate and support cooperative work practices within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Apply the Principles of Nutrition to Food Processing**
Unit Code	**IND FPO4 07 0613**
Unit Descriptor	This unit covers the skills and knowledge required to provide nutritional information for processed food, and to implement procedures to optimize the nutritional value of a product. This unit applies to production and technical supervisors and quality managers who are required to monitor the nutritional value of foods through processing and to interpret label information, and to members of product development teams who are required to assist in development and testing of products.

Elements	Performance Criteria
1. Interpret labeling requirements to provide nutritional information	1.1 Food storage and preparation information on food labels is reviewed. 1.2 The nutritional values of similar processed food products based on information supplied on the label are compared. 1.3 Nutritional information on product labels to develop a diet plan for customers with specific requirements is interpreted.
2. Evaluate the impact of processing methods on the nutritive value of processed compared to fresh food	2.1 The effect of processing on the stability and availability of macro and micro nutrients is determined in a range of food products. 2.2 Processes are investigated for modification of processed foods to enhance nutritional value. 2.3 Food storage methods are compared for the retention of nutritive value and the introduction of food chemicals such as preservatives. 2.4 The nutritional impact of a range of additives for flavor or coloring enhancement is investigated. 2.5 Health warnings and permissible levels for the use of artificial additives to food products are compiled for a food product range.
3. Contribute to the development of a food product to meet a specified dietary requirement	3.1 Appropriate diets are identified for customers with specific requirements or health challenges. 3.2 Common nutritional deficiencies and related diseases are evaluated. 3.3 The nutritional properties of foods are matched to specified requirements. 3.4 A food product is developed and nutritional advice provided.

Variable	Range
Occupational health and safety requirements	• Codes of practice • Material Safety Data Sheets • Enterprise OHS policies, procedures and programs.
Regulations	• Ethiopian and international standards including: • industry guidelines and codes of practice • industry regulations • ISO Standards • codex alimentarius • State food regulations • Legislation
Workplace requirements	• Enterprise QA policy, practices and procedures • Enterprise-specific procedures • SOPs • Task requirements • Work instructions
Food processing Regulations/ Standards/ Guidelines	• Ethiopian and international standards • Codex Food Processing Standards • Federal legislation • Ethiopian dietary guidelines
Organizations	May include: • Ethiopian Health & Nutrition Research Institute • Ethiopian society of clinical immunology and allergy
Functional foods	Any fresh or processed food claimed to have a health-promoting or disease-preventing property beyond the basic function of supplying nutrients. Fermented foods with live cultures are considered as functional foods with probiotic benefits.
Nutraceuticals	Includes functional foods that also aid in the prevention and/or treatment of disease(s) and/or disorder(s) (except anaemia),
Modified foods	Fresh or processed food which has had components added (e.g. Vitamin C enriched) or reduced (e.g. low fat milk)

Evidence Guide	
Critical Aspects of Competence	Critical aspects of assessment must include evidence of the ability to compare the nutritive value of processed food products based on nutritional information, to assess the impact of food processing and preservation techniques on nutrient retention in the food product, and to apply knowledge of food properties and nutrition as part of contributing to product development or planning.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • impacts of processing on nutritive properties of food • nutritional information on food label • product development processes

	• additives as nutritional enhancers • impacts of processing on nutritive properties of food • nutritional information on label • product development to reduce negative nutritional effects or meet nutritional deficiencies • additives as nutritional enhancers • key macro and micro nutrients for a healthy diet • the processes of digestion, absorption and energy metabolism in the human body • human energy requirements • dietary guidelines and legislative requirements related to processed foods • the effects of processing and storage on nutrients, and the methods for overcoming these effects. • nutrition related risk factors and diseases • food intolerances and allergies • diseases caused by nutritional deficiencies • modified and functional foods and nutraceuticals
Underpinning Skills	Demonstrates skills to: • recognize key macronutrients required for a healthy diet • establish the processes of digestion and absorption • establish the process of energy metabolism in the human body • describe the role of proteins in nutrition • describe the role of carbohydrates in nutrition • describe the role of vitamins and minerals in nutrition • describe the role of dietary fiber • describe the role of lipids in nutrition • describe the body's processes for storing and using water and its role in nutrition • identify, review and apply key and current nutritional information • compare the nutritional needs of special population groups • evaluate nutritional issues in relation to product development, labeling and marketing of processed foods • identified nutritional related risk factors and diseases • establish public health and environmental hazards, in relation to nutrition
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit of Competence	**Apply Digital Technology in Food Processing**
Unit Code	**IND FPO4 08 0613**
Unit Descriptor	This unit covers the skills and knowledge required to develop and manage a HACCP-based Quality Assurance (QA) Program.

Elements	Performance criteria
1. Establish the scope of the QA system	1.1 Enterprise needs and expectations in product quality are clearly defined. 1.2 Existing systems and ***requirements*** are detailed for incorporation into the QA system. 1.3 Scope of the HACCP-based quality system is defined to encompass ***production system and product requirements***. 1.4 System is directed to prevent and control identified hazards.
2. Conduct hazard analysis and assessment	2.1 Every step in the production process is assessed for potential food safety hazards. 2.2 Critical Control Points (CCPs) are established to identify where each significant hazard can be prevented or controlled. 2.3 A measurable or recognizable standard is assigned for each CCP to define the critical limits. 2.4 Critical limits are technically and scientifically validated.
3. Ensure all documents, work procedures and processes required for the system are developed, available and in use.	3.1 All products and processes covered by the QA system are described in a standardized format defining product characteristics relevant to food safety. 3.2 Work instructions and Standard Operating Procedures (SOPs) are reviewed for accuracy, relevance and sufficiency to prevent hazards 3.3 Documented procedures are implemented for monitoring CCPs. 3.4 Documented procedures which ensure any CCPs which are outside critical limits are brought back within limits, and affected product is suitably handled, are implemented. 3.5 Documented procedures are implemented to ensure the QA system is regularly ***verified*** and audited as working effectively. 3.6 Availability and data storage of all records and documents for the system is maintained.
4. Respond to non-conforming product or processes	4.1 Procedures for taking corrective action are identified. 4.2 Corrective and preventative measures are implemented to

	prevent recurrence. 4.3 Procedures are devised or revised to support control measures. 4.4 Processes or conditions which could result in a breach of procedures are identified and corrective action is taken. 4.5 Process changes are introduced and controlled so that quality assurance requirements are accomplished.
5. Review product sampling and test results	5.1 Product sampling procedures are identified. 5.2 Post collection procedures are identified according to SOPs. 5.3 Test results are reviewed and responded to in accordance with ***workplace requirements***.
6. Audit, verify and validate the system	6.1 HACCP plans are routinely revised, verified and validated to reassess hazards, CCPs, critical limits, testing methods and all related procedures of the QA system to ensure they are appropriate to the enterprise requirements. 6.2 Internal or external audit findings are followed up and acted upon. 6.3 Reported quality hazards and non conformances are investigated and acted upon. 6.4 The HACCP-based QA system is reviewed to take account of any process changes or product specifications.

Variable	**Range**
Requirements	• Codes of practice • Material Safety Data Sheets • Enterprise OHS policies, procedures and programs.
Production system and product requirements	• These may include food safety, product quality, regulatory compliance, animal welfare (if required) and preventative maintenance
Verification of a QA system	• Verification refers to methods and procedures used to carry out monitoring, including sampling and testing to provide evidence that the specifications set by relevant legislation and codes of practice continue to be met. • Validation refers to obtaining evidence to confirm that a HACCP-based QA program is complete and effective and will deliver the expected outcomes.
Workplace requirements	• Enterprise QA policy, practices and procedures • Enterprise-specific procedures • SOPs • Enterprise task requirements and work instructions

Regulations	• Ethiopian and international standards including: • Ethiopian Food Standards Code • ISO Standards • codex alimentarius • industry guidelines and codes of practice • industry regulations • State food regulations

Evidence Guide	
Critical Aspects of Competence	Demonstrate skills and knowledge critical aspects that the candidate can monitor the development and implementation of: • scoping the requirements for a QA system • analyzing a production process to identify CCPs and establish critical limits • developing procedures for implementing and monitoring a QA system • maintaining data and documentation for a QA system • contributing to a review of a QA system, including verification and validation.
Underpinning Knowledge	Demonstrate Knowledge of: • the steps in the development of a HACCP-based QA system. • the steps in the systematic introduction of a HACCP-based QA system. • enterprise recall and traceability procedures. • post collection procedures for handling samples. • purpose of the HACCP development and review process. • risks associated with samples and how they may be minimized. • the types of data the enterprise uses to record performance. • the document controls associated with a procedure change. • the purpose of calibrating equipment. • the purpose of SOPs and work instructions. • sampling procedures. • the process of auditing and verifying a HACCP-based QA system. • the objectives of a HACCP-based QA system. • the process for validating critical limits and CCPs. • the role of pre-requisite programs and Good Manufacturing Processes (GMPs) in a • HACCP-based program.
Underpinning Skills	Demonstrate skills to: • define the scope of the quality system and food safety system to ensure requirements are met

	• apply the HACCP principles and the process for developing a quality assurance or food safety program • conduct monitoring of a CCP • determine and take corrective and preventative action • apply workplace, regulatory and customer requirements critical to the workplace's operation and success. • identify critical limits for enterprise product or processes. • identify the actual and potential risks associated with uncontrolled changes in procedures. • interpret the resulting trends of product monitoring and testing. • interpret the results and trends of process monitoring. • monitor records and documentation for accuracy and compliance. • monitor the accurate and timely recording of quality data. • outline legal obligations of the enterprise and individuals for maintenance of the Quality Assurance system: • identify and apply relevant OH&S, regulatory and workplace requirements. • identify the documentation required to support a HACCP-based QA system. • record and analyze monitoring and verification data. • validate CCPs and critical limits. • identify and describe implementation of a change in the process. • identify causes of variation and non-conformance and explain appropriate course(s) of action to rectify problems. • outline team requirements and team management processes or strategies. • prepare process and product status reports recommending changes to improve processes and procedures. • prepare reports using primary and summary data, and appropriate language. • review communication systems (spoken and written) to minimize the potential for misreporting and misunderstanding of food safety requirements, procedures and plans. • use relevant communication skills. • Utilize available technology to record, manipulate, analyze and present or report data. • apply appropriate mathematical concepts and measures. • assemble product and process inspection, test and other quality data in prescribed format.

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Apply Sensory Analysis in Food Processing**
Unit Code	**IND FPO4 09 0613**
Unit Descriptor	This unit covers the skills and knowledge required to identify sensory evaluation techniques and to use appropriate terminology when describing the organoleptic properties of food.

Elements	Performance Criteria
1 Identify the organoleptic properties of food.	1.1 The five basic tastes (sweet, salty, bitter, sour and umami) are recognized. 1.2 The textual properties of food are identified. 1.3 Aromas and flavors are identified. 1.4 The effect of color on the visual properties of food is recognized.
2 Confirm the procedures to be used in the sensory evaluation of a food product	2.1 ***The purpose*** and procedures for various sensory evaluation tests are outlined. 2.2 The methodology of the sensory evaluation tests is reviewed. 2.3 The factors influencing sensory evaluation tests are identified.
3 Coordinate a taste panel.	3.1 Panel lists are instructed on the ***policy and procedure*** 3.2 Samples are prepared according to sensory ***testing*** protocols 3.3 Appropriate recording documentation is devised or accessed for the sensory evaluation test. 3.4 Taste panel is organized and run to appropriate standards. 3.5 Results of the taste panel are recorded for analysis.

Variable	Range
The purpose of sensory testing	Tests may be performed to determine the following aspects of a sample: flavor, appearance, aroma, texture. The primary flavor characteristics may include: sweet, sour, umamic, bitter, salty.
Policies and procedures	including: • professional association regulations • industry guidelines and codes of practice • Federal food safety regulations • Food Standards Code • ISO Standards • codex alimentaruis

Testing methods	may include: • triangular test, duo-trio test, ranking test, paired comparison test, blending test • flavor profile • threshold analysis • discriminative testing, descriptive testing, affective testing

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: • Identify the organoleptic properties of food. • Confirm the procedures to be used in the sensory evaluation of a food product • Coordinate a taste panel.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • organoleptic properties of food • sensory evaluation of foods • interactions and associated characteristics of sensory abilities • quality requirements for conducting a taste panel • descriptive, discriminative and affective sensory methods • organizational quality procedures for sensory testing
Underpinning Skills	Demonstrates skills to: • identify the organoleptic properties of food • outline the various sensory evaluation tests used in the food processing industry • select an appropriate sensory evaluation test method for a given product • prepare samples for sensory testing • record results in required format • review results for evidence of discrepancies or bias • communicate with and supervise panellists
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Apply Food Preservation Technologies**
Unit Code	**IND FPO4 10 0613**
Unit Descriptor	This unit covers the skills and knowledge required to apply food preservation technologies and to review their effectiveness and efficiency based on an understanding of food science and technology. This unit applies to quality assurance and technical staff who must oversight the preservation of food. It covers low and high temperature preservation as well as the evaluation of alternative preservation methods such as irradiation and high pressure processing.

