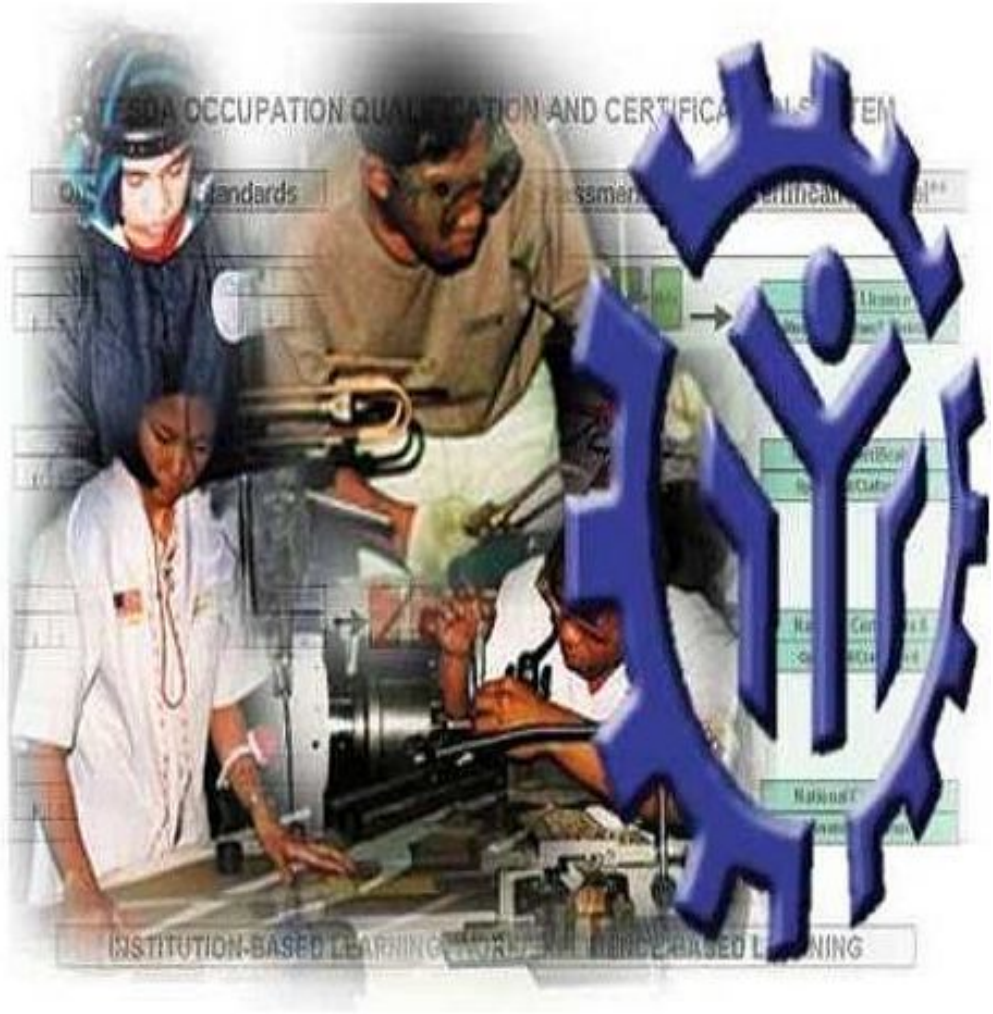
TRAINING REGULATIONS



FOOD PROCESSING NC III

PROCESSED FOOD AND BEVERAGES SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

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PROCESSED FOOD AND BEVERAGES SECTOR

FOOD PROCESSING NC III

TRAINING REGULATIONS FOR
FOOD PROCESSING NC III

Section 1 FOOD PROCESSING NC III QUALIFICATION

The **Food Processing NC III** Qualification consists of competencies that a person must achieve to perform initial food preparation, operate processing and packaging equipment, receive and store stock, and work with food in storage.

This Qualification is packaged from the competency map of the Processed Food and Beverages Sector as shown in Annex A.

The units of competency comprising this qualification include the following:

Code	BASIC COMPETENCIES
500311109	Lead workplace communication
500311110	Lead small team
500311111	Develop and practice negotiation skills
500311112	Solve workplace problems related to work activities
500311114	Use relevant technologies

Code	COMMON COMPETENCIES
AGR741201	Apply Food Safety and Sanitation
AGR741202	Use Standard Measuring Devices / Instruments
AGR741203	Use Food Processing Tools, Equipment and Utensils
AGR741204	Perform Mathematical Computation
AGR741205	Implement Good Manufacturing Practice Procedure
AGR741206	Implement environmental policies and procedures

Code	CORE COMPETENCIES
AGR741312	Receive and store stock
AGR741313	Control and order stock
AGR741314	Apply product knowledge to complete work operations
AGR741315	Perform basic tests in raw materials, in process and finished products
AGR741316	Operate a boiler
AGR741317	Operate pumping equipment
AGR741318	Operate and monitor food processes and equipment
AGR741319	Operate a packaging process
AGR741320	Work in a freezer storage area
AGR741321	Work with temperature controlled stock
AGR741322	Handle dangerous goods/ hazardous substances

A person who has achieved this Qualification is competent to be:

- **Food Leading hand**
- **Food Front line supervisor**
- **Food Packaging line operator**
- **Food Processing line operator**

SECTION 2 COMPETENCY STANDARDS

These guidelines are set to provide the Technical Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **FOOD PROCESSING NC III.** These units of competency are categorized into basic, common and core competencies.