Elements	Performance Criteria
1. Apply high temperature preservation methods for food	1.1 The need for heat treatment of foods is established. 1.2 Preparatory procedures for heat treatment processes are implemented. 1.3 Heat treatment processes are applied and monitored. 1.4 The physical, biochemical and microbiological changes to a food product after heat treatment are assessed.
2. Apply low temperature preservation methods for food	2.1 The need for chilling or freezing treatments of foods is established. 2.2 Preparatory procedures are implemented for chilling or freezing treatment processes. 2.3 Chilling or freezing processes are applied and monitored for food preservation. 2.4 The physical, biochemical and microbiological changes to a food product after chilling or freezing treatment processes are assessed.
3. Evaluate alternative existing technologies for food preservation	3.1 Effectiveness and consumer acceptance of irradiation are reviewed. 3.2 The effect of irradiation on food products is evaluated. 3.3 The application of a high pressure preservation process is reviewed. 3.4 The effect of high pressure preservation on food products is evaluated. 3.5 A process chart is developed for the implementation of alternative food preservation processes

Variable	Range
Occupational health and safety requirements	• Codes of practice, regulations, MSDSs • Enterprise specific • Relevant Occupational Health and Safety acts, regulations, national standards, codes of practice and guidance notes which may apply in jurisdiction • Examples of specific task related procedures may include: • Handling of chemicals • Use of PPEs
Regulations	• Ethiopian Food Standards Code • Enterprise specific procedures • Industry regulations • Ethiopian and international standards including: ➢ professional association regulations ➢ industry guidelines ➢ codes of practice ➢ ISO standards ➢ codex alimentarius ➢ relevant Acts of Parliament ➢ EPA protocols and regulations regarding refrigerants.
High temperature preservation methods	• hot fill • aseptic processing • pasteurisation • Ultra-High Temperature (UHT) • High Temperature Short Time (HTST) processing.
Heating systems	• retort, steam jackets • blanching vessels and pressure cookers • microwave and ohmic and inductive heating equipment • pasteurisation and sterilisation equipment.
Materials, equipment and systems for low temperature treatment	• refrigeration systems for chilling of food stuffs • freezing systems • freeze drying systems for heat sensitive products • temperature measuring and recording devices

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: • applying low or high temperature preservation techniques, • documenting physical, biochemical and biological changes to treated food products

Underpinning Knowledge and Attitudes	Demonstrates knowledge to apply and explain: Heat treatment processes • The difference between blanching, steaming, canning and other methods of heat application to food. • The effects of application of heat on qualities and properties of food stuffs. • Biochemical, microbiological and physical changes to food as a result of heat application. • Critical quality defects which can occur as a result of heat treatment. • How operating conditions, such as temperature fluctuations or water /steam contacts with food affects the nutritional/chemical composition of food. • How product parameters, such as type, size, shape and chemical and biological composition affect the effectiveness of heat treatment on food. • The calculation and interpretation of FO, Lethality and FH values Low temperature processes • The different techniques adopted in industry for freezing food products • Appropriate freezing techniques, including freeze drying, for specific food products • Industrial refrigerants currently used today to maintain low temperatures in chillers and freezers • The efficiency, cost and environmental impact of such refrigerants • Biochemical, microbiological and physical changes to food as a result of slow or quick freezing. • Critical quality defects which can occur as a result of long term and freezing, of foods. • How operating conditions, such as temperature fluctuations, humidity and air velocity, affect the effective chilling and freezing and refrigeration of food. • How product parameters, such as type, size, shape and chemical and biological composition affect the effective chilling and freezing of foods. • The appropriate freezing techniques for the major types of foods that can be frozen without loss of quality: fruits, vegetables, seafood, meats, baked goods and ready to eat food (e.g. pizzas). • refrigerants used in past e.g. CFCs & HCFCs, and the ones currently used including HCFC – 123 and various blends • why certain refrigerants are a problem for the environment e.g.

	depletion of the ozone layer and 'Greenhouse' effect. Irradiation equipment • types of foods suitable for irradiation • consumer acceptance and issues with irradiation • the most suitable irradiation techniques for specific food products. • physical changes caused by irradiation of food • impact of irradiation on different species of micro-organisms • enzymatic and other chemical changes caused by irradiation • potential quality defects that arise as a result of irradiation of food. • processing/operating parameters of irradiation equipment as required to meet safety and production requirements • irradiation equipment safety and operating • labeling and other regulatory requirements of irradiation of food High pressure equipment • types of foods suitable for high pressure processing • the most suitable high pressure techniques for specific food products. • possible physical changes caused by high pressure processing of food • the impact of high pressure preservation technology on different species of micro-organisms • enzymatic and other chemical changes caused by high pressure processing • potential quality defects that arise as a result of high pressure processing of food. • operating procedures of high pressure processing equipment as required to meet safety and production requirements • labeling and other regulatory requirements of high pressure preservation of food
Underpinning Skills	Demonstrates skills to: • Heat treatment processes: ➢ identify the different techniques used in industry to apply heat on food as a preservation method. ➢ identify the most suitable heat application techniques for specific food products. ➢ evaluate physical changes caused by high temperature on food ➢ assess the relationship between high temperature and deactivation and destruction of micro-organisms ➢ identify the enzymatic and other chemical changes caused by high temperature ➢ identify quality defects that arise as a result of heat

	application of food. ➢ enter processing/operating parameters to heat treatment equipment as required to meet safety and production requirements ➢ operate, check and adjust heat treatment equipment performance as required • Low temperature processes: ➢ differentiate between chilling and freezing of foods ➢ identify the effects of slow and quick freezing on the quality and properties of food ➢ identify the different techniques used in industry to chill and freeze food stuffs ➢ identify the most appropriate chilling and freezing techniques for specific food products ➢ review the efficiency, cost effectiveness and environmental impact of refrigerants used in chillers and freezers ➢ identify critical quality defects associated with long-term chilling and freezing of foods ➢ enter processing/operating parameters to chilling or freezing treatment equipment as required to meet safety and production requirements ➢ operate, check and adjust low temperature treatment equipment performance as required • Irradiation processes: ➢ identify foods suitable for irradiation ➢ analyze surveys and other feedback indicating consumer acceptance of irradiation ➢ identify the most suitable irradiation techniques for specific food products ➢ evaluate physical changes caused by irradiation of food ➢ assess the extent of destruction of micro-organisms ➢ identify any enzymatic and other chemical changes caused by irradiation ➢ identify quality defects that arise as a result of irradiation of food ➢ identify processing/operating parameters of irradiation equipment as required to meet safety and production requirements ➢ operate, check and adjust irradiation equipment performance as required ➢ identify labeling and other regulatory requirements of irradiation of food • High pressure processes: ➢ identify foods suitable for high pressure processing

	➢ identify the most suitable high pressure techniques for specific food products ➢ evaluate physical changes caused by high pressure processing of food ➢ assess the extent of destruction of micro-organisms ➢ identify any enzymatic and other chemical changes caused by high pressure processing ➢ identify the potential for quality defects that arise as a result of high pressure processing of food ➢ identify processing/operating parameters of high pressure processing equipment as required to meet safety and production requirements ➢ operate, check and adjust high pressure equipment performance as required
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Perform Microbiological Procedures in the Food Industry**
Unit Code	**IND FPO4 11 0613**
Unit Descriptor	This unit provides an introduction to food microbiology. It covers the skills and knowledge required to perform on-site microbiological laboratory techniques and to interpret the results. This unit applies to laboratory and senior technical staff, and production managers, who are required to monitor the microbiology of food and food processing operations. This unit does require the ability to perform on site tests required in a food processing enterprise, to interpret the results of testing as part of monitoring production processes, and to identify the need for certified laboratory testing.

Elements	Performance Criteria
1. Prepare for safe microbiological work using aseptic techniques	1.1 Work area and equipment are selected for the safe handling of materials that may contain micro-organisms. 1.2 Protective apparel is worn. 1.3 Relevant emergency equipment is selected, for timely response to microbiological accidents. 1.4 Correct disinfection procedures are applied to work areas before, and after use. 1.5 Standard precautions are applied, when handling biological materials,. 1.6 Relevant emergency equipment is selected, for timely response to microbiological accidents. 1.7 Correct disinfection procedures are applied to work areas before, and after use.
2. Process microbiological samples and undertake microscopy	2.1 Thin smears of samples are prepared and stained for subsequent staining. 2.2 Liquid films of specimens are prepared, for direct observation,. 2.3 Relevant samples are concentrated to facilitate microscopy. 2.4 Stereo and compound microscopes are set up correctly, and causes of variations in image quality are identified. 2.5 Microscopes are cleaned and stored according to procedures 2.6 Dry, wet and stained microbiological specimens are correctly examined.

3. Apply aseptic techniques correctly to cultivate and isolate micro-organisms	3.1 Broths, slopes, and plates of typical media are prepared. 3.2 Aseptic transfers of micro-organisms to prepared liquid and solid media are performed. 3.3 Bacteria are streaked onto agar plates to isolate single colonies using aseptic technique. 3.4 Temperature conditions and gaseous environments are selected which are suitable for the growth of a range of common micro-organisms.
4. Estimate the number of micro-organisms in food and water samples	4.1 Samples are prepared for testing. 4.2 Serial dilutions are accurately and aseptically carried out. 4.3 Bacterial growth in the sample is estimated and recorded. 4.4 The bacterial load of the sample is calculated and the results reported.
5. Perform and interpret tests to assist in the identification of common bacterial genera.	5.1 Tests are performed on pure cultures to assist in the identification of major bacterial groups. 5.2 Pure cultures selected from common bacterial genera are prepared. 5.3 Stained specimens are selected and prepared to demonstrate features and cellular characteristics of major bacterial groups.
6. Apply quality assurance procedures commonly used in a food testing laboratory.	6.1 The controls used to monitor accuracy and precision of results in a microbiological laboratory are applied. 6.2 All tests are performed in accordance with enterprise quality policy and procedures. 6.3 All test data is recorded and reported in accordance with enterprise quality ***policy and procedures***.
7. Interpret the results of laboratory testing and relate to the production plan	7.1 Laboratory test results are accessed. 7.2 Laboratory tests are compared to allowable variances and critical limits in production. 7.3 Adjustments are made to recipes or operating procedures to ensure critical limits are complied with. 7.4 The need for further certified testing is established.

Variable	**Range**
Policies and procedures	• Codes of practice, regulations, Material Safety Data Sheets (MSDSs) • Enterprise specific: Standard Operating Procedures(SOPs):

	• safety requirements for equipment, materials or products • cleaning, hygiene, personal hygiene requirements • incident and accident/injury reports • Ethiopian and international standards, including: Food Standards Code 2002 • Enterprise Standard Operating Procedures(SOPs) • Acts of Parliament
Occupational health and safety requirements	• Codes of practice • Material Safety Data Sheet • Enterprise specific.
Regulations	Ethiopian and international standards including: • professional association regulations • industry guidelines and codes of practice • industry regulations • Food Standards Code • ISO Standards • codex alimentarius • Federal and state food regulations

Evidence Guide	
Critical Aspects of Competence	A candidate must demonstrate the ability to: • perform on site tests required in a food processing enterprise, • interpret the results of testing as part of monitoring production processes, and • identify the need for certified laboratory testing.
Underpinning Knowledge	Demonstrate Knowledge of: • physiological characteristics of animal, plant and microbial cells • microbiological terminology • use of protective clothing and biological safety cabinets • disinfection and sterilization as applied to practical aspects of microbiology • microbial diversity and growth • micro-organisms of significance in the production and spoilage of foods • chemical and physical methods available for controlling microbial growth • methods for sterilization or control of a given micro-organism • the Gram reaction in the identification of common types of bacteria • advantages and disadvantages of the identified methods are established • rationale for sample dilution when preparing materials for enumerating organisms and other pure culture work

	• relevant health, safety and environment requirements • chemical and physical methods available for controlling microbial growth • quality assurance procedures commonly used in a food testing laboratories
Underpinning Skills	Demonstrate ability to: • identify types of animal, plant and microbial cells and their components and functions • safely perform tasks for the isolation, identification and cultivation of microorganisms • set up and use microscope slides and a microscope • avoid contamination of self, other people, the work area, equipment or the samples under test • avoid contamination of media or reagents during manipulations involving transfer of cultures • identify artefact or image aberration attributable to misalignment or obstruction of light paths or condensers used in bright field, dark ground, or with other steps in microscopic examinations • recognize the use of the Gram reaction in the identification of common types of bacteria • accurately describe forms of bacterial colonies on common media used in bacteriological investigations in the food industry • correctly and safely perform tests to assist in the identification of bacteria • identify and correctly use methods for the control of growth of micro-organisms • report all incidents or accidents • disinfect any spillage and safely dispose of all contaminated materials • decontaminate the work area upon completion of work • ensure that quality assurance procedures, commonly used in a food testing laboratories, are used
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Conduct Food Safety Audits**
Unit Code	**IND FPO4 12 0613**
Unit Descriptor	This unit of competence covers the skills and knowledge required to verify and confirm validation of food safety programs in the context of food safety legislation and client requirements.

Elements	Performance Criteria
1. Define the scope of the audit	1.1. ***Audit scope*** is identified and defines the extent of the audit to meet legislative and ***audit client requirements***. 1.2. ***Audit criteria*** is used to meet legislative and client requirements. 1.3. The definition and levels of non-conformity and related reporting responsibilities are identified consistent with legislative requirements and client requirements. 1.4. Evidence required to address audit scope and criteria is identified and appropriate collection methods are selected. 1.5. Food safety management system documents are reviewed to determine adequacy for the purposes of the audit.
2. Plan the audit	2.1 An audit plan is developed that includes definitions and levels of non-conformity to meet the audit scope. 2.2 Plan includes audit purpose, scope and relevant templates or approved food safety program. 2.3 Activities and responsibilities for the audit are identified. 2.4 Audit timing (as required by legislation and/or client) is identified, including timetable for each stage of the audit. 2.5 Resource, personnel and reporting requirements are identified. 2.6 Follow up and completion procedures are identified. 2.7 Communication protocols are established to facilitate the effective exchange of information and suited to the ***auditee*** environment.
3. Confirm that the food business has documented required preliminary work	3.1 The food and the method of distribution are defined. 3.2 Customers and intended use of food is identified. 3.3 The process is described and documented. 3.4 The food business has checked their documentation for

	accuracy and completeness.
4. Confirm the food safety program is supported by a tool or template or has been validated	4.1 The documented food safety program and related procedures and prerequisite programs are assessed to confirm that they have a prescriptive tool or have been validated by a technical expert. 4.2 The food business method of identifying and analyzing food safety hazards is reviewed. 4.3 Templates or the approved food safety program are correctly selected to meet audit scope. 4.4 Templates or the approved food safety program are appropriately adapted to suit the needs of the business without adversely affecting food safety. 4.5 Documented verification records are reviewed to confirm that the requirements of the food safety program are being met. 4.6 Corrective actions required where processes are identified as not meeting targets or critical limits are assessed to confirm they meet the requirements of the template or food safety program. 4.7 Food safety ***prerequisite programs*** are assessed to confirm they are appropriate for the food business/industry sector to maintain a safe food environment. 4.8 ***Food safety program documents*** are reviewed to confirm currency, accuracy and adequacy to facilitate maintenance of an adequate food safety program.
5. Conduct the audit (Collect evidence to review and assess implementation of food safety programs)	5.1 Information on the audit scope and methodology is communicated in an effective and timely manner. 5.2 Stages and activities of the audit process are followed. 5.3 Methods used by the food business to carry out preliminary work, identify food safety hazards and assess level of risk are reviewed to confirm that they are appropriate and correctly applied. 5.4 Evidence used by the food business to support identification of control measures and establish control limits is identified and evaluated to determine adequacy and relevance. 5.5 Methods used by the food business to control hazards and determine corrective action where processes are identified as not meeting targets or critical limits are reviewed to confirm they are adequate, effective and appropriate.

	5.6 Evidence is collected to confirm that the documented food safety policies and procedures are working effectively, reflect actual practice and are consistently applied. 5.7 Evidence is collected to confirm that: • documented programs and procedures are working effectively, reflect actual practice and are consistently applied • food safety monitoring and corrective actions are carried out according to procedure • safety prerequisite programs are effective and consistently followed • food safety records are completed and provide an accurate record of events • records are accessed and analyzed to confirm effective program maintenance in accordance with the template or food safety program • food safety skills and knowledge of food business personnel is commensurate with their work role • the food safety program has been internally monitored and assessed, updated and improved by a technical expert
6. Manage the audit process	6.1. Audit progress is monitored against the audit plan and any variation to plan is identified and addressed. 6.2. Circumstances requiring the audit plan to be adjusted are identified and negotiated in a timely manner. 6.3. Audits address audit scope and are conducted within time and resource constraints to meet quality and professional standards. 6.4. The audit process is reviewed to identify opportunities for improvement.
7. Consolidate audit outcomes	7.1 Evidence is analyzed and assessed to identify any areas of non-compliance with legislation and/or client requirements as appropriate to the audit scope. 7.2 Non-conformities are identified and classified as agreed by the audit plan. 7.3 Non-conformities are reported in accordance with agreed client and/or legislative requirements. 7.4 Audit findings are communicated to the auditee.

	7.5 Audit reports and/or certificates are prepared and submitted or presented as required to meet regulatory and client requirements. 7.6 A corrective action implementation plan defining proposed actions and timelines developed by the auditee is reviewed by the auditor to confirm that template or food safety program requirements are met. 7.7 Audit findings are reviewed to confirm that evidence is appropriate and sufficient and findings are accurate or approved food safety program. 7.8 The food safety management system is reviewed to identify areas of potential improvement of the system according to audit scope.
8. Confirm and close out corrective actions	8.1. Implementation and effectiveness of corrective actions are monitored and verified and any variation to the food safety plan is identified and addressed. 8.2. Audit records are maintained to record corrective actions.

Variable	**Range**
Audit scope	The audit scope describes the purpose, extent and boundaries of the audit. This may include: • physical locations • products • processes • time period covered by the audit • extent of authority of the auditor
Audit client requirements	Client requirements are typically defined in audit contracts or agreements and may relate to: • legal requirements • food safety management system requirements • compliance with client site operational policies and procedures • confidentiality • business size, activities and processes • business culture • professional standards of conduct
Audit criteria	The audit criteria must comply with relevant food safety legislation and may extend to address additional system owner/client requirements. In addition to meeting the requirements of food safety legislation, reference against which conformity is determined may include:

	• management systems policies and procedures • industry standards or codes • contractual requirements • international treaties and conventions
Auditee	refers to the organisation being audited
Audit records	are maintained to demonstrate the implementation of the audit process. These may include but are not limited to: • audit plans • audit reports • non-conformity reports • corrective action reports • follow up reports
Audit evidence	Evidence required for the purposes of meeting relevant food safety legislation may be defined by: • the client and/or the regulatory authority • Audit evidence should be based on objective information rather than hearsay and may include system records • evidence collection records • statements of fact or other information relevant to the audit criteria and which is verifiable • observations • records of audit stage progression
Audit client	refers to the organisation or person requesting an audit (system owner). This may be the same as the auditee or any other organisation which has the regulatory or contractual right to request an audit. The system owner may be the regulator
Prerequisite programs	are also referred to as support programs, such as Good Manufacturing Practice (GMP), Good Agricultural Practice (GAP) and Good Hygiene Practice (GHP) Prerequisite programs can be divided into two categories. Infrastructure and maintenance programs. These may include: • layout, design and construction of buildings and facilities • supplies of air, water, energy and other utilities • equipment, including preventative maintenance, sanitary design and accessibility for maintenance and cleaning • support services, including waste and sewage disposal Operational prerequisite programs. These may include: • personal hygiene • cleaning and sanitation • pest control • measures for the prevention of cross-contamination • packaging and labelling procedures

	• supplier assurance • chemical storage • employee training • maintenance • calibration • document control • internal audit programs • traceability and recall programs • on-farm food safety schemes • inspecting and testing regimes, including analytical and microbiological testing
Food safety audits	Audits may be conducted for either regulatory or commercial food safety systems for low, medium or high risk food safety hazards
Food safety management system	is a documented arrangement implemented (and resourced) by a business for control of food safety. A food safety management system includes: • commitment from management, procedures and practices to identify and control food safety hazards and prevent their recurrence. It may incorporate recognized food safety tools, such as HACCP and its prerequisite programs
Legal requirements	The scope of the audit determines and may be determined by food safety legislation which may include: • Food Standards Code • relevant state legislation and related codes of practice, including industry sector-specific legislation and related codes of practice, such as those relating to meat, seafood, dairy and primary production and processing • regulatory and commercial requirements relevant to importing countries • other legislation which may impact on the conduct of a food safety auditor and may include legislation covering: ➢ OHS, anti-harassment, anti-discrimination and industrial relations ➢ trade practices legislation ➢ environmental risk management ➢ legal contracts or agreements
Levels of non-conformity	are defined and based on food safety risk. They may be determined by: • the management system • the audit client • legislation • where legislation applies, definitions may be determined by: ➢ primary industry jurisdiction & food production jurisdiction

Evidence collection methods and sources	will depend on the purpose and scope of the audit and may include: • observation • interviews • checklists • auditee documentation review • reports/data from other sources, such as customer feedback, technical references, computerised databases • results of analyses
Resource requirements	Resource requirements will depend on the purpose and scope of the audit and may include: • audit personnel directly involved in undertaking the audit • access to relevant personnel and information within the business • access to any additional resources as required
Food businesses	refers to a business, vehicle, enterprise or activity where food is produced, processed, stored, displayed, transported and/or sold. It may also include primary producers
Preliminary work	includes but is not limited to: • identifying food to be covered by the food safety program • defining the food and the method of distribution • identifying customers and intended use of food • describing the process (flowchart) • checking for accuracy and completeness of the previous steps
Validation	refers to obtaining evidence to confirm that a HACCP-based food safety program is complete and effective and will deliver the expected food safety outcomes
Verification	refers to methods and procedures used to carry out monitoring, including sampling and testing to provide evidence that the specifications set by relevant legislation and codes of practice continue to be met
Close out	Auditors have different levels of responsibility and authority to close out audits according to the level of non-conformity and whether they are an authorised officer or a commercial auditor. Closing out may involve notifying the regulator with the power to enforce legislation
Commercial auditor	Commercial auditor refers to any auditor other than a regulatory auditor, who is external to and independent of the food business being audited
Risk-based approaches	to controlling food safety are typically based on HACCP, described in the Codex Alimentarius guidelines
Critical control point	is a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level

Critical limit	refers to criterion which separates acceptability from unacceptability

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: • Identify food safety legislation applying to a food business. A minimum of two scenarios must be covered providing that at least one food business operates in a market segment that has to meet compliance requirements in place of or in addition to the Food Standards Code. • The assessment activity must: ➢ Identify the relevant legislation applying to the food business taking account of the industry sector, range of food handling activities undertaken and the markets into which products and/or services are sold. ➢ Locate advice on relevant authorities and enforcement agencies in a state or territory and for international markets as appropriate. ➢ Explain the legal responsibilities of a given food business. • Plan and conduct an audit that complies with legal and client requirements as appropriate. The criteria and evidence requirements may be developed to apply to an actual or hypothetical food business. The assessee must substantiate: ➢ how audit scope and criteria meet legislative and client requirements. ➢ the evidence required to assess compliance with the criteria and to support an objective, reliable and consistent audit outcome. ➢ definitions, levels and related reporting of non-conformance to comply with legislative requirements. • Submit completed audit records for the selected audit including the final audit report, non-conformity reports, corrective action reports, follow up reports and suggestions for improvements to the food safety management system and to the audit process. These latter items may be documented in personal notes rather than part of the formal audit report according to the audit scope.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Auditor roles and responsibilities: ➢ audit activities and stages, including guidelines on audit stages and activities as outlined in ISO 19011:2002 ➢ personal attributes required of food safety auditors, including those outlined in ISO 19011:2002, and additional client requirements where required

	➢ role, responsibilities and powers of enforcement agencies, authorized officers and commercial auditors, including reporting responsibilities, legal liability of auditors and delegation of authority to commercial auditors as may apply in some states and territories ➢ relevant competencies and certification/registration criteria and processes applying to both regulatory and commercial auditors ➢ audit management to develop and implement an audit against an agreed plan, including the scope/level of authority to revise the resource and allocate time allocations to take account of variation to plan • Food safety management systems: ➢ purpose and intent of each element of a food safety management system ➢ the underlying principles of risk-based approaches to controlling food safety hazards, including HACCP ➢ vocabulary and terms relating to food safety, including terms and jargon to describe technical processes, industry standards and common biological and chemical terms ➢ food safety management system knowledge relevant to the system being audited., including system requirements, definitions and levels of non-compliance and related reporting responsibilities as defined by legal and management system requirements ➢ the interaction between different types of management systems, including the impact of food safety decisions on other management systems, such as Occupational Health and Safety (OHS), quality, environmental risk management and animal welfare ➢ technical knowledge required to assess the adequacy of the food safety management system performance and corrective actions ➢ role of prerequisite programs in controlling hazards, including the relationship between prerequisite programs and risk-based approaches, such as HACCP to controlling food safety hazards ➢ information handling and management system protocols, including issues, such as rights of access to information, maintenance of confidentiality of audit information and reports and information dissemination requirements • Food safety legislation: ➢ the purpose and intent of food safety legislation, including sources of information on importing country requirements and of requirements of countries and retailer driven

	systems in importing markets ➢ the content covered by the Food Standards Code and/or other relevant standards ➢ the structure and responsibilities of commonwealth, state and territory government departments and local government to manage and implement food safety legislation, including where to find information on relevant legislative requirements, product or industry sector legislation and regulations and import and export market requirements ➢ the regulatory framework and specific legislation relevant to the audit, including relevant risk profiling or classification systems where they apply ➢ sources of information on legislation and codes governing primary production and primary processing ➢ requirements for scheduling and conducting further auditing as determined by food safety legislation and/or client system requirements ➢ legal liability of auditors and protection against litigation and professional practice issues, including the circumstances under which an auditor could be prosecuted and insurance requirements ➢ the role of auditors when called on to provide evidence as a witness in court • Food safety audit processes: ➢ preliminary work required to identify food to be covered by the food safety program, define the food and the method of distribution, identify customers and intended use of food, describe the process (flowchart) and check accuracy and completeness ➢ methods used identify food safety hazards and assess food safety hazard risk levels taking account of severity and likelihood of occurrence ➢ methods used to identify critical control points and establish critical limits, suited to the nature of the hazard, the requirements of the audit and the industry sector ➢ methods used to validate control techniques and critical limits, including industry or sector codes of practice, technical standards and research ➢ types of evidence, including the difference between objective and hearsay evidence and methods for recording and managing evidence to provide reliable reference information in the event that evidence is challenged ➢ evidence collection methods, including record sampling and sample analysis, and the evidence collection options

	relevant to a given audit situation, the reliability of each collection method and the range/extent of evidence collection methods required to ensure that audit outcomes are objective, consistent, fair and reliable ➢ methods to assess skill requirements and options to confirm that the responsible personnel within the food business have the required skills and knowledge of food safety and food hygiene relevant to the food business ➢ circumstances, implications and responsibilities in the event that the auditee requests that the audit ceases ➢ circumstances and authority of an auditor to initiate cessation of an audit ➢ the context in which audits are conducted, including workplace culture and preferred communication methods, industry, process and/or product knowledge and related jargon ➢ information recording requirements and audit reporting requirements
Underpinning Skills	Demonstrates skills to: • locate relevant commonwealth, state and/or territory legislation, regulations and related codes of practice and determine the legal responsibilities of food businesses relevant to the industry sector • plan and manage audit activities • communicate information in ways appropriate to the purpose and the audience and to facilitate opening and closing meetings • negotiate and facilitate audit processes, including following meeting procedures and resolving issues • select and use research skills relevant to audit activities, including researching technical sources to validate food safety programs and collecting evidence to support verification • consolidate audit findings based on objective evidence • prepare records and reports appropriate to the purpose of the audit and the needs of the auditee and the client (system owner/regulator)
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Perform Food Tests**
Unit Code	**IND FPO4 13 0613**
Unit Descriptor	This unit of Competence covers the ability to interpret food test requirements, prepare samples, conduct pre-use and calibration checks on equipment and perform routine testing of raw food materials, in-process materials and final products. These tests will involve several measurement steps. The unit includes data processing and some interpretation of results and tracking of obvious test malfunctions where the procedure is standardized. However, personnel are not required to analyze data, optimize tests/procedures for specific samples or troubleshoot equipment problems where the solution is not apparent. This unit of Competence is applicable to laboratory or technical assistants and instrument operators working in the food and beverage processing industry sectors.

Elements	Performance Criteria
1. Interpret and schedule test requirements	1.1. Test request is reviewed to identify samples to be tested, test method and equipment/instruments involved. 1.2. Hazards and enterprise controls associated with the sample, preparation/test methods, reagents and/or equipment are identified. 1.3. Parallel work sequences are planned to optimize throughput of multiple sets of samples, if appropriate.
2. Receive and prepare food samples	2.1. Samples are logged using standard operating procedures (SOPs). 2.2. Sample description is recorded and compared with specification and discrepancies are noted and reported. 2.3. Samples and standards are prepared in accordance with food testing requirements. 2.4. Traceability of samples is ensured from receipt to reporting of results.
3. Check equipment before use	3.1. Equipment/instruments is/are set up in accordance with test method requirements. 3.2. Pre-use and safety checks are performed in accordance with relevant enterprise and operating procedures.