BASIC COMPETENCIES

UNIT OF COMPETENCY : LEAD WORKPLACE COMMUNICATION

UNIT CODE : 500311109

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Communicate information about workplace processes	1.1. Appropriate ***communication method*** is selected 1.2. Multiple operations involving several topics areas are communicated accordingly 1.3. Questions are used to gain extra information 1.4. Correct sources of information are identified 1.5. Information is selected and organized correctly 1.6. Verbal and written reporting is undertaken when required 1.7. Communication skills are maintained in all situations
2. Lead workplace discussions	2.1. Response to workplace issues are sought 2.2. Response to workplace issues are provided immediately 2.3. Constructive contributions are made to workplace discussions on such issues as production, quality and safety 2.4. Goals/objectives and action plan undertaken in the workplace are communicated

3. Identify and communicate issues arising in the workplace	3.1. Issues and problems are identified as they arise 3.2. Information regarding problems and issues are organized coherently to ensure clear and effective communication 3.3. Dialogue is initiated with appropriate personnel 3.4. Communication problems and issues are raised as they arise

RANGE OF VARIABLES

VARIABLE	RANGE
1. Methods of communication	1.1. Non-verbal gestures 1.2. Verbal 1.3. Face to face 1.4. Two-way radio 1.5. Speaking to groups 1.6. Using telephone 1.7. Written 1.8. Internet

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Dealt with a range of communication/information at one time 1.2. Made constructive contributions in workplace issues 1.3. Sought workplace issues effectively 1.4. Responded to workplace issues promptly 1.5. Presented information clearly and effectively written form 1.6. Used appropriate sources of information 1.7. Asked appropriate questions 1.8. Provided accurate information
2. Underpinning knowledge	2.1. Organization requirements for written and electronic communication methods 2.2. Effective verbal communication methods
3. Underpinning Skills	3.1. Organize information 3.2. Understand and convey intended meaning 3.3. Participate in variety of workplace discussions 3.4. Comply with organization requirements for the use of written and electronic communication methods
4. Resource Implications	The following resources **MUST** be provided: 4.1. Variety of Information 4.2. Communication tools 4.3. Simulated workplace
5. Methods of Assessment	Competency in this unit must be assessed through 5.1. Direct Observation 5.2. Interview
6. Context for Assessment	6.1. Competency may be assessed in the workplace or in simulated workplace environment 6.2. Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY : LEAD SMALL TEAMS

UNIT CODE : 500311110

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes to lead small teams including setting and maintaining team and individual performance standards.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Provide team leadership	1.1. ***Work requirements*** are identified and presented to team members 1.2. Reasons for instructions and requirements are communicated to team members 1.3. ***Team members' queries and concerns*** are recognized, discussed and dealt with
2. Assign responsibilities	2.1. Duties, and responsibilities are allocated having regard to the skills, knowledge and aptitude required to properly undertake the assigned task and according to company policy 2.2. Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible
3. Set performance expectations for team members	3.1. Performance expectations are established based on client needs and according to assignment requirements 3.2. Performance expectations are based on individual team members duties and area of responsibility 3.3. Performance expectations are discussed and disseminated to individual team members

4. Supervise team performance	4.1. ***Monitoring of performance*** takes place against defined performance criteria and/or assignment instructions and corrective action taken if required 4.2. Team members are provided with ***feedback***, positive support and advice on strategies to overcome any deficiencies 4.3. ***Performance issues*** which cannot be rectified or addressed within the team are referenced to appropriate personnel according to employer policy 4.4. Team members are kept informed of any changes in the priority allocated to assignments or tasks which might impact on client/customer needs and satisfaction 4.5. Team operations are monitored to ensure that employer/client needs and requirements are met 4.6. Follow-up communication is provided on all issues affecting the team 4.7. All relevant documentation is completed in accordance with company procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Work requirements	1.1. Client Profile 1.2. Assignment instructions
2. Team member's concerns	2.1. Roster/shift details
3. Monitor performance	3.1. Formal process 3.2. Informal process
4. Feedback	4.1. Formal process 4.2. Informal process
5. Performance issues	5.1. Work output 5.2. Work quality 5.3. Team participation 5.4. Compliance with workplace protocols 5.5. Safety 5.6. Customer service

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Maintained or improved individuals and/or team performance given a variety of possible scenario 1.2. Assessed and monitored team and individual performance against set criteria 1.3. Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf 1.4. Allocated duties and responsibilities, having regard to individual's knowledge, skills and aptitude and the needs of the tasks to be performed 1.5. Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members
2. Underpinning Knowledge	2.1. Company policies and procedures 2.2. Relevant legal requirements 2.3. How performance expectations are set 2.4. Methods of Monitoring Performance 2.5. Client expectations 2.6. Team member's duties and responsibilities
3. Underpinning Skills	3.1. Communication skills required for leading teams 3.2. Informal performance counseling skills 3.3. Team building skills 3.4. Negotiating skills
4. Resource Implications	The following resources **MUST** be provided: 4.1. Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2. Materials relevant to the proposed activity or task

5. Methods of Assessment	Competency may be assessed through: 5.1. Direct observations of work activities of the individual member in relation to the work activities of the group 5.2. Observation of simulation and/or role play involving the participation of individual member to the attainment of organizational goal 5.3. Case studies and scenarios as a basis for discussion of issues and strategies in teamwork
6. Context for Assessment	6.1. Competency assessment may occur in workplace or any appropriately simulated environment 6.2. Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT TITLE : **DEVELOP AND PRACTICE NEGOTIATION SKILLS**

UNIT CODE : **500311111**

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes required to collect information in order to negotiate to a desired outcome and participate in the negotiation.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Plan negotiations	1.1 Information on ***preparing for negotiation*** is identified and included in the plan 1.2 Information on creating ***non verbal environments*** for positive negotiating is identified and included in the plan 1.3 Information on ***active listening*** is identified and included in the plan 1.4 Information on different ***questioning techniques*** is identified and included in the plan 1.5 Information is checked to ensure it is correct and up-to-date
2. Participate in negotiations	2.1 Criteria for successful outcome are agreed upon by all parties 2.2 Desired outcome of all parties are considered 2.3 Appropriate language is used throughout the negotiation 2.4 A variety of questioning techniques are used 2.5 The issues and processes are documented and agreed upon by all parties 2.6 Possible solutions are discussed and their viability assessed 2.7 Areas for agreement are confirmed and recorded 2.8 Follow-up action is agreed upon by all parties

RANGE OF VARIABLES

VARIABLE	RANGE
1. Preparing for negotiation	1.1 Background information on other parties to the negotiation 1.2 Good understanding of topic to be negotiated 1.3 Clear understanding of desired outcome/s 1.4 Personal attributes 1.4.1 self awareness 1.4.2 self esteem 1.4.3 objectivity 1.4.4 empathy 1.4.5 respect for others 1.5 Interpersonal skills 1.5.1 listening/reflecting 1.5.2 non verbal communication 1.5.3 assertiveness 1.5.4 behavior labeling 1.5.5 testing understanding 1.5.6 seeking information 1.5.7 self disclosing 1.6 Analytic skills 1.6.1 observing differences between content and process 1.6.2 identifying bargaining information 1.6.3 applying strategies to manage process 1.6.4 applying steps in negotiating process 1.6.5 strategies to manage conflict 1.6.6 steps in negotiating process 1.6.7 options within organization and externally for resolving conflict
2. Non verbal environments	2.1 Friendly reception 2.2 Warm and welcoming room 2.3 Refreshments offered 2.4 Lead in conversation before negotiation begins
3. Active listening	3.1 Attentive 3.2 Don't interrupt 3.3 Good posture 3.4 Maintain eye contact 3.5 Reflective listening
4. Questioning techniques	4.1 Direct 4.2 Indirect 4.3 Open-ended