	3.3. Faulty or unsafe components and equipment are identified and reported to appropriate personnel. 3.4. Equipment calibration is checked using specified standards and procedures, if applicable. 3.5. Out of calibration equipment/instruments is/are quarantined. 3.6. Ensure reagents required for the test are made available and meet quality requirements.
4. Test samples to determine food components and characteristics	4.1. Equipment/instruments are operated in accordance with test method requirements. 4.2. Tests/procedures on all samples and standards are performed, if appropriate, in accordance with specified methods. 4.3. Equipment/instruments is/are shut down in accordance with operating procedures.
5. Process data	5.1. Test data noting atypical observations is recorded. 5.2. Calibration graph is constructed, if appropriate and results for all samples computed from these graphs. 5.3. Ensure calculated values are made consistent with reference standards and expectations. 5.4. Uncertainty of measurement is estimated and documented in accordance with enterprise procedures, if required. 5.5. Results are recorded and reported in accordance with enterprise procedures. 5.6. Trends in data and/or results and report out of specification or atypical results are interpreted promptly to appropriate personnel. 5.7. Determine if basic procedure or equipment problems have been led to atypical data or results.
6. Maintain a safe work environment	6.1. Use established safe work practices and personal protective equipment to ensure personal safety and that of other laboratory personnel. 6.2. The generation of wastes and environmental impacts are minimized. 6.3. Ensure the safe collection of laboratory and hazardous waste for subsequent disposal. 6.4. Care for and store equipment and reagents as required.
7. Maintain laboratory records	7.1. Enter approved data into Laboratory Information Management System (LIMS).

	7.2. Maintain confidentiality and security of enterprise information and laboratory data. 7.3. Maintain equipment and calibration logs in accordance with enterprise procedures.

Variable	Range
Codes of practice	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, it is expected the latest version will be used
Standards**,** codes**,** procedures and**/**or enterprise requirements	may include: • Ethiopian and international standards such as: ➢ Food microbiology - General introduction and list of methods ➢ The international system of units (SI) and its application ➢ General requirements for the competence of testing and calibration laboratories • Ethiopian code of good manufacturing practice for medicinal products (GMP) • Ethiopian Quarantine and Inspection Service • Ethiopian Quarantine and Inspection Service import Guidelines • calibration and maintenance schedules • data quality procedures • enterprise recording and reporting procedures • equipment startup, operation and shutdown procedures • gene technology regulations • Material Safety Data Sheets (MSDS) • material, production and product specifications (including maximum residue levels) • national measurement regulations and guidelines • principles of Good Laboratory Practice (GLP) • production and laboratory schedules • quality manuals, equipment and procedures manuals • SOPs and in-house methods • Therapeutic Goods Regulations 1009
Sample preparation processes	may include: • grinding • milling • preparation of discs • dissolving • ashing • refluxing

	• extracting • filtration • evaporation • flocculation • precipitation and centrifugation • culturing of selected micro-organisms • digestion • degassing • temperature equilibration
Principles and concepts underpinning the test**/**procedure	may include: • ions, atoms, molecules, bonding, affinities and related properties • chemical reactions (acid/base and complexiometric) • structure and properties of proteins, lipids, carbohydrates, vitamins and minerals • food additives, flavourings and essences • nutrient value of major food groups • interaction of water with food components • microbiology, including incubation characteristics, selective media, growth stages of bacterial cultures and reference organisms • microbiology of organisms with public health significance • chemical and microbial changes in food • food preservation techniques • fermentation process • packaging and controlled atmosphere • elastic properties of materials and hardness • cohesive/adhesive forces, fluid flow and viscosity • changes of state, energy content and enthalpy change • electromagnetic spectrum and absorption, emission and refraction of light • quality control program for raw materials, process control and finished product inspection • genetically modified foods
Food tests and procedures	may include: • visual and sensory tests: ➢ appearance, taste, texture, colour and odour of foods ➢ melting point, boiling point and freezing point ➢ sediments and scorched particles ➢ foreign matter ➢ damage to packaging and compatibility of packaging ➢ dispersability • chemical analysis:

	➢ pH, conductivity and moisture content ➢ solids, fats, proteins and carbohydrates ➢ ash analysis and salt analysis ➢ titratable acids, iodine values and peroxide values ➢ enzyme activity ➢ specific ions and active ingredients • microbiological tests and procedures: ➢ isolation, detection, classification to genera and some species or micro-organisms ➢ enumeration and nomenclature of desirable/ non-desirable micro-organisms ➢ propagation and maintenance of yeast, bacteria and cultures used in food processing ➢ measurement of spoilage and contamination ➢ sterility, hygiene and sanitation checks • optical/spectrometric tests: ➢ ultraviolet-visible (UV-VIS) spectrophotometry ➢ refractive index ➢ optical rotation • physical/mechanical tests: ➢ mass, volume, density, specific gravity and particle size ➢ foreign matter ➢ rheology, viscosity and gel strength ➢ 'wetability' and 'whipability' ➢ homogenisation ➢ browning (sugar content) ➢ elasticity, hardness, compressibility and strength ➢ starch quality • thermal tests: ➢ calorific values ➢ stability of products ➢ effectiveness of heat treatments
Tests	may include methods for: • control of starting materials, in-process materials and finished products • health monitoring • basic troubleshooting of production processes
Hazards	Hazards may include: • microbiological organisms and agents associated with soil, air, water, plants, animal tissue and fluids • chemicals, such as acids, heavy metals, pesticides and hydrocarbons • aerosols from broken centrifuge tubes and pipetting • sharps and broken glassware

	• flammable liquids and gases • cryogenics, such as dry ice and liquid nitrogen • fluids under pressure, such as steam and industrial gases • sources of ignition • high temperature ashing processes • disturbance or interruption of services
Hazard control measures	may include: • ensuring access to service shut-off points • recognizing and observing hazard warnings and safety signs • labeling of samples, reagents, aliquoted samples and hazardous materials • handling and storage of hazardous materials and equipment in accordance with labeling, MSDS and manufacturer's instructions • identifying and reporting operating problems or equipment malfunctions • cleaning and decontaminating equipment and work areas regularly using enterprise procedures • using personal protective clothing and equipment, such as gloves, safety glasses, coveralls, gown, body suits and respirators • using containment facilities (PCII, PCIII and PCIV physical containment laboratories), containment equipment (biohazard containers, laminar flow cabinets, Class I, II and III biohazard cabinets) and containment procedures • following established manual handling procedures • reporting abnormal emissions, discharges and airborne contaminants, such as noise, light, solids, liquids, water/waste water, gases, smoke, vapour, fumes, odour and particulates to appropriate personnel
Records	may include: • test and calibration results • equipment use, maintenance and servicing history • faulty or unsafe equipment
Occupational Health and Safety (OHS) and environmental management requirements	• all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through state/territory or federal legislation - these requirements must not be compromised at any time • all operations assume the potentially hazardous nature of samples and require standard precautions to be applied • where relevant, users should access and apply current industry understanding of infection control issued by the Ethiopian Health and Nutrition Research Institute

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • interpret test methods/procedures accurately • prepare and test samples using procedures appropriate to the nature of sample • perform calibration checks (if required) • safely operate test equipment/instruments to enterprise standards and/or manufacturer's specification • prepare calibration graphs and calculate results using appropriate units and precision • apply basic theoretical knowledge to interpret gross features of data and make relevant conclusions • identify atypical results as out of normal range or an artefact • trace and source obvious causes of an artefact • communicate problems to a supervisor or outside service technician • record and communicate results in accordance with enterprise procedures • maintain security, integrity, traceability of samples, sub-samples, test data/results and documentation.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • principles and concepts underpinning the test/procedure • purpose of tests • metrology techniques underpinning test/procedure including uncertainty • principles and concepts related to equipment/instrument operation and testing • function of key components of the equipment/instrument • effects on the test of modifying equipment/instrument variables • enterprise and/or legal traceability requirements • relevant health, safety and environment requirements
Underpinning Skills	Demonstrate skills to: • using instruments for qualitative and/or quantitative analysis • interpreting test methods and procedures • sample preparation procedures • performing calibration checks • using instruments for qualitative and/or quantitative analysis • maintaining and evaluating reagents • troubleshooting basic equipment/method • calculations to estimate uncertainty and produce results • preparing calibration graphs and calculating results using appropriate units and precision

	• applying theoretical knowledge to interpret gross features of data and make relevant conclusions such as identifying atypical results as out of normal range or an artefact • tracing and sourcing obvious causes of an artefact • recording and communicating results in accordance with enterprise procedures • maintaining security, integrity, traceability of samples, sub-samples, test data, results and documentation
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit	**Document Process and Procedures for a Food Product**
Unit Code	**IND FPO4 14 0613**
Unit Descriptor	This unit covers the skills and knowledge required to document the operational steps and procedures in producing a processed food product.

Elements	Performance criteria
1. Identify the stages and operations required in the processing of a food product.	1.1 Inputs, production processes and outputs are identified. 1.2 Each step in processing is examined and impacts, feedback and process adjustment in the production system is assessed. 1.3 Hazards to food safety and product quality at each stage of production are identified.
2. Identify the facilities, equipment, workflow and process controls for a processed food product	2.1 Functions of the major production stages are classified and analyzed. 2.2 Equipment used to perform each operation stage is identified. 2.3 The facilities, workflow and layout of the workplaces, or technical work area, together with their core activities and links with other parts of the organization are identified. 2.4 Process controls are documented for a processed food product. 2.5 The workforce structure and the roles and responsibilities of workplace personnel are established for a given food product. 2.6 Information management processes are investigated for a food processing operation.
3. Produce flow diagrams for nominated unit operations	3.1 Correct nomenclature and symbols are used to show processes, inputs and outputs. 3.2 The completed flow diagram is reviewed and suggestions for improvements for product quality and operational efficiency are documented. 3.3 Energy and resource usage, and environmental impacts, of production processes are quantified. 3.4 Procedures for testing for yields and/or variances are identified at each stage. 3.5 Areas for process improvement are identified for further analysis.

Variable	Range
Policies and procedures	Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Legislative requirements	are typically reflected in procedures and specifications. Legislation relevant to this industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity
Workplace information	Workplace information can include: • verbal or written instructions • standard operating procedures (SOPs) • specifications • production schedules • recipe instructions
Ingredients	Ingredients include but are not limited to: • flour • shortening • sugar • salt and water
Equipment	Equipment may include: • mixers • sieves • lifting equipment, dough break equipment for laminating
Shortening	Shortening may be added to the mixer or worked into the dough manually
Folding of pastry	Folding of pastry is typically in half or book folds
Lamination	Lamination does not apply to short paste and pie bottom paste

Evidence Guide	
Critical Aspects of Competence	A candidate must demonstrate the ability to document procedures for a food product, including identifying unit operations and representing a food processing operation in a diagrammatic form • Documented procedures must be able to be interpreted to review mechanisms for calculating variances and outputs that are outside of specification, and to identify areas for further refining and development under continuous improvement for a food product.
Underpinning Knowledge	Demonstrate Knowledge of (the ability to apply and explain): • the basic theory behind each major operation e.g. material transfer, separation, size reduction, combining, heat exchange, biochemical transformation and shaping

	• selection criteria regarding the equipment used to perform each major operation • the basic operating principles for the equipment used to perform each major operation process flow charts and process control
Underpinning Skills	Demonstrate skills to: • identify major stages and operations, including: material transfer, separation, size reduction, combination, heat exchange, biochemical transformation, shaping and extrusion • analyze the functions of the major operations, including purpose and application of each operation • identify the range of equipment used to perform each major unit operation • establish the function of each piece of equipment used to perform major operations • review the resultant products of the major production operations on food, in accordance with quality control processes and procedures • ascertain the affects of physical conditions e.g. temperature, pressure on the function of these unit operations • prepare a process flow chart for each unit operations • identify the process controls in place and how they ensure required production rate and consistent quality
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Implement and Monitor Environmentally Sustainable Work Practices**
Unit Code	**IND FPO4 15 0613**
Unit Descriptor	This competence covers the outcomes required to effectively analyze the workplace in relation to environmentally sustainable work practices and to implement improvements and monitor their effectiveness.

Elements	Performance Criteria
1. Investigate current practices in relation to resource usage.	1.1 Environmental regulations applying to the enterprise are identified. 1.2 Procedures are assessed for assessing ***compliance*** with environmental regulations. 1.3 Information on environmental and resource efficiency systems and procedures is collected, and provided to the work group where appropriate. 1.4 Current resource usage is measured and recorded by members of the work group. 1.5 Current purchasing strategies are analyzed and recorded. 1.6 Current work processes are analyzed to access information and data and assisted in identifying areas for improvement.
2. Set targets for improvements.	2.1 Input is sought from stakeholders, key personnel and specialists. 2.2 External sources of information and data are accessed as required. 2.3 Alternative solutions are evaluated to workplace environmental issues. 2.4 Efficiency targets are set.
3. Implement performance improvement strategies.	3.1 ***Techniques***/***tools*** are sourced to assist in achieving targets. 3.2 Continuous improvement strategies are applied to own work area of responsibility and communicate ideas and possible solutions to the work group and management. 3.3 Environmental and resource efficiency improvement plans are integrated for own work group with other operational activities and implemented.

	3.4 Suggestions and ideas about environmental and resource efficiency management are sought from stakeholders and acted upon where appropriate. 3.5 Costing strategies are implemented to fully value environmental assets.
4. Monitor performance.	4.1 Outcomes are documented and reports on targets communicated to key personnel and stakeholders. 4.2 Strategies are evaluated. 4.3 New targets are set and new tools and strategies are investigated and applied. 4.4 Successful strategies are promoted and participants rewarded where possible.

Variable	Range
Compliance	includes meeting relevant federal, state and local government laws, by-laws, regulations and codes of practice.
Techniques and tools may include:	• visual workplace concepts • measurement, display and/or recording devices • changed work practices/procedures • competence development and awareness training • process and equipment items
Procedures	All operations are performed in accordance with procedures. Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards. Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.
Environmental and resource efficiency issues include:	• addressing environmental and resource sustainability initiatives such as Environmental Management Systems, action plans, surveys and audits • reference to standards, guidelines and approaches such as: ➢ ISO 14001 Environmental Management Systems ➢ Life Cycle Analyses ➢ Cradle to cradle ➢ Global Reporting Initiative ➢ Ecological foot printing ➢ Triple Bottom Line reporting and Product Stewardship • determining enterprise's most appropriate waste treatment including waste to landfill, recycling, re-use and wastewater treatment • applying the waste management hierarchy in the workplace

	• initiating and/or maintaining appropriate enterprise procedures for operational energy consumption, including stationary energy and non stationary (transport) • efficient use of water • minimizing greenhouse gas emissions • use of controls to minimize the risk of environmental damage from hazardous substances
Measure include:	• material fed to/consumed by plant/equipment • plant meters and gauges • job cards including kanbans • examination of invoices from suppliers • measurements made under different conditions • examination of relevant information and data • others as appropriate to the specific industry contexts.
Incidents include:	• breaches or potential breaches of regulations • occurrences outside of standard procedure which may lead to lower environmental performance
Purchasing strategies include:	• influencing suppliers to take up environmental sustainability • selecting materials/components with a lower environmental profile.
Stakeholders**,** key personnel and specialists	include individuals and groups both inside and outside the organization that have some direct interest in the enterprise's conduct, actions, products and services, including: • employees at all levels of the organization • customers • suppliers • other organizations • key personnel within the organization, and specialists outside it who may have particular technical expertise
Suggestions	that help to: • prevent and minimize environmental risks and maximize opportunities • reduce emissions of greenhouse gases • reduce use of non-renewable resources • make more efficient use of energy, water and other resources • maximise opportunities to re use and recycle materials • identify strategies to offset or mitigate environmental impacts. e.g. purchasing of carbon credits • express purchasing power through the selection of suppliers with improved environmental performance. e.g. purchasing renewable energy and materials with lower embedded carbon • eliminate the use of hazardous and toxic materials increasing the reusability/recyclability of wastes/products.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • monitor and investigate current resource usage • develop plans to improve sustainability • implement environmental improvements. • environmental performance is routinely monitored and investigated • areas for improvements are followed through and the implemented changes are in turn monitored and investigated.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • how to access and use relevant environmental and resource efficiency systems, tools and procedures • understanding of best practice approaches relevant to own area of responsibility • strategies to maximize opportunities and minimize impacts relevant to own work area • relevant environmental and resource efficiency issues specific to industry practices • methods for measuring and calculating resource usage
Underpinning Skills	Demonstrate skills to: • using relevant environmental and resource efficiency systems, tools and procedures • applying quality assurance systems relevant to own work area • applying relevant supply chain procedures • measurement and calculation techniques • communication/consultation skills to ensure information is supplied to the work group • Reading and writing is required to comprehend documentation and interpret environmental and energy efficiency requirements and to document and maintain records • Numeracy is required to interpret numeric workplace information, readings and measurements, handle data as required and complete numeric components of workplace forms/reports.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit of Competence	**Monitor the Development and Implementation of Food QA System**
Unit Code	**IND FPO4 16 0613**
Unit Descriptor	This unit covers the skills and knowledge required to develop and manage a HACCP-based Quality Assurance (QA) Program.

Elements	Performance Criteria
1. Establish the scope of the QA system	1.1 Enterprise needs and expectations in product quality are clearly defined. 1.2 Existing systems and requirements are detailed for incorporation into the QA system. 1.3 Scope of the HACCP-based quality system is defined to encompass ***production system and product requirements***. 1.4 System is directed to prevent and control identified hazards.
2. Conduct hazard analysis and assessment	2.1 Every step in the production process is assessed for potential food safety hazards. 2.2 Critical Control Points (CCPs) are established to identify where each significant hazard can be prevented or controlled. 2.3 A measurable or recognizable standard is assigned for each CCP to define the critical limits. 2.4 Critical limits are technically and scientifically validated.
3. Ensure all documents, work procedures and processes required for the system are developed, available and in use.	3.1 All products and processes covered by the QA system are described in a standardized format defining product characteristics relevant to food safety. 3.2 Work instructions and Standard Operating Procedures (SOPs) are reviewed for accuracy, relevance and sufficiency to prevent hazards 3.3 Documented procedures are implemented for monitoring CCPs. 3.4 Documented procedures which ensure any CCPs which are outside critical limits are brought back within limits, and affected product is suitably handled, are implemented. 3.5 Documented procedures are implemented to ensure the ***QA system is regularly verified*** and audited as working effectively. 3.6 Availability and data storage of all records and documents for

	the system is maintained.
4. Respond to non-conforming product or processes	4.1 Procedures are identified for taking corrective action. 4.2 Corrective and preventative measures are implemented to prevent recurrence. 4.3 Procedures are devised or revised to support control measures. 4.4 Processes or conditions which could result in a breach of procedures are identified and corrective action is taken. 4.5 Process changes are introduced and controlled so that quality assurance requirements are accomplished.
5. Review product sampling and test results	5.1 Product sampling procedures are identified. 5.2 Post collection procedures are identified according to SOPs. 5.3 Test results are reviewed and responded to in accordance with ***workplace requirements***.
6. Audit, verify and validate the system	6.1 HACCP plans are routinely revised, verified and validated to reassess hazards, CCPs, critical limits, testing methods and all related procedures of the QA system to ensure they are appropriate to the enterprise requirements. 6.2 Internal or external audit findings are followed up and acted upon. 6.3 Reported quality hazards and non conformances are investigated and acted upon. 6.4 The HACCP-based QA system is reviewed to take account of any process changes or product specifications.

Variable	**Range**
Production system and product requirements	• These may include food safety, product quality, regulatory compliance, animal welfare (if required) and preventative maintenance
Verification of a QA system	• Verification refers to methods and procedures used to carry out monitoring, including sampling and testing to provide evidence that the specifications set by relevant legislation and codes of practice continue to be met. • Validation refers to obtaining evidence to confirm that a HACCP-based QA program is complete and effective and will deliver the expected outcomes.
Workplace requirements	• Enterprise QA policy, practices and procedures • Enterprise-specific procedures • SOPs • Enterprise task requirements and work instructions

Occupational health and safety requirements	• Codes of practice • Material Safety Data Sheets • Enterprise OHS policies, procedures and programs.
Regulations	• Ethiopian and international standards including: • Ethiopian Food Standards Code and food regulations • ISO Standards • codex alimentarius • industry guidelines and codes of practice • industry regulations

Evidence Guide	
Critical Aspects of Competence	Critical aspects of evidence that the candidate can monitor the development and implementation of: • scoping the requirements for a QA system • analyzing a production process to identify CCPs and establish critical limits • developing procedures for implementing and monitoring a QA system • maintaining data and documentation for a QA system • contributing to a review of a QA system, including verification and validation
Underpinning Knowledge	Knowledge of: • the steps in the development of a HACCP-based QA system • the steps in the systematic introduction of a HACCP-based QA system • enterprise recall and traceability procedures • post collection procedures for handling samples • purpose of the HACCP development and review process. • risks associated with samples and how they may be minimized. • the types of data the enterprise uses to record performance. • the document controls associated with a procedure change. • the purpose of calibrating equipment, SOPs and work instructions. • sampling procedures. • the process of auditing and verifying a HACCP-based QA system. • the objectives of a HACCP-based QA system. • the process for validating critical limits and CCPs. • the role of pre-requisite programs and Good Manufacturing Processes (GMPs) in a HACCP-based program.
Underpinning Skills	Ability to: • define the scope of the quality system and food safety system to ensure requirements are met

	• apply the HACCP principles and the process for developing a quality assurance or food safety program • conduct monitoring of a CCP • determine and take corrective and preventative action • apply workplace, regulatory and customer requirements critical to the workplace's operation and success. • identify critical limits for enterprise product or processes. • identify the actual and potential risks associated with uncontrolled changes in procedures. • interpret the resulting trends of product monitoring and testing. • interpret the results and trends of process monitoring. • monitor records and documentation for accuracy and compliance. • monitor the accurate and timely recording of quality data. • outline legal obligations of the enterprise and individuals for maintenance of the Quality Assurance system: • identify and apply relevant OH&S, regulatory and workplace requirements. • identify the documentation required to support a HACCP-based QA system. • record and analyze monitoring and verification data. • validate CCPs and critical limits. • identify and describe implementation of a change in the process. • identify causes of variation and non-conformance and explain appropriate course(s) of action to rectify problems. • outline team requirements and team management processes or strategies. • prepare process and product status reports recommending changes to improve processes and procedures. • prepare reports using primary and summary data, and appropriate language. • review communication systems (spoken and written) to minimize the potential for misreporting and misunderstanding of food safety requirements, procedures and plans: • use relevant communication skills. • Utilise available technology to record, manipulate, analyse and present or report data. • apply appropriate mathematical concepts and measures. • assemble product and process inspection, test and other quality data in prescribed

	• format.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard : Food Processing Operations Level IV	
Unit of Competence	**Schedule and Manage Production**
Unit Code	**IND FPO4 17 0613**
Unit Descriptor	This unit of competence covers the skills and knowledge required to plan, monitor and adjust schedules to meet operational requirements.

Element	Performance Criteria
1. Identify production requirements	1.1. Forecast and sales information is used to identify production requirements. 1.2. Production priorities are identified to satisfy demand.
2. Identify resource requirements to meet production requirements	2.1. Stock levels of raw materials/ingredients, packaging components and consumables are confirmed against production requirements. 2.2. Equipment capacity and status and human resources are confirmed against production requirements.
3. Develop and communicate the production schedule	3.1. The production ***schedule*** is developed to meet demand and delivery timelines within production capacity and budget. 3.2. The production schedule takes account of stock levels, storage capacity, equipment capacity and product mix to minimize stock and product holdings and maximize production efficiency. 3.3. The production schedule is recorded in the appropriate workplace format. 3.4. The production schedule is made available to relevant personnel in a timely manner.
4. Monitor actual against scheduled production	4.1. Production is monitored to identify actual and potential barriers to achieving the schedule. 4.2. Resource usage rates are monitored to identify potential shortages. 4.3. Unplanned events that could affect the schedule are identified, assessed and addressed.
5. Adjust production schedules	5.1. Production schedules are adjusted to take account of changed conditions. 5.2. Changes are negotiated to the production schedule and communicated to relevant personnel in a timely manner. 5.3. Resource implications of amended schedules are identified and resources are accessed to meet requirements.

	5.4. Potential failure are identified to meet delivery deadlines and communicated to relevant personnel in a timely manner. 5.5. Schedule documentation is amended as required to meet workplace reporting requirements.
6. Review production schedule development process	6.1. The production ***scheduling*** process is reviewed to identify opportunities for improvement. 6.2. Variances in production are identified, investigated and reported against schedule. 6.3. Personnel responsible is consulted for implementing the schedule to identify improvement opportunities. 6.4. The scheduling process is revised to reflect improvements.

Variable	**Range**
Schedules	may be based on customer orders and/or market forecasts
Scheduling	may involve the use of planning and systems control software, such as SAP and MRPII
Policies and procedures	is consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of OHS and environmental impact of scheduling arrangements

Evidence Guide	
Critical Aspects of Competence	A candidate must demonstrate the ability to: • confirm production requirements and resource implications • establish and document production schedule • coordinate implementation of schedule • ensure production schedule is communicated and reported to all appropriate personnel • manage unplanned production issues • assess production outcomes against schedule and make required adjustments
Underpinning Knowledge	Demonstrate Knowledge of: • the role and scope of the scheduling function, including flow of information to and from the scheduling process and the impact of scheduling for related planning, purchasing, production and dispatch processes • factors to be taken into account in planning the schedule, including the inter-relationships between factors, such as: ➢ customer requirements ➢ stock levels and supply options ➢ use-by codes ➢ production capacity and availability

	➢ labor requirements and availability ➢ product compatibility ➢ capacity of related processes and/or storage facilities ➢ transport capacity • consequences of failing to meet delivery timelines(this may differ according to customers and may include stock-out fines in addition to damage to customer relationships) • the company's preferred approach to managing customer relations • the characteristics of raw materials/ingredients, packaging components and consumables and production process to determine the most efficient plan to meet production requirements, including stock shelf-life, product compatibility (with the exception of dedicated product lines) and changeover procedures • equipment capacity to ensure that production quantities and timelines are achievable • methods used to monitor actual to planned production, such as use of systems software and key performance indicators (KPIs) where these are collected on a real time basis • relevant personnel and departments to be consulted/notified of production schedule and related amendments, including the information relevant to each group/person • awareness of conditions that can affect achievement of schedule, including conditions that are unusual or unplanned and related options for response • options for maximizing resource utilization and minimizing waste, including options for alternate resource allocation in response to unplanned events • recording systems and requirements • process improvement procedures • supplier capacity and timeframes where relevant • competencies required by the work process and competencies held by the work team where relevant
Underpinning Skills	• collect and interpret sales and/or market forecast information, such as liaising with sales departments/functions and/or direct contact with customers • identify production priorities to meet customer/market expectations • identify and confirm resource requirements to meet the schedule, such as stock levels, equipment availability and capacity, personnel, storage capacity, and transport, and where required, identify alternate sources of supply for resources in short supply

	• develop a schedule to match production priorities to available resources, such as consulting relevant personnel to confirm schedule feasibility, and notifying relevant personnel of any possibility that demand cannot be met within required timeframe • record and communicate the schedule in appropriate formats, such as use of software and communicating information to meet workplace and audience requirements • monitor actual production and materials usage levels against production plan to identify variances and take appropriate corrective action, including assessing the consequences of any adjustments to the schedule for the customer, the company and resource availability • adjust the schedule in response to typical and atypical variables affecting achievement of schedule • respond to unplanned events to minimize disruption and optimize efficiency • confirm that resources and personnel are available to meet amended schedule and, if not, take action to secure requirements • communicate schedule changes to affected personnel • track and investigate variance to identify cause • follow review procedures to identify opportunities to improve scheduling process • follow procedures to adopt and communicate improvements to the scheduling process • use planning and systems control software according to enterprise procedures • match work allocation to competencies available in the work team according to enterprise procedures • use communication skills to interpret and complete work information to support operations of work team or area • use communication skills to consult and communicate with relevant personnel • demonstrate and support cooperative work practices within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit	**Plan and Coordinate Maintenance**
Unit Code	**IND FPO4 18 0613**
Unit Descriptor	This unit of competence covers the skills and knowledge required to plan and coordinate maintenance of production equipment.