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Demonstrated sufficient knowledge of the factors influencing negotiation to achieve agreed outcome 1.2 Participated in negotiation with at least one person to achieve an agreed outcome
2. Underpinning Knowledge and Attitude	2.1 Codes of practice and guidelines for the organization 2.2 Organizations policy and procedures for negotiations 2.3 Decision making and conflict resolution strategies procedures 2.4 Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation 2.5 Flexibility 2.6 Empathy
3. Underpinning Skills	3.1 Interpersonal skills to develop rapport with other parties 3.2 Communication skills (verbal and listening) 3.3 Observation skills 3.1 Negotiation skills
4. Resource Implications	The following resources **MUST** be provided: 4.1 Room with facilities necessary for the negotiation process 4.2 Human resources (negotiators)
5. Methods of Assessment	Competency may be assessed through: 5.1 Observation/demonstration and questioning 5.2 Portfolio assessment 5.3 Oral and written questioning 5.4 Third party report
6. Context for Assessment	6.1 Competency to be assessed in real work environment or in a simulated workplace setting.

UNIT OF COMPETENCY : **SOLVE PROBLEMS RELATED TO WORK ACTIVITIES**

UNIT CODE : **500311112**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause of problems.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Identify the problem	1.1. Variances are identified from normal operating parameters; and product quality 1.2. Extent, cause and nature of the problem are defined through observation, investigation and ***analytical techniques*** 1.3. ***Problems*** are clearly stated and specified
2. Determine fundamental causes of the problem	2.1. Possible causes are identified based on experience and the use of problem solving tools / analytical techniques. 2.2. Possible cause statements are developed based on findings 2.3. Fundamental causes are identified per results of investigation conducted
3. Determine corrective action	3.1. All possible options are considered for resolution of the problem 3.2. Strengths and weaknesses of possible options are considered 3.3. Corrective actions are determined to resolve the problem and possible future causes 3.4. ***Action plans*** are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures
4. Provide recommendation/s to manager	4.1. Report on recommendations are prepared 4.2. Recommendations are presented to appropriate personnel. 4.3. Recommendations are followed-up, if required

RANGE OF VARIABLES

VARIABLE	RANGE
1. Analytical techniques	1.1. Brainstorming 1.2. Intuitions/Logic 1.3. Cause and effect diagrams 1.4. Pareto analysis 1.5. SWOT analysis 1.6. Gant chart, Pert CPM and graphs 1.7. Scattergrams
2. Problem	2.1. Non – routine process and quality problems 2.2. Equipment selection, availability and failure 2.3. Teamwork and work allocation problem 2.4. Safety and emergency situations and incidents
3. Action plans	3.1. Priority requirements 3.2. Measurable objectives 3.3. Resource requirements 3.4. Timelines 3.5. Coordination and feedback requirements 3.6. Safety requirements 3.7. Risk assessment 3.8. Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1. Identified the problem 1.2. Determined the fundamental causes of the problem 1.3. Determined the correct / preventive action 1.4. Provided recommendation to manager These aspects may be best assessed using a range of scenarios / case studies / what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Underpinning Knowledge	2.1. Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-standard situations 2.2. Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations 2.2.1. Relevant equipment and operational processes 2.2.2. Enterprise goals, targets and measures 2.2.3. Enterprise quality, OHS and environmental requirement 2.2.4. Principles of decision making strategies and techniques 2.2.5. Enterprise information systems and data collation 2.2.6. Industry codes and standards
3. Underpinning Skills	3.1. Using range of formal problem solving techniques 3.2. Identifying and clarifying the nature of the problem 3.3. Devising the best solution 3.4. Evaluating the solution 3.5. Implementation of a developed plan to rectify the problem

4. Resource Implications	4.1. Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios / case studies / what ifs will be required as well as bank of questions which will be used to probe the reason behind the observable action.
5. Methods of Assessment	Competency may be assessed through: 5.1. Case studies on solving problems in the workplace 5.2. Observation The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
6. Context for Assessment	6.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT TITLE : **USE RELEVANT TECHNOLOGIES**

UNIT CODE : **500311114**

UNIT DESCRIPTOR : This unit of competency covers the knowledge, skills, and attitude required in selecting, sourcing and applying appropriate and affordable technologies in the workplace.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Study/select appropriate technology	1.1 Usage of different ***technologies*** is determined based on job requirements 1.2 Appropriate technology is selected as per work specification
2. Apply relevant technology	2.1 Relevant technology is effectively used in carrying out function 2.2 Applicable software and hardware are used as per task requirement 2.3 ***Management concepts*** are observed and practiced as per established industry practices
3. Maintain/enhance relevant technology	3.1 Maintenance of technology is applied in accordance with the ***industry standard operating procedure***, ***manufacturer's operating guidelines*** and ***occupational health and safety procedure*** to ensure its operative ability 3.2 Updating of technology is maintained through continuing education or training in accordance with job requirement 3.3 Technology failure/ defect is immediately reported to the concerned/responsible person or section for ***appropriate action***

RANGE OF VARIABLES

VARIABLE	RANGE
1. Technology	May include but are not limited to: 1.1 Office technology 1.2 Industrial technology 1.3 System technology 1.4 Information technology 1.5 Training technology
2. Management concepts	May include but not limited to: 2.1 Real Time Management 2.2 KAIZEN or continuous improvement 2.3 5S 2.4 Total Quality Management 2.5 Other management/productivity tools
3. Industry standard operating procedure	3.1 Written guidelines relative to the usage of office technology/equipment 3.2 Verbal advise/instruction from the co-worker
4. Manufacturer's operating guidelines/ instructions	4.1 Written instruction/manuals of specific technology/ equipment 4.2 General instruction manual 4.3 Verbal advise from manufacturer relative to the operation of equipment
5. Occupational health and safety procedure	5.1 Relevant statutes on OHS 5.2 Company guidelines in using technology/equipment
6. Appropriate action	6.1 Implementing preventive maintenance schedule 6.2 Coordinating with manufacturer's technician

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Studied and selected appropriate technology consistent with work requirements 1.2 Applied relevant technology 1.3 Maintained and enhanced operative ability of relevant technology
2. Underpinning Knowledge	2.1 Awareness on technology and its function 2.2 Repair and maintenance procedure 2.3 Operating instructions 2.4 Applicable software 2.5 Communication techniques 2.6 Health and safety procedure 2.7 Company policy in relation to relevant technology 2.8 Different management concepts 2.9 Technology adaptability
3. Underpinning Skills	3.1 Relevant technology application/implementation 3.2 Basic communication skills 3.3 Software applications skills 3.4 Basic troubleshooting skills
4. Resource Implications	The following resources **MUST** be provided: 4.1 Relevant technology 4.2 Interview and demonstration questionnaires 4.3 Assessment packages
5. Methods of Assessment	Competency must be assessed through: 5.1 Interview 5.2 Actual demonstration 5.3 Authenticated portfolio (related certificates of training/seminar)
6. Context of Assessment	6.1 Competency may be assessed in actual workplace or simulated environment

COMMON COMPETENCIES

UNIT OF COMPETENCY: APPLY FOOD SAFETY AND SANITATION

UNIT CODE : AGR741201

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to apply food safety and sanitation in the workplace

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Wear Personal Protective Equipment	1.1 Personal protective equipment are checked according to ***manufacturer's specifications*** 1.2 ***Personal protective equipment*** are worn according to the job requirement
2. Observe Personal Hygiene and Good Grooming	2.1 Personal hygiene and good grooming is practiced in line with ***workplace health and safety requirements***
3. Implement Food Sanitation Practices	3.1 Sanitary food handling practices are implemented in line with workplace sanitation regulations 3.2 Safety measures are observed in line with workplace safety practices.
4. Render Safety Measures and First Aid Procedures	4.1 ***Safety measures*** are applied according to workplace rules and regulations 4.2 ***First aid procedures*** are applied and coordinated with concerned personnel according to workplace standard operating procedures.
5. Implement housekeeping activities	5.1 Work area and surroundings are cleaned in accordance with workplace health and safety regulations 5.2 Waste is disposed according to organization's waste disposal system 5.3 ***Hazards*** in the work area are recognized and reported to designated personnel according to workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Manufacturer's Specifications	Manufacturer's specifications may include but not limited to: 1.1 Handling 1.2 Operating 1.3 Discharge Label 1.4 Reporting 1.5 Testing 1.6 Positioning 1.7 Refilling
2. Personal Protective Equipment	Personal Protective Equipment may include but not limited to: 2.1 Apron/laboratory gown 2.2 Mouth masks 2.3 Gloves 2.4 Rubber boots/safety shoes 2.5 Head gears such as caps, hair nets, ear plug
3. Workplace Health and Safety Requirements	Workplace and Safety Requirements may include: 3.1 Health/Medical Certificate 3.2 DOLE requirements 3.3 BFAD requirements 3.4 Personal Hygiene and good grooming 3.5 Plant Sanitation and waste management
4. Safety Measures	Safety measures may include but not limited to: 4.1 Labeling of chemicals and other sanitizing agents 4.2 Installation of fire fighting equipment in the work area 4.3 Installation of safety signages and symbols 4.4 Implementation of 5S in the work area 4.5 Removal of combustible material in the work area
5. First Aid Procedures	First Aid Procedures may include but not limited to: 5.1 Mouth to mouth resuscitation 5.2 CPR 5.3 Application of tourniquet 5.4 Applying pressure to bleeding wounds or cuts 5.5 First aid treatment for burned victims

6. Hazards	Hazards in the workplace may include but not limited to: 6.1 Physical 6.2 Biological 6.3 Chemical

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Cleaned, checked and sanitized personal protective equipment 1.2 Practiced proper personal hygiene and good grooming 1.3 Implemented workplace food safety practices 1.4 Applied first aid measures to victims 1.5 Implemented good housekeeping activities in the work area
2. Underpinning Knowledge	2.1 Safety Practices 2.1.1 Proper waste disposal 2.1.2 Environmental protection and concerns 2.1.3 Food safety principles and practices 2.1.4 Good grooming and personal hygiene 2.2 Codes and Regulations 2.2.1 TQM and other food quality system principles 2.2.2 ISO, HACCP, EMS, 5S 2.2.3 Good Food Manufacturing Practices 2.3 Equipment: Uses and Specifications 2.3 1 Parts and functions of personal protective equipment 2.3.2 First Aid Kit 2.3.3 Sanitizing equipment 2.4 Basic microbiology including types of microorganisms and its control
3. Underpinning Skills	3.1 Sanitary food handling practices 3.2 Implementing housekeeping activities 3.3 Applying first aid treatment 3.4 Coordination skills
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 A combination of direct observation and questioning of a candidate processing foods.
5. Resource Implications	The following resources must be provided: 5.1 Work area/station 5.2 First Aid kit 5.3 PPE relevant to the activities 5.4 Fire extinguisher 5.5 Stretcher 5.6 Materials, tools and equipment relevant to the unit of competency
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace

UNIT OF COMPETENCY: USE STANDARD MEASURING DEVICES AND INSTRUMENTS

UNIT CODE : AGR741202

UNIT DESCRIPTOR: This unit deals with the knowledge, skills and attitudes required to use standard measuring devices, instruments in the workplace

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Identify Standard Measuring Devices and Instruments	1.1 ***Standard measuring devices and instruments*** are identified according to manufacturer's specifications 1.2 Devices and instruments for measuring are properly checked, sanitized and calibrated prior to use
2. Review the Procedures in Using Standard Measuring Devices and Instruments	2.1 Procedures in using the ***standard measuring devices*** and instruments are recalled according to manufacturer's specifications 2.2 Printed procedures/brochures/catalogues are consulted according to specified ***food processing methods***
3. Follow Procedures of Using Measuring Devices and Instruments	3.1 Methods/practices of using measuring devices and instruments are strictly observed according to manufacturer's specifications and workplace requirements 3.2 Measuring devices and instruments are cleaned, wiped dry and stowed after use to ensure conformity with workplace requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Standard Measuring Devices	Standard Measuring Devices may include but not limited to the following: 1.1 Weighing scales and balances of various capacities and sensitivities 1.2 Measuring cups of varying capacities for dry ingredients 1.3 Measuring cups of varying capacities for liquid ingredients
2. Standard Measuring Instruments	Standard Measuring Instruments may include but not limited to the following: 2.1 Salinometer 2.2 Thermometers of varying temperature range (0-300 C) 2.3 Refractometer of varying range (0 – 90 B) 2.4 Glasswares like cylinders, beakers, flasks of varying graduations
3. Food Processing Methods	Food Processing Methods include the following: 3.1 Process foods by Salting, Curing and Smoking 3.2 Process foods by Fermentation and Pickling 3.3 Process foods by Canning and Bottling 3.4 Process foods by Sugar Concentration 3.5 Process foods by Drying and Dehydration