Elements	Performance Criteria
1. Identify maintenance requirements	1.1. The approach to maintaining production equipment is identified. 1.2. Advice on equipment maintenance requirements is identified and assessed. 1.3. Special ***maintenance requirements*** are assessed and prioritized.
2. Plan maintenance	2.1. Resources required to carry out maintenance are identified and secured. 2.2. A maintenance schedule is developed to provide reliable equipment performance with minimal disruption to production. 2.3. The maintenance schedule takes account of production schedules, equipment capability, special maintenance requirements and efficient resource utilization and workplace environmental guidelines. 2.4. The maintenance schedule is recorded in the appropriate workplace format. 2.5. Responsibilities are defined and communicated for implementing the maintenance schedule. 2.6. Work areas and personnel affected by the maintenance program are consulted and advised of maintenance progress.
3. Monitor implementation of the maintenance schedule	3.1. Progress of maintenance is monitored to identify variance to schedule. 3.2. Unplanned events that could affect the schedule are identified, assessed and addressed. 3.3. Potential failure is identified to meet maintenance deadlines and communicated to relevant personnel in a timely manner.
4. Contribute to the improvement of equipment reliability	4.1. Equipment performance information is reviewed to identify patterns or trends. 4.2. Factors that affect equipment reliability are identified. 4.3. Production and maintenance personnel are consulted to identify opportunities to improve equipment reliability. 4.4. Action is taken to improve equipment reliability. 4.5. The maintenance schedule and related programs and procedures are reviewed to reflect improvements.

Variables	Range
Maintenance schedules	may relate to lubrication schedules, service schedules and major cleaning where cleaning requires equipment dismantling or strip down
Maintenance scheduling and work practices	are consistent with company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements and takes account of OHS and environmental impact of scheduling arrangements
Sources of information	include: • manufacturers' specifications • equipment capability data • condition monitoring data • equipment operation/performance reports and log sheets • workplace environmental guidelines
Scheduling	may involve the use of planning and systems control software, such as SAP and MRPII
Coordination	may involve the management of contracts with external maintenance service providers and/or internal maintenance personnel

Evidence Guide	
Critical Aspects of Competence	A candidate must demonstrate the ability to: • determine maintenance requirements for work area • establish and document maintenance schedule • coordinate implementation of maintenance • ensure maintenance schedule is communicated and reported to all appropriate personnel • manage unplanned maintenance issues • assess equipment reliability and contribute to improving outcomes.
Underpinning Knowledge	Knowledge of: • basic maintenance approaches and differences between reactive, preventative and proactive maintenance models, such as Reliability Centered Maintenance (RCM) and Total Productive Maintenance (TCM) • company systems, processes and responsibilities for collecting equipment condition information, analyzing information and carrying out required servicing and maintenance tasks • sources of data on equipment performance and maintenance requirements, related recording systems and data analysis tools • the requirements of the maintenance scheduling process, including the production process to identify the impact of

	scheduling on production in order to oversee maintenance activities and establish maintenance priorities • links to related activities, such as purchasing and contract management • factors that influence the reliability of equipment, including equipment capability, equipment/process design, and operating conditions and practices • methods used to measure effectiveness of maintenance including measures of plant availability, cost of maintenance, downtime and alternate resource utilization • OHS, environmental and food safety requirements and responsibilities associated with maintenance activities • relevant personnel and departments to be consulted/notified of maintenance schedule and related amendments, including the information relevant to each group/person • awareness of conditions that can affect achievement of the maintenance schedule, including conditions that are unusual or unplanned, and related options for response to equipment breakdowns/emergencies • communication skills to consult and communicate with relevant personnel • recording systems and requirements, including relevant software packages • process improvement procedures • maintenance service supplier capacity
Underpinning Skills	• describe the company's approach to equipment maintenance • collect information on equipment maintenance requirements to identify routine lubrication and servicing requirements as appropriate • analyze equipment maintenance data, such as the use of data analysis techniques to plot and interpret trends and patterns in equipment performance • identify components of the maintenance program and related responsibilities for implementation, such as equipment monitoring, lubrication schedules, routine servicing and cleaning schedules and breakdown or emergency response (implementation is typically shared between production and maintenance personnel and/or external service providers) • identify and confirm resource requirements to meet maintenance requirements, including the nature of maintenance tasks involved to identify the required maintenance equipment, materials/consumables and competences and where required, identify and liaise with external maintenance service providers

	• confirm that personnel with the required competencies are available to conduct maintenance activities, such as reporting and/or developing competencies required to implement the maintenance schedule, and where required, manage contracts with maintenance providers • develop a schedule for equipment maintenance to support reliable equipment performance with minimal disruption to production, including consulting relevant personnel to confirm schedule feasibility, and notifying relevant personnel of any possibility that maintenance cannot be completed within scheduled timeframe • record and communicate the schedule in appropriate formats, such as use of software, and communicating information to meet workplace and audience requirements • ensure that operating procedures are available and include information on Occupational Health and Safety (OHS), environmental management and food safety requirements and responsibilities • monitor maintenance activities against the schedule to identify variances and take appropriate corrective action, such as assessing the consequences of any adjustments to the schedule, and where required, monitor completion of maintenance within maintenance budget constraints • respond to unplanned events, such as major equipment breakdowns to minimize disruption and optimize efficiency • communicate maintenance requirements and report outcomes, including ensuring effective communication between production and maintenance personnel to enhance equipment reliability and identify improvement opportunities • use planning and systems control software • use communication skills to interpret and complete work information to support operations of work team or area • demonstrate and support cooperative work practices within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Prepare and Review Workplace Documentation to Support Good Manufacturing Practice**
Unit Code	**IND FPO4 19 0613**
Unit Descriptor	This unit of competence covers the skills and knowledge required by production/packaging line managers or supervisors to develop, review and manage workplace documentation to support Good Manufacturing Practice (GMP). This unit applies to people working in a supervisory or line management production/packaging role. Their responsibilities for document design, review and maintenance would typically require them to work in close consultation with others and focus on documentation relevant to their work area.

Elements	Performance Criteria
1. Develop and/or review workplace documentation to meet GMP requirements	1.1. Policies and master plans are identified to determine work area requirements. 1.2. ***Workplace documentation*** is identified and reviewed to confirm GMP requirements are met. 1.3. ***Procedures and records*** are developed and/or reviewed to confirm GMP requirements are met. 1.4. Improvements to workplace documentation are identified and reported. 1.5. Procedures to alter workplace documents are followed.
2. Facilitate development and communication of workplace documentation	2.1. Workplace documentation is developed in consultation with relevant ***stakeholders*** to support GMP. 2.2. Documentation is made available and clearly explained to relevant stakeholders. 2.3. Training requirements are identified and addressed within level of responsibility.

Variable	Range
Workplace documentation	Workplace documentation may include but is not limited to: • policies and master plans • quality manual • specifications • certificates • manufacturing formula • processing and packaging instructions

	• procedures • records • protocols (validation) • reports Documentation typically includes: • written descriptions • graphic display of information, including diagrams and photos • flow charts • Information is typically stored and accessed electronically
Procedures and records	Information covered by procedures includes but is not limited to: • receipt of starting and packaging material • sampling • testing • release and rejection procedures • validation • equipment assembly and calibration • maintenance, cleaning and sanitation • personnel matters, including training and personal hygiene • environmental monitoring • pest control • complaints • recalls • returns • equipment operation Records should include but are not limited to: • batch records • equipment recording (as appropriate) • validations • calibrations • maintenance • cleaning or repair work, including details of when/who • operating log sheets • complaints
Stakeholders	refer to process and technical experts and may include but are not limited to: • operators • engineering department • quality assurance • area managers and related functions/personnel
Version control	includes: • the maintenance of workplace documents to meet company and regulatory requirements

Evidence Guide	
Critical Aspects of Competence	Must demonstrate the ability to: • Review workplace documentation to confirm that it meets GMP requirements. Documentation may relate to a specific work area (rather than the whole plant). The candidate is required to document their findings • Develop, design or amend documentation to support GMP. For example, this could require the development of operating procedures. It may include reviewing and updating existing documentation or developing new documentation within required formats. • Application of document control procedures to submit or amend documents. • Appropriate consultation was undertaken in the development process and the document changes are effectively communicated. • An awareness of the link to related documents. Where training needs arise from the change, these must be identified together with recommendations for how they can be addressed • Review completed GMP-related documents and records to ensure that GMP requirements are met.
Underpinning Knowledge and Attitudes	• document authorization requirements and procedures and legal responsibilities of signatory • document types to support workplace systems and related development and control systems, roles and responsibilities, including an understanding of system security and access levels • procedures and responsibilities for altering documents and managing version control • systems, methods and procedures for recording and storing data and authorized levels of access (to electronic systems) • use of documentation including an understanding of the documents that can be used as evidence in audit processes • recording and reporting requirements • training and assessment arrangements and responsibilities
Underpinning Skills	Demonstrate skills to: • use workplace documentation, recording and reporting formats and software • prepare workplace documentation in plain language and suited to purpose and audience • use communication skills to interpret and complete work information to support operations of work team or area • demonstrate and support cooperative work practices within a culturally diverse workforce

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Identify & Implement Product Safety and Quality for Processing Plant and Animal Source Food**
Unit Code	**IND FPO4 20 0613**
Unit Descriptor	This unit covers the skills and knowledge required to identify and implement product safety and quality for processing This unit applies to food science and technology personnel who have roles in product design, quality assurance and production management. The unit typically applies to staff who have responsibility for maintaining product safety, quality and efficiency of plant and animal source food products/ produce. This unit includes using knowledge of food science and processes to determine the required food safety, quality and performance required from food production equipment.

Elements	Performance Criteria
1. Review preparation of plant animal source food products for processing.	1.1 Processes for preparing plant animal source food products are identified. 1.2 The blanching process for plant animal source food products is documented where required. 1.3 The process of carrying out pre-treatments for plant animal source food products is documented. 1.4 The steps involved in the manufacture of a range of plant animal source food products are identified.
2. Monitor production of plant animal source food products samples for testing.	2.1 Processing technique to produce required range plant animal source food products product samples is identified. 2.2 Permissible additives/preservatives used in the production of plant animal source food products are evaluated for suitability. 2.3 Processing stages and processes are monitored according to regulatory, customer and enterprise requirements 2.4 Products are produced in a safe working environment using appropriate hygiene and sanitation techniques.
3. Investigate the packaging alternatives for plant animal source food products.	3.1 Packaging requirements for plant animal source food products are identified and evaluated for suitability. 3.2 Packaging of a range of plant animal source food products is monitored according to regulatory, customer and enterprise requirements. 3.3 Adjustments to packaging procedures and design are made where required.

4. Assess the quality and shelf life of plant animal source food products.	4.1 A range of testing techniques is performed to assess the safety and organoleptic qualities of plant animal source food products. 4.2 All common hazards at Critical Control Points (CCPs) for the production of products are identified and assessed. 4.3 Critical limits are complied with for all steps of production including shelf life and storage.
5. Review production processes	5.1 The CCPs and critical limits for product safety are reviewed. 5.2 Operating procedures are reviewed for food safety and quality. 5.3 The production plan is reviewed for processing of food products. 5.4 Environmental impacts and associated costs are reviewed for processing of food products.

Variable	**Range**
Occupational health and safety requirements	• OHS legislation, regulations and Codes of practice • Safety Data Sheets (SDSs) for hazardous substances • Enterprise specific OHS requirements.
Regulations	• Ethiopian and international standards including: ➢ professional association regulations ➢ industry guidelines and codes of practice ➢ industry regulations ➢ Ethiopian Food Standards Code ➢ ISO Standards and export requirements • food safety regulations • International, and Ethiopian environmental protocols and regulations regarding effluent.
Materials, equipment and systems may include:	• peeling • slicing • dicing, coring, blanching and other pre-treatment processes.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: • produce samples of plant animal source food products and provide information and data for reviewing the production system • use commercial processing techniques to produce samples of plant animal source food products • review the production system for food safety and quality and environmental impact
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • the physiology of plant and animal source food products • the range of available sources used in the food industry

	• the physiological changes that can occur to fruit, vegetables, nuts, herbs and spices, during harvest and post-harvest treatment , and to meat and milk during slaughtering and milking and processing • the various methods of storage which assist to prolong the shelf life of plant and animal source food products • the physiology of plant and animal source food products • methods of cleaning and storage of plant and animal source food products for sale as fresh produce or for further processing • manufacturing processes for pickled, canned, dried, and concentrated fruit, frozen and plant and animal source food products • processes and inputs for jam and sauce production • testing procedures for raw materials through to manufactured product • stages of production, CCPs and critical limits • packaging procedures • quality and continuous improvement processes
Underpinning Skills	Demonstrate skills to: • investigate the processing characteristics of plant and animal source food products • determine the seasonal availability and demand for plant and animal source food products • implement preparation and processing requirements plant and animal source food products • implement quality and food safety procedures for processing of plant and animal source food products • arrange transportation of raw and processed plant and animal source food products • determine the procedures and costing for packaging a range of plant and animal source food products • implement packaging procedures for plant and animal source food products
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Plan and Organize Work**
Unit Code	**IND FPO4 21 0613**
Unit Descriptor	This unit covers the knowledge, skills and attitude required in planning and organizing work activities in a production application. It may be applied to a small independent operation or to a section of a large organization.

Elements	Performance Criteria
1. Set objectives	1.1 ***Objectives*** are planned consistent with and linked to work activities in accordance with organizational aims. 1.2 Objectives are stated as measurable targets with clear time frames. 1.3 Support and commitment of team members are reflected in the objectives. 1.4 Realistic and attainable objectives are identified.
2. Plan and schedule work activities	2.1 Tasks/work activities to be completed are identified and prioritized as directed. 2.2 Tasks/work activities are broken down into steps in accordance with set time frames and achievable components. 2.3 Task/work activities are assigned to appropriate team or individuals in accordance with agreed functions. 2.4 ***Resources*** are allocated as per requirements of the activity. 2.5 ***Schedule of work activities*** is coordinated with personnel concerned.
3. Implement work plans	3.1 ***Work methods and practices*** are identified in consultation with personnel concerned. 3.2 ***Work plans*** are implemented in accordance with set time frames, resources and ***standards***.
4. Monitor work activities	4.1 Work activities are monitored and compared with set objectives. 4.2 Work performance is monitored. 4.3 Deviations from work activities are reported and recommendations are coordinated with appropriate personnel and in accordance with set standards. 4.4 Reporting requirements are complied with in accordance with recommended format. 4.5 Timeliness of report is observed.