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified, prepared and calibrated standard measuring devices and instruments 1.2 Followed correctly the procedures in using standard measuring devices and instruments 1.3 Followed proper cleaning and sanitizing and stowing procedures of measuring devices and equipment before and after use
2. Underpinning Knowledge	2.1 Safe handling of measuring devices and instruments 2.2 Specifications and functions of measuring devices and instruments 2.3 Defects and breakages of measuring devices and instruments 2.4 Procedures in cleaning, sanitizing and calibrating and stowing equipment and instruments
3. Underpinning Skills	3.1 Communication skills 3.2 Calibrating skills 3.3 Sanitary handling of devices and instruments 3.4 Measuring devices and instruments 3.5 Stowing measuring devices and instruments
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation and questioning of a candidate using measuring devices and instruments
5. Resource Implications	The following resources must be provided: 5.1 Work area/station 5.2 Materials, tools and equipment relevant to the Unit of Competency
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace

UNIT OF COMPETENCY: USE FOOD PROCESSING TOOLS, EQUIPMENT AND UTENSILS

UNIT CODE : AGR741203

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to operate food processing tools, equipment and instruments in the workplace.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Perform Pre-Operation Activities	1.1 Appropriate tools and equipment/utensils are assembled according to ***food processing methods***
	1.2 ***Food processing tools and equipment/utensils*** are inspected and checked according to manufacturer's specifications
	1.3 Food processing equipment is set up, adjusted and readied according to job requirements
2. Operate Food processing Equipment	2.1 Food processing equipment is switched on according to ***manufacturer's specifications***
	2.2 Performance of food processing equipment is checked to ensure conformity with specified output
	2.3 Operation of food processing equipment is managed to achieve planned outcomes
	2.4 Minor trouble shooting on food processing tools, equipment and utensils is performed when necessary
3. Perform Post-Operation Activities	3.1 Food processing equipment is switched off and unplugged after operation in accordance with manufacturer's specifications
	3.2 Food processing tools, equipment and instruments are cleaned, sanitized and stowed as required according to manufacturer's specifications and workplace policies and regulations
	3.3 ***Minor preventive maintenance*** on equipment is performed in line with organization's maintenance system

	3.4 Main machine parts are inspected and checked in line with organization's policy 3.5 ***Condition of machine*** is monitored to ensure serviceability in accordance with workplace rules and regulations

RANGE OF VARIABLES

VARIABLE	RANGE
1. Food Processing Methods	Food Processing Methods include: 1.1 Salting 1.2 Curing 1.3 Smoking 1.4 Fermentation 1.5 Pickling 1.6 Canning 1.7 Bottling 1.8 Sugar concentration 1.9 Drying 1.10 Dehydration
2. Food Processing Tools, Equipment and Utensils	Tools, Equipment and Utensils used for the following food processing methods: 2.1 Salting 2.2 Curing 2.3 Smoking 2.4 Fermentation 2.5 Pickling 2.6 Canning 2.7 Bottling 2.8 Sugar concentration 2.9 Drying 2.10 Dehydration
3. Manufacturer's Specifications	Manufacturer's specifications may include but not limited to: 3.1 Handling requirements 3.2 Operating requirements 3.3 Discharge Label 3.4 Reporting 3.5 Testing 3.6 Positioning 3.7 Refilling

4. Minor Preventive Machine Maintenance	Minor Preventive Machine Maintenance may include but not limited to checking of the following: 4.1 Machine temperature 4.2 Hydraulic fluid 4.3 Wear and surface condition 4.4 Crack 4.5 Leak detection 4.6 Vibration 4.7 Corrosion/erosion 4.8 Electric insulation
5. Condition of Machine	5.1 Serviceable 5.2 Repairable 5.3 Defective

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Assembled, inspected, checked and sanitized appropriate tools and equipment/instruments 1.2 Set-up, adjusted and readied tools and equipment and instruments according to requirements 1.3 Operated and monitored performance of equipment to ensure specified output 1.4 Performed post operation activities 1.5 Performed minor trouble shooting on food processing tools, equipment and utensils
2. Underpinning Knowledge	2.1 Equipment, tools and instruments: Uses and Specifications 2.2 Equipment, tools and instruments: Parts and Functions 2.3 Sanitizing agents: Uses and Specification 2.4 Minor preventive maintenance 2.5 Proper stowing of tools and equipment/instruments 2.6 Minor trouble shooting 2.7 Interpreting manufacturer's specifications 2.8 Equipment/machine wear and tear process
3. Underpinning Skills	3.1 Equipment/machine parts tear down and assembly 3.2 Inspecting and checking condition of equipment/machines before, during and after operation 3.3 Performing minor trouble shooting 3.4 Performing minor preventive maintenance 3.5 Reporting equipment/machine, tools, instruments breakdown and recording same in standard forms
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation and questioning of a candidate operating food processing tools and equipment/instruments 4.2 Submission of written report on the performance and condition of equipment/machine, tools, instruments used.
5. Resource Implications	The following resources must be provided: 5.1 Work area/station 5.2 Materials, tools and equipment relevant to the Unit of Competency
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace

UNIT OF COMPETENCY : PERFORM MATHEMATICAL COMPUTATIONS

UNIT CODE : AGR741204

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes to perform mathematical computations in the workplace.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized*** terms are elaborated in the Range of Variables
1. Gather and Tabulate the Recorded Data	1.1 Records of ***weights and measurements*** of raw materials and ingredients are gathered and summarized according to workplace standard operating procedures 1.2 Records of weights and measurements of finished processed products are gathered and summarized according to workplace standard operating procedures 1.3 Summarized data are tabulated according to enterprise requirements
2. Review the Various Formulations	2.1 Raw materials and ingredients and percentage formulations are checked/counter checked according to approved specifications and enterprise requirements 2.2 Finished products and percentage formulations are reviewed according to approved specifications and enterprise requirements
3. Calculate Production Input and Output	3.1 Data on raw material consumption and corresponding percentage equivalent are calculated in line with enterprise requirements 3.2 Data on actual spoilage and rejects and corresponding percentage equivalents are calculated according to enterprise requirements 3.3 Data on actual yields and recoveries and corresponding percentage equivalents are calculated according to enterprise requirements 3.4 All calculated data are recorded according to enterprise requirements

4. Compute Production Cost	4.1 ***Costs of production*** are computed according to organization's standard procedures 4.2 Computed costs of production are reviewed and validated according to organization's production requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Weights and Measurements	Weights and Measurements may include: 1.1 Gravimetric 1.2 Volumetric 1.3 Lengths, diameters, widths 1.4 Seam measurements 1.5 Hotness/coldness (temperature) 1.6 Concentrations of solutions
2. Costs of Production	Costs of production are computed using the following: 2.1 Ingredient formulation 2.2 Percentage formulation 2.3 Conversion 2.4 Ratios and proportion 2.5 Spoilage and rejects and corresponding percentages 2.6 Recoveries and yields and corresponding percentages

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Gathered the records of weights and measurements of raw materials/ingredients and finished processed products 1.2 Summarized and tabulated all raw data gathered 1.3 Calculated the production inputs and outputs 1.4 Computed the costs of production 1.5 Reviewed all formulations and concentrations of solutions according to specifications and standards of the enterprise
2. Underpinning Knowledge	2.1 Mensuration 2.2 Percentage formulation 2.3 Fraction, ratios and proportions 2.4 Basic Mathematical Operations 2.5 Conversion factors
3. Underpinning Skills	3.1 Basic Mathematical skills 3.2 Basic Accounting skills 3.3 Recording skills 3.4 Data Gathering skills
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 A combination of direct observation and questioning of a candidate computing costs of production 4.2 Submission of a written report showing a record of production data including raw data
5. Resource Implications	The following resources should be provided: 5.1 Work area/station 5.2 Materials relevant to recording and documentation of production data 5.3. Computer with printer and software 5.4 Calculator 5.5 Work table
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace

UNIT OF COMPETENCY: IMPLEMENT GOOD MANUFACTURING PRACTICE AND PROCEDURES

UNIT CODE : AGR741205

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to comply with relevant Good Manufacturing Practice (GMP) codes through the implementation of workplace GMP and quality procedures

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized terms*** are elaborated in the Range of Variables
1. Identify requirements of GMP related to own work	1.1. Sources of information on GMP requirements are located 1.2. GMP requirements and responsibilities related to own work are identified
2. Observe personal hygiene and conduct to meet GMP requirements	2.1. Personal hygiene meets GMP requirements 2.2. Clothing is prepared, used, stored and disposed of according to GMP and workplace procedures 2.3. Personal movement around the workplace complies with area entry and exit procedures
3. Implement GMP requirements when carrying out work activities	3.1. GMP requirements are identified 3.2. ***Work area***, materials, equipment and product are routinely monitored to ensure compliance with GMP requirements 3.3. Raw materials, packaging components and product are handled according to GMP and workplace procedures 3.4. Workplace procedures to control resource allocation and process are followed to meet GMP requirements 3.5. Common forms of contamination are identified and appropriate control measures are followed according to GMP requirements 3.6. The workplace is maintained in a clean and tidy order to meet GMP housekeeping standards

4. Participate in improving GMP	4.1. Processes, practices or conditions which could result in non-compliance with GMP are identified and reported according to workplace reporting requirements 4.2. Corrective action is implemented within level of responsibility 4.3. GMP issues are raised with designated personnel
5. Participate in validation processes	5.1. Validation procedures are followed to meet GMP requirements 5.2. Issues arising from validation are raised with designated personnel 5.3. Validation procedures are documented to meet GMP requirements
6. Complete workplace documentation to support GMP	6.1. Documentation and recording requirements are identified 6.2. Information is recorded according to ***workplace reporting procedures*** to meet GMP requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. OH&S requirements may include:	1.1. OH&S legal requirements 1.2. Enterprise OH&S policies, procedures and programs
2. Work is carried out in accordance with regulations. Regulatory requirements may include:	2.1. Relevant regulations regarding food processing and food safety regulations 2.2. Department of Health – Food Establishments – Code of Sanitation of the Philippines (P.D.856) 2.3. Environment Management Bureau regulations regarding emissions, waste treatment, noise and effluent treatment and control
3. Hygiene and sanitation requirements may include:	3.1. Department of Health – Food Establishments – Code of Sanitation of the Philippines (P.D.856) 3.2. Requirements set out by Bureau of Food and Drugs 3.3. Workplace requirements
4. Workplace requirements may include:	4.1. Work instructions 4.2. Standard operating procedures 4.3. OH&S requirements 4.4. Quality assurance requirements 4.5. Equipment manufacturers' advice 4.6. Material Safety Data Sheets 4.7. Codes of Practice and related advice
5. Products may include	5.1. Products, raw materials, packaging components and consumables, part-processed product, finished product and cleaning materials
6. Responsibility and reporting systems	6.1. Responsibility for applying Good Manufacturing Practice relates to the person's work area 6.2. Reporting systems may include electronic and manual data recording and storage systems

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidences that the candidate : 1.1. Located and followed workplace information relating to GMP responsibilities 1.2. Maintained personal hygiene consistent with GMP 1.3. Followed workplace procedures when moving around the workplace and/or from one task to another to maintain GMP 1.4. Used, stored and disposed of appropriate clothing/footwear as required by work tasks and consistent with GMP 1.5. Identified and reported situations that do or could compromise GMP 1.6. Applied appropriate control measures to control contamination 1.7. Recorded results of monitoring, and maintain records as required by GMP 1.8. Followed validation procedures within level of responsibility 1.9. Identified and responded to out-of-specification or unacceptable raw materials, packaging components, final or part processed product within level of responsibility 1.10. Followed procedures to isolate or quarantine non-conforming product 1.11. Handled, cleaned and stored equipment, utensils, raw materials, packaging components and related items according to GMP and workplace procedures 1.12. Maintained GMP for own work 1.13. Handled and/or disposed of out-of-specification or contaminated materials, packaging components/consumables and product, waste and recyclable material according to GMP as required by work responsibilities 1.14. Maintained the work area in a clean and tidy state 1.15. Identified and reported signs of pest infestation
2. Underpinning Knowledge and	2.1. The role of GMP in preventing contamination, its relationship to legislative responsibilities and potential