	4.6 Files are established and maintained in accordance with standard operating procedures.
5. Review and evaluate work plans and activities	5.1 Work plans, strategies and implementation are reviewed based on accurate, relevant and current information. 5.2 Review is done based on comprehensive consultation with appropriate personnel on outcomes of work plans and reliable feedback. 5.3 Results of review are provided to concerned parties and formed as the basis for adjustments/simplifications to be made to policies, processes and activities. 5.4 Performance appraisal is conducted in accordance with organization rules and regulations. 5.5 Performance appraisal report is prepared and documented regularly as per organization requirements. 5.6 Recommendations are prepared and presented to ***appropriate personnel/authorities***. 5.7 ***Feedback mechanisms*** are implemented in line with organization policies.

Variable	**Range**
Objectives	May include but not limited to: • Specific • General
Resources	May include but not limited to: • Personnel • Equipment and technology • Services • Supplies and materials • Sources for accessing specialist advice • Budget
Schedule of work activities	May include but not limited to: • Daily • Work-based • Contractual Regular
Work methods and practices	May include but not limited to: • Legislated regulations and codes of practice • Industry regulations and codes of practice • Occupational health and safety practices
Work plans	May include but not limited to: • Daily work plans • Project plans

	• Program plans • Resource plans • Skills development plans • Management strategies and objectives
Standards	May include but not limited to: • Performance targets • Performance management and evaluation systems • Occupational standards • Employment contracts • Client contracts • Discipline procedures • Workplace assessment guidelines • Internal quality assurance • Internal and external accountability and auditing requirements • Training Regulation Standards • Safety Standards
Appropriate personnel/ authorities	May include but not limited to: • Appropriate personnel include: • Management • Line Staff
Feedback mechanisms	May include but not limited to: • Verbal feedback • Informal feedback • Formal feedback • Questionnaire • Survey and Group discussion

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • set objectives • plan and schedule work activities • implement work plans • monitor work activities • review and evaluate work plans and activities
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • organization's strategic plan, policies rules and regulations, laws and objectives for work unit activities and priorities • organizations policies, strategic plans, guidelines related to the role of the work unit • team work and consultation strategies
Underpinning Skills	Demonstrates skill to: • plan

	• lead • organize • coordinate • communicate • inter-and intra-person/motivation skills • present
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Migrate to New Technology**
Unit Code	**IND FPO4 22 0613**
Unit Descriptor	This unit defines the competence required to apply skills and knowledge in using new or upgraded technology. The rationale behind this unit emphasizes the importance of constantly reviewing work processes, skills and techniques in order to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of new technology. To this end, the person is typically engaged in on-going review and research in order to discover and apply new technology or techniques to improve aspects of the organization's activities.

Elements	Performance Criteria
1. Apply existing knowledge and techniques to technology and transfer	1.1 Situations are identified where existing knowledge can be used as the basis for developing new skills. 1.2 New or upgraded technology skills are acquired and used to enhance learning. 1.3 New or upgraded equipment are identified, classified and used where appropriate, for the benefit of the organization.
2. Apply functions of technology to assist in solving organizational problems	2.1 Testing of new or upgraded equipment is conducted according to the specification manual. 2.2 Features of new or upgraded equipment are applied within the organization 2.3 Features and functions of new or upgraded equipment are used for solving organizational problems 2.4 Sources of information relating to new or upgraded equipment are accessed and used
3. Evaluate new or upgraded technology performance	3.1 New or upgraded equipment is evaluated for performance, usability and against OHS standards**.** 3.2 ***Environmental considerations*** are determined from new or upgraded equipment. 3.3 ***Feedback*** is sought from users where appropriate.

Variables	Range
Environmental Considerations	recycling, safe disposal of packaging (e.g. cardboard, polystyrene, paper, plastic) and correct disposal of waste materials by an authorized body

Feedback	May include but is not limited to: • surveys, • questionnaires, • interviews and meetings.

Evidence Guide	
Critical Aspects of Competence	Competence must confirm the ability to transfer the application of existing skills and knowledge to new technology
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Broad awareness of current technology trends and directions in the industry (e.g. systems/procedures, services, new developments, new protocols) • Vendor product directions • Ability to locate appropriate sources of information regarding metal manufacturing and new technologies • Current industry products/services, procedures and techniques with knowledge of general features • Information gathering techniques
Underpinning Skills	Demonstrate skills of: • Research skills for identifying broad features of new technologies • Ability to assist in the decision making process • Literacy skills in regard to interpretation of technical manuals • Ability to solve known problems in a variety of situations and locations • Evaluate and apply new technology to assist in solving organizational problems • General analytical skills in relation to known problems
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Establish Quality Standards**
Unit Code	**IND FPO4 23 0613**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to establish quality specifications for work outcomes and work performance. It includes monitoring and participation in maintaining and improving quality, identifying critical control points in the production of quality output and assisting in planning and implementing of quality assurance procedures.

Elements	Performance Criteria
1. Establish quality specifications for product	1.1 Market specifications are ***sourced*** and ***legislated requirements*** identified. 1.2 Quality specifications are developed and agreed upon 1.3 Quality specifications are documented and introduced to organization staff / personnel in accordance with the organization policy 1.4 Quality specifications are updated when necessary
2. Identify hazards and critical control points	2.1. Critical control points impacting on quality are identified. 2.2. Degree of risk for each hazard is determined. 2.3. Necessary documentation is accomplished in accordance with organization quality procedures
3. Assist in planning of quality assurance procedures	3.1 Procedures for each identified control point are developed to ensure optimum quality. 3.2 Hazards and risks are minimized through application of appropriate controls. 3.3 Processes are developed to monitor the effectiveness of quality assurance procedures.
4. Implement quality assurance procedures	4.1 Responsibilities for carrying out procedures are allocated to staff and contractors. 4.2 Instructions are prepared in accordance with the enterprise's quality assurance program. 4.3 Staff and contractors are given induction training on the quality assurance policy. 4.4 Staff and contractors are given in-service training relevant to their allocated ***safety procedures***.

5. Monitor quality of work outcome	5.1 Quality requirements are identified 5.2 Inputs are inspected to confirm capability to meet quality requirements 5.3 Work is conducted to produce required outcomes 5.4 Work processes are monitored to confirm quality of output and/or service 5.5 Processes are adjusted to maintain outputs within specification.
6. Participate in maintaining and improving quality at work	6.1 Work area, materials, processes and product are routinely monitored to ensure compliance with quality requirements 6.2 Non-conformance in inputs, process, product and/or service is identified and reported according to workplace reporting requirements 6.3 Corrective action is taken within level of responsibility, to maintain quality standards 6.4 Quality issues are raised with designated personnel
7. Report problems that affect quality	7.1 Potential or existing quality problems are recognized. 7.2 Instances of variation in quality are identified from specifications or work instructions. 7.3 Variation and potential problems are reported to supervisor/manager according to enterprise guidelines.

Variable	**Range**
Sourced	May include but is not limited to: • End-users • Customers or stakeholders
Legislated requirements	May include but is not limited to: • Verification of product quality as part of consumer legislation or specific legislation related to product content or composition.
Safety procedures.	May include but is not limited to: • Use of tools and equipment for fabrication/production/ manufacturing works • Workplace environment and handling of material safety, • Following occupational health and safety procedures designated for the task • Respect the policies, regulations, legislations, rule and procedures for manufacturing/production/fabrication works

Evidence Guide	
Critical Aspect of Competence	Demonstrates skills and knowledge in: • Monitor quality of work • Establish quality specifications for product • Participate in maintaining and improving quality at work • Identify hazards and critical control points in the production of quality product • Assist in planning of quality assurance procedures • Report problems that affect quality • Implement quality assurance procedures
Underpinning Knowledge	Demonstrates knowledge of: • work and product quality specifications • quality policies and procedures • improving quality at work • hazards and critical points of operation • obtaining and using information • applying federal and regional legislation within day-today work activities • accessing and using management systems to keep and maintain accurate records • requirements for correct preparation and operation • technical writing
Underpinning Skills	Demonstrates skills to: • monitor quality of work • establish quality specifications for product • participate in maintaining and improving quality at work • identify hazards and critical control points in the production of quality product • assist in planning of quality assurance procedures • report problems that affect quality • implement quality assurance procedures
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Develop Individuals and Team**
Unit Code	**IND FPO4 24 0613**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to determine individual and team development needs and facilitate the development of the workgroup.

Elements	Performance Criteria
1. Provide team leadership	1.1 ***Learning and development needs*** are systematically identified and implemented in line with ***organizational requirements***. 1.2 Learning plan to meet individual and group training and developmental needs is collaboratively developed and implemented. 1.3 Individuals are encouraged to self-evaluate performance and identify areas for improvement. 1.4 ***Feedback on performance*** of team members is collected from relevant sources and compared with established team learning process.
2. Foster individual and organizational growth	2.1 Learning and development program goals and objectives are identified to match the specific knowledge and skills requirements of competence standards. 2.2 ***Learning delivery methods*** are made appropriate to the learning goals, the learning style of participants and availability of equipment and resources. 2.3 Workplace learning opportunities and coaching/ mentoring assistance are provided to facilitate individual and team achievement of competencies. 2.4 Resources and timelines required for learning activities are identified and approved in accordance with organizational requirements.
3. Monitor and evaluate workplace learning	3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements. 3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional support. 3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning. 3.4 Records and reports of competence are maintained within organizational requirement.

4. Develop team commitment and cooperation	4.1 Open communication processes to obtain and share information is used by team. 4.2 Decisions are reached by the team in accordance with its agreed roles and responsibilities. 4.3 Mutual concern and camaraderie are developed in the team.
5. Facilitate accomplishment of organizational goals	5.1 Team members are actively participated in team activities and communication processes. 5.2 Individual and joint responsibility is developed by teams' members for their actions. 5.3 Collaborative efforts are sustained to attain organizational goals.

Variable	**Range**
Learning and development needs	• Coaching, monitoring and/or supervision • Formal/informal learning program • Internal/external training provision • Work experience/exchange/opportunities • Personal study • Career planning/development • Performance evaluation • Workplace skills assessment and Recognition of prior learning
Organizational requirements	• Quality assurance and/or procedures manuals • Goals, objectives, plans, systems and processes • Legal and organizational policy/guidelines and requirements • Safety policies, procedures and programs • Confidentiality and security requirements • Business and performance plans • Ethical standards • Quality and continuous improvement processes and standards
Feedback on performance	• Formal/informal performance evaluation • Obtaining feedback from supervisors and colleagues • Obtaining feedback from clients • Personal and reflective behavior strategies • Routine and organizational methods for monitoring service delivery
Learning delivery methods	• On the job coaching or monitoring • Problem solving • Presentation/demonstration • Formal course participation • Work experience and involvement in professional networks • Conference and seminar attendance

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • identify and implement learning opportunities for others • gave and receive feedback constructively • facilitate participation of individuals in the work of the team • negotiate plans to improve the effectiveness of learning • prepare learning plans to match skill needs • access and designate learning opportunities
Underpinning Knowledge and Attitude	Demonstrates knowledge of: • coaching and monitoring principles • how to work effectively with team members who have diverse work styles, aspirations, cultures and perspective • how to facilitate team development and improvement • methods and techniques to obtain and interpreting feedback • methods for identifying and prioritizing personal development opportunities and options • career paths and competence standards in the industry
Underpinning Skills	Demonstrates skills to: • read and understand a variety of texts, preparing general information and documents according to target audience; spell with accuracy; use grammar and punctuation effective relationships and conflict management • communicate including receiving feedback and reporting, maintaining effective relationships and conflict management • plan and organize required resources and equipment to meet learning needs • coach and mentor skills to provide support to colleagues • report to organize information; assess information for relevance and accuracy; identify and elaborate on learning outcomes • facilitate and conduct small group training sessions • relate to people from a range of social, cultural, physical and mental backgrounds
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Utilize Specialized Communication Skills**
Unit Code	**IND FPO4 25 0613**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to use specialized communication skills to meet specific needs of internal and external clients, conduct interviews, facilitate group discussions, and contribute to the development of communication strategies.

Elements	Performance Criteria
1. Meet common and specific communication needs of clients and colleagues	1.1 Specific communication needs of clients and colleagues are identified and met. 1.2 Different approaches are used to meet communication needs of clients and colleagues. 1.3 Conflict is addressed promptly and in a timely way and in a manner which does not compromise the standing of the organization.
2. Contribute to the development of communication strategies	2.1 ***Strategies*** for internal and external dissemination of information are developed, promoted, implemented and reviewed as required. 2.2 Channels of communication are established and reviewed regularly. 2.3 Coaching in effective communication is provided. 2.4 Work related network and relationship are maintained as necessary 2.5 Negotiation and conflict resolution strategies are used where required 2.6 Communication with clients and colleagues is appropriate to individual needs and organizational objectives
3. Represent the organization	3.1 When participating in internal or external fora, presentation is relevant, appropriately researched and presented in a manner to promote the organization. 3.2 Presentation is made clear and sequential and delivered within a predetermined time. 3.3 Appropriate media is utilized to enhance presentation. 3.4 Differences in views are respected. 3.5 Written communication is made consistent with organizational standards. 3.6 Inquiries are responded in a manner consistent with organizational standard.

4. Facilitate group discussion	4.1 Mechanisms which enhance ***effective group interaction*** are defined and implemented. 4.2 Strategies which encourage all group members to participate are used routinely. 4.3 Objectives and agenda are routinely set and followed for meetings and discussions. 4.4 Relevant information are provided to group to facilitate outcomes. 4.5 Evaluation of group communication strategies is undertaken to promote participation of all parties. 4.6 Specific communication needs of individuals are identified and addressed.
5. Conduct interview	5.1 A range of appropriate communication strategies are employed in ***interview situations***. 5.2 Different ***types of interview*** are conducted in accordance with the organizational procedures. 5.3 Records of interviews are made and maintained in accordance with organizational procedures. 5.4 Effective questioning, listening and nonverbal communication techniques are used to ensure that required message is communicated.