Attitudes	implications of non-compliance 2.2. GMP arrangements in the workplace. This includes awareness of relevant GMP codes of practice and related workplace policies and procedures to implement these responsibilities 2.3. The relationship between GMP and the quality system, personnel responsible for designing and managing GMP, personal role to maintain GMP, the role of internal and external auditors as appropriate 2.4. Procedures followed to investigate contamination events and performance improvement processes 2.5. Personal clothing and footwear requirements for working in and/or moving between work areas 2.6. Personal clothing use, storage and disposal requirements 2.7. Awareness of common micro biological, physical and chemical contaminants relevant to the work process. This includes the types of contamination likely to occur, the conditions under which they occur, possible consequences and control methods to prevent occurrence 2.8. Food preservation methods including smoking, drying, freezing, use of low and high temperatures, use of preservatives, radiation 2.9. Basic concepts of quality assurance including quality specifications, operating parameters, validation procedures and control methods. This includes an understanding of related documentation including Standard Operating Procedures and/or batch instructions 2.10. Control methods and procedures used in the work area to maintain GMP. This includes an understanding of the purpose of control, the consequences if not controlled and the method of control where relevant. It may include an understanding of methods used to monitor process control; purpose and requirements of validation procedures; and purpose of equipment calibration 2.11. GMP responsibilities and requirements relating to work role 2.12. Basic understanding of the properties, handling and storage requirements of raw materials, packaging components and final product handled and used

	2.13. Standards for materials, equipment and utensils used in the work area 2.14. Recall and traceability procedures relevant to work role 2.15. Procedures for responding to out-of-specification or unacceptable performance/outcomes. This includes procedures for identifying or isolating materials or product of unacceptable quality 2.16. Purpose of keeping records and the recording requirements of GMP. This includes an understanding of product and materials traceability procedures 2.17. Housekeeping requirements and responsibilities relating to own work. Where relevant this includes use and storage of housekeeping/cleaning equipment 2.18. Waste collection, recycling and handling procedures relevant to own work responsibilities 2.19. Responsibilities for reporting and recording quality information
3. Underpinning Skills	3.1. Planning and organizing work (time management) 3.2. Working with others and in teams
4. Resource Implication	The following resources should be provided: 4.1. Workplace location and access to workplace policies 4.2. Materials relevant to the proposed activity and tasks
5. Methods of Assessment	Competency in this unit must be assessed using at least two (2) of the following methods: 5.1. A combination of direct observation and oral questioning 5.2. Written report 5.3. Written Test 5.4. Portfolio
6. Context of Assessment	Assessment should occur on the job or in a simulated workplace

UNIT OF COMPETENCY: IMPLEMENT ENVIRONMENTAL POLICIES AND PROCEDURES

UNIT CODE : AGR741206

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to implement environmental policies and procedures when carrying out work responsibilities

ELEMENT	PERFORMANCE CRITERIA ***Bold, italicized terms*** are elaborated in the Range of Variables
1. Conduct work in accordance with environmental policies and procedures	1.1. Immediate work area is routinely checked to ensure compliance with environmental requirements 1.2. ***Hazards*** and unacceptable performance are identified, removed and/or reported to appropriate personnel according to workplace procedures 1.3. Workplace procedures and work instructions are followed 1.4. Where control requirements are not met, incidents are promptly reported and corrective action is taken 1.5. Measures used to minimize and handle waste are followed 1.6. Environmental data is recorded in required format according to workplace reporting requirements
2. Participate in improving environmental practices at work	2.1. Processes or conditions which could result in an unacceptable environmental outcome are identified and reported according to workplace reporting requirements 2.2. Corrective action is taken in accordance with the environmental management and emergency response plans as required 2.3. Contributions are made to a participative arrangements for managing environmental issues in the workplace within workplace procedures and level of responsibility

3. Respond to an environmental emergency	3.1. Emergency situations are identified and reported according to workplace reporting requirements 3.2. Emergency procedures are followed as appropriate to the nature of the emergency and according to workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. OH&S requirements may include:	1.1. OH&S legal requirements 1.2. Enterprise OH&S policies, procedures and programs
2. Work in carried out in accordance with regulations. Regulatory requirements may include:	2.1. Relevant regulations regarding food processing and food safety regulations 2.2. Department of Health – Food Establishments – Code of Sanitation of the Philippines (P.D.856) 2.3. Environment Management Bureau regulations regarding emissions, waste treatment, noise and effluent treatment and control
3. Hygiene and sanitation requirements may include:	3.1. Department of Health – Food Establishments – Code of Sanitation of the Philippines (P.D.856) 3.2. Requirements set out by Bureau of Food and Drugs 3.3. Workplace requirements
4. Workplace requirements may include:	4.1. Work instructions 4.2. Standard operating procedures 4.3. OH&S requirements 4.4. Quality assurance requirements 4.5. Equipment manufacturers' advice 4.6. Material Safety Data Sheets 4.7. Codes of Practice and related advice
5. Identification and control of hazards may include:	5.1. Procedures are available that outline appropriate response to environmental incidents, accidents and emergencies 5.2. At this level identification and control of environmental hazards relates to own work. Corrective action typically involves recognizing any event which occurs as part of the work process and presents an unacceptable environmental risk or outcome, taking corrective action within level of responsibility, and/or reporting to the appropriate person in the work area 5.3. Work responsibilities may involve handling of hazardous waste

	5.4. An environmental hazard is any activity, product or service that has the potential to affect the environment. This may also be referred to as an environmental aspect 5.5. An environmental risk is the likelihood that the hazard can cause harm to the environment 5.6. A control measure is a method or procedure used to prevent or minimize environmental risks 5.7. Responsibility for identifying and controlling environmental risks relates to immediate work responsibilities 5.8. Participating in improvement may involve participation in structured improvement programs, one-off projects and day-to-day problem solving and consultative groups

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidences that the candidate : 1.1. Accessed and applied workplace information on environmental policies and procedures relating to own work 1.2. Fitted and used appropriate personal protective clothing and equipment 1.3. Checked own work area to identify environmental hazards 1.4. Reported hazards according to workplace procedure in a clear and timely manner 1.5. Followed work procedures to control or minimize environmental risk. This may include monitoring parameters set for environmental aspects such as airborne particulate, noise, and water quality. It may also include demonstrating use of emergency equipment according to work role requirements 1.6. Recorded environmental information as required by the environmental management program 1.7. Participated in processes to raise issues and suggestions to improve environmental issues management. This requires appropriate communication skills to structure and present information and interact with others 1.8. Followed procedures to collect, deposit, recycle and/or dispose of waste in own work area 1.9. Followed procedures to respond to environmental emergencies such as spills and emissions. This may include following procedures to alert the appropriate emergency services 1.10. Maintained housekeeping standards in work area
2. Underpinning Knowledge and Attitudes	2.1. Workplace approach to managing environmental issues. This includes awareness of relevant work procedures, personnel responsible for environmental issues, consultative arrangements for reporting and improving environmental practices and may include an understanding of the role of internal and external auditors as appropriate 2.2. Responsibilities of self and employer to manage environmental issues on site. This includes an awareness of any license or agreements in place with

	resource management authorities and the purpose of these arrangements 2.3. Sources of advice on environmental issues in the workplace 2.4. Environmental hazards and risks associated with the work carried out. Examples may include water pollution, air pollution, noise, waste handling, emergencies such as spills, and hazardous chemicals or waste 2.5. Work procedures as they relate to environmental responsibilities. This includes use of appropriate personal protective clothing and equipment as required 2.6. Procedures used to prevent or control environmental risks associated with own work. Where this requires use of emergency equipment, this includes understanding the purpose, capacity and limitations of equipment, location and storage requirements and safe handling and equipment use 2.7. Basic concepts of hazard identification, risk assessment and control options. This includes an understanding of the hierarchy of hazard control 2.8. Workplace procedures for identifying and responding to hazards, investigating incidents and improving environmental management and resource utilisation 2.9. Impact of work practices on resource utilisation and wastage 2.10. Procedures used to handle and dispose of waste according to workplace requirements. This includes an awareness of the need to separate solid and liquid waste, and remove waste in solid form rather than hosing down drains. It may also include an understanding of handling requirements for hazardous waste 2.11. The difference between trade waste and storm water drains 2.12. Consequences of inappropriate waste handling and disposal 2.13. Procedures for responding to unplanned incidents such as spills and leaks as relevant to the work area 2.14. Emergency response system and procedures 2.15. Responsible use of resources in own work area 2.16. Reporting procedures and responsibilities 2.17. Consultative processes in the workplace for raising

	issues/suggestions on environmental issues
3. Underpinning Skills	3.1. Planning and organizing work (time management) 3.2. Working with others and in teams
4. Resource Implication	The following resources should be provided: 4.1. Workplace location and access to workplace policies 4.2. Materials relevant to the proposed activity and tasks
5. Methods of Assessment	Competency in this unit must be assessed using at least two (2) of the following methods: 5.1. A combination of direct observation and oral questioning 5.2. Written report 5.3. Written Test 5.4. Portfolio
6. Context of Assessment	Assessment should occur on the job or in a simulated workplace

CORE COMPETENCIES

UNIT OF COMPETENCY: RECEIVE AND STORE STOCK

UNIT CODE : AGR741312

UNIT DESCRIPTOR: This unit involves the skills, knowledge and attitude required to assist in the receipt and storage of stock for a processing concern. It involves assistance in taking delivery of stock, storing the received stock, rotating and maintaining stock in accordance with relevant regulatory and workplace procedures, and completing required documentation.

ELEMENT	PERFORMANCE CRITERIA ***Bold Italicized terms*** are elaborated in the Range of Variables
1. Take delivery of stock	1.1. Incoming ***stock*** is checked against orders and delivery documentation in accordance with ***workplace procedures*** 1.2. Items are subjected to ***inspection***, and variations are communicated to the appropriate person in line with workplace procedures 1.3. All ***records*** are completed in accordance with workplace procedures
2. Store stock	2.1. All stocks are promptly and safely transported to appropriate storage area and stored according to workplace procedures 2.2. ***Appropriate personal protection equipment*** is used according to ***OHS requirements*** and workplace procedures 2.3. Stock levels are recorded in accordance with workplace procedures 2.4. Stock is labeled in accordance with workplace procedures
3. Rotate and maintain stock	3.1. Stock is rotated, or moved using appropriate equipment, where necessary, in accordance with workplace procedures and OHS requirements 3.2. Stock quality is checked, and out-of-specification stocks are reported according to workplace procedures 3.3. Stock is placed in storage or disposed of in accordance with workplace procedures and legislations 3.4. All required records and documentation are completed in accordance with workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Stock	May include but not limited to: 1.1. Raw materials 1.2. Goods in process 1.3. Finished products 1.4. Packaging materials and supplies 1.5. Tools and equipment 1.6. Office and stationery supplies 1.7. Forms, brochures and documents 1.8. Vouchers and tickets
2. Workplace procedures	May include but not limited to: 2.1. Standard operating procedures 2.2. Workplace operations manual 2.3. Occupational health and safety (OHS) procedures 2.4. Manufacturers' advice 2.5. Standard forms and reports 2.6. Written or verbal instructions 2.7. Workplace quality and customer service standards
3. Inspection	Items are inspected for the following: 3.1. Damage 3.2. Quality 3.3. “Use-by / Best before” dates 3.4. Breakages 3.5. Discrepancies
4. Records	May include but not limited to: 4.1. Name of warehouseman 4.2. Date of delivery 4.3. Type of stock 4.4. Stock codes 4.5. Quantity 4.6. Quality specifications 4.7. “Use by/ Best before” dates 4.8. Supplier information 4.9. Reports re: out-of-specification deliveries, as necessary 4.10. Receipts and withdrawals
5. Personal protective equipment (PPE)	May include but not limited to: 5.1 Gloves 5.2 Safety headwear and footwear 5.3 Safety glasses 5.4 Proper work clothes
6. OHS requirements	Occupational Health and Safety requirements may include: 6.1 Health/medical certificate

	6.2 DOLE requirements 6.3 Personal hygiene and good grooming 6.4 Plant sanitation and waste management 6.5 BFAD requirements 6.6 PPE requirements

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1. took delivery of stock 1.2. stored stock 1.3. rotated and maintained stock 1.4. followed work procedures 1.5. completed required documentation The skills and knowledge required in receiving and storing stock must be transferable to a different work environment.
2. Underpinning Knowledge and Attitude	Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below: 2.1. Basic knowledge of relevant stock 2.2. Interpretation of workplace specifications and orders for supplies