Variable	**Range**
Strategies	May include but is not limited to: • Recognizing own limitations • Utilizing techniques and aids • Providing written drafts • Verbal and non verbal communication
Effective group interaction	May include but is 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
Interview situations	May include but is not limited to: • Establish rapport • obtain facts and information • Facilitate resolution of issues

	• Develop action plans • Diffuse potentially difficult situation
Types of Interview	May include but is not limited to: • Related to staff issues • Routine • Confidential • Evidential • Non-disclosure • Disclosure

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Demonstrate effective communication skills with clients and work colleagues accessing service • Adopt relevant communication techniques and strategies to meet client particular needs and difficulties
Underpinning Knowledge and Values	Demonstrates knowledge of: • communication process • dynamics of groups and different styles of group leadership • communication skills relevant to client groups
Underpinning Skills	Demonstrates skills of: • full range of communication techniques including: ➢ active listening ➢ feedback ➢ interpretation ➢ role boundaries setting ➢ negotiation ➢ establishing empathy ➢ communication strategies • communicate to fulfill job roles as specified by the organization
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Manage and Maintain Small/Medium Business Operations**
Unit Code	**IND FPO4 26 0613**
Unit Descriptor	This unit covers the operation of day-to-day business activities in a micro or small business. The strategies involve developing, monitoring and managing work activities and financial information, developing effective work habits, and adjusting work schedules as needed.

Elements	Performance Criteria
1. Identify daily work requirements	1.1 Work requirements are identified for a given time period by taking into consideration ***resources*** and constraints. 1.2 Work activities are prioritized based on business needs, requirements and deadlines. 1.3 If appropriate, work is allocated to relevant staff or contractors to optimize efficiency.
2. Monitor and manage work	2.1 People, resources and/or equipment are coordinated to provide optimum results. 2.2 Staff, clients and/or contractors are communicated within a clear and regular manner, to monitor work in relation to ***business goals*** or timelines. 2.3 ***Problem solving techniques*** are applied to work situations to overcome difficulties and achieve positive outcomes.
3. Develop effective work habits	3.1 Work and personal priorities are identified and a balance is achieved between competing priorities using appropriate ***time management strategies***. 3.2 Input from ***internal and external sources*** is sought and used to develop and refine new ideas and approaches. 3.3 Business or inquiries is/are responded to promptly and effectively. 3.4 Information is presented in a format appropriate to the industry and audience.
4. Interpret financial information	4.1 Relevant documents and reports are identified. 4.2 Documents and reports are read and understood and any implications discussed with appropriate persons. 4.3 Data and numerical calculations are analyzed, checked, evaluated, organized and reconciled.

	4.4 Daily financial records and cash flow are maintained correctly and in accordance with legal and accounting requirements. 4.5 Invoices and payments are prepared and distributed in a timely manner and in accordance with legal requirements. 4.6 Outstanding accounts are collected or followed-up on.
5. Evaluate work performance	5.1 Opportunities for improvements are monitored according to business demands. 5.2 Work schedules are adjusted to incorporate necessary modifications to existing work and routines or changing needs and requirements. 5.3 Proposed changes are clearly communicated and recorded to aid in future planning and evaluation. 5.4 Relevant codes of practice are used to guide an ethical approach to workplace practices and decisions.

Variable	**Range**
Resources	May include but is not limited to: • staff • money • time • equipment • space
Business goals	May include but is not limited to: • sales targets • budgetary targets • team and individual goals • production targets • reporting deadlines
Problem solving techniques	May include but is not limited to: • gaining additional research and information to make better informed decisions • looking for patterns • considering related problems or those from the past and how they were handled • eliminating possibilities • identifying and attempting sub-tasks • collaborating and asking for advice or help from additional sources
Time management strategies	May include but is not limited to: • prioritizing and anticipating

	• short term and long term planning and scheduling • creating a positive and organized work environment • clear timelines and goal setting that is regularly reviewed and adjusted as necessary • breaking large tasks into smaller tasks • getting additional support if identified and necessary
Internal and external sources	May include but is not limited to: • staff and colleagues • management, supervisors, advisors or head office • relevant professionals such as lawyers, accountants, management consultants • professional associations

Evidence Guide	
Critical Aspects of Competence	A person must be able to demonstrate: • ability to identify daily work requirements and allocate work appropriately • ability to interpret financial documents in accordance with legal requirements
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Federal and Local Government legislative requirements affecting business operations, especially in regard to Occupational Health and Safety (OHS), equal employment opportunity, industrial relations and anti-discrimination • technical or specialist skills relevant to the business operation • relevant industry code of practice • planning techniques to establish realistic timelines and priorities • identification of relevant performance measures • quality assurance principles and methods • relevant marketing, management, sales and financial concepts • methods for monitoring performance and implementing improvements • structured approaches to problem solving, idea management and time management
Underpinning Skills	Demonstrate skills to: • interpret legal requirements, company policies and procedures and immediate, day-to-day demands • communicate using questioning, clarifying, reporting, and giving and receiving constructive feedback • numeracy skills for performance information, setting targets and interpreting financial documents and reports • technical and analytical skills to interpret business document, reports and financial statements and projections

	• relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities • solve problem and develop contingency plans • using computers and software packages to record and manage data and to produce reports • evaluate using assessment work and outcomes • observe for identifying appropriate people, resources and to monitor work
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Food Processing Operation Level IV	
Unit Title	**Apply Problem Solving Techniques and Tools**
Unit Code	**IND FPO4 27 0613**
Unit Descriptor	This unit of competency covers the knowledge, skills and attitude required to apply scientific problem solving techniques and tools to enhance quality, productivity and other kaizen elements on continual basis.

Elements	Performance criteria
1. Identify and select theme/problem.	1.1 ***Safety requirements*** are followed in accordance with safety plans and procedures. 1.2 All possible problems related to the process /Kaizen elements are listed using ***statistical tools and techniques***. 1.3 All possible problems related to kaizen elements are identified and listed on Visual Management Board/Kaizen Board. 1.4 Problems are classified based on obviousness of cause and action. 1.5 Critical factors like the number of customers affected, Potentials for bottlenecks, and number of complaints etc… is selected. 1.6 Problems related to priorities of ***Kaizen Elements*** are given due emphasis and selected.
2. Grasp current status and set goal.	2.1 The extent of the problem is defined. 2.2 Appropriate and achievable goal is set.
3. Establish activity plan.	3.1 The problem is confirmed. 3.2 High priority problem is selected. 3.3 The extent of the problem is defined. 3.4 Activity plan is established as per ***5W1H***.
4. Analyze causes of a problem.	4.1 All possible causes of a problem are listed. 4.2 Cause relationships are analyzed using***4M1E***. 4.3 Causes of the problems are identified. 4.4 Root causes are selected. 4.5 The root cause which is most directly related to the problem is selected. 4.6 All possible ways are listed using ***creative idea generation*** to eliminate the most critical root cause. 4.7 The suggested solutions are carefully tested and evaluated for potential complications.

	4.8 Detailed summaries of the action plan are prepared to implement the suggested solution.
5. Examine countermeasures and their implementation.	5.1 Action plan is implemented by ***medium KPT*** members. 5.2 Implementation is monitored according to the agreed procedure and activities are checked with preset plan.
6. Assess effectiveness of the solution.	6.1 ***Tangible and intangible results*** are identified. 6.2 The results are verified over time. 6.3 Tangible results are compared with targets using ***various types of diagram***.
7. Standardize and sustain operation.	7.1 If the goal is achieved, the new procedures are standardized and made part of daily activities. 7.2 All employees are trained on the new ***Standard Operating Procedures (SOPs)***. 7.3 SOP is verified and followed by all employees. 7.4 The next problem is selected to be tackled by the team.

Variables	**Range**
Safety requirements	may include but not limited to: • OHS requirements include legislation, material safety, managements system, hazardous substances and dangerous goods code and local safe operating procedures • Work is carried out in accordance with legislative obligations, environmental legislations, relevant health regulation, manual handling procedure and organization insurance requirements
Statistical tools and techniques	may include but not limited to: • 7 QC tools may include: ➢ Stratification ➢ Pareto Diagram ➢ Cause and Effect Diagram ➢ Check Sheet ➢ Control Chart/Graph ➢ Histogram ➢ Scatter Diagram • QC techniques may include: ➢ Brain storming ➢ Why analysis ➢ What if analysis ➢ 5W1H
Kaizen Elements	may include but not limited to: • Quality

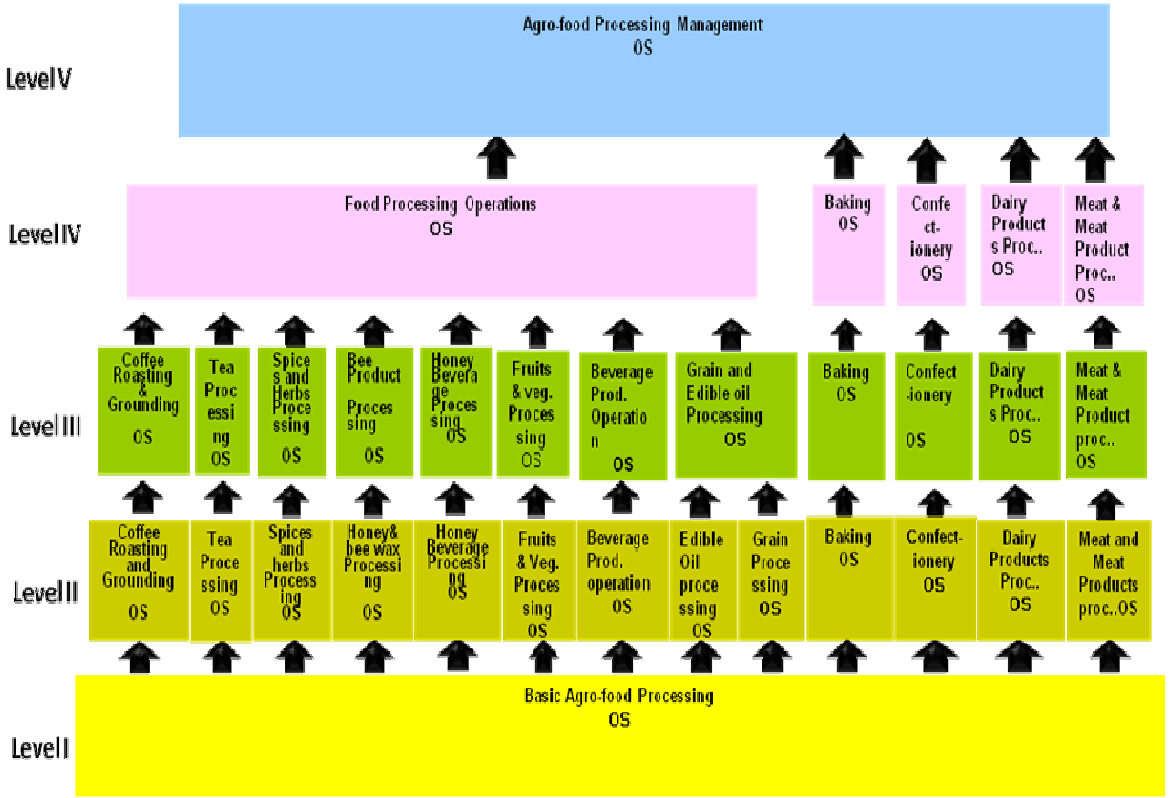
	• Cost • Productivity • Delivery • Safety • Moral • Environment • Gender equality
5W1H	may include but not limited to: • Who: person in charge • Why: objective • What: item to be implemented • Where: location • When: time frame • How: method
4M1E	may include but not limited to: • Man • Machine • Method • Material and • Environment
Creative idea generation	may include but not limited to: • Brainstorming • Exploring and examining ideas in varied ways • Elaborating and extrapolating • Conceptualizing
Medium KPT	may include but not limited to: • 5S • 4M (machine, method, material and man) • 4P (Policy, procedures, People and Plant) • PDCA cycle • Basics of IE tools and techniques
Tangible and intangibleresults	may include but not limited to: • Tangible result may include: ➢ Quantifiable data • Intangible result may include: ➢ Qualitative data
Various types of diagram	may include but not limited to: • Line graph • Bar graph • Pie-chart • Scatter diagram • Affinity diagram

Standard Operating Procedures (SOPs)	may include but not limited to: • The customer demand • The most efficient work routine (steps) • The cycle times required to complete work elements • All process quality checks required to minimize defects/errors • The exact amount of work in process required

Evidence Guide	
Critical Aspects of Assessment	Demonstrates skills and knowledge competencies to: • Apply all relevant procedures and regulatory requirements to ensure quality and productivity of an organization. • Detect non-conforming products/services in the work area • Apply effective problem solving approaches/strategies. • Implement and monitor improved practices and procedures • Apply statistical quality control tools and techniques.
Underpinning Knowledge and Attitude	Demonstrates knowledge of: • QC story/PDCA cycle/ • QC story/ Problem solving steps • QCC techniques • 7 QC tools • Basic IE tools and techniques. • SOP • Quality requirements associated with the individual's job function and/or work area • Workplace procedures associated with the candidate's regular technical duties • Relevant health, safety and environment requirements • organizational structure of the enterprise • Lines of communication • Methods of making/recommending improvements. • Reporting procedures
Underpinning Skills	Demonstrates skills to: • Apply problem solving techniques and tools • Apply statistical analysis tools • Apply Visual Management Board/Kaizen Board. • Detect non-conforming products or services in the work area • Document and report information about quality, productivity and other kaizen elements. • Contribute effectively within a team to recognize and recommend improvements in quality, productivity and other kaizen elements. • Implement and monitor improved practices and procedures. • Organize and prioritize activities and items.

	• Read and interpret documents describing procedures • Record activities and results against templates and other prescribed formats.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Sector: Industry
Sub-sector: Agro-food Processing



Acknowledgement

We wish to extend thanks and appreciation to the many representatives of business, industry, academe and government agencies who donated their time and expertise to the development of this occupational standard.

We would like also to express our appreciation to the Staff and Experts of Industry Ministry, Federal TVET Agency and Ministry of Education (MoE) who made the development of this occupational standard possible.

This occupational standard was developed on the date of June 25, 2013 at Debre Zeyit Ethiopian Management Institute.

COMMENT TEMPLATE

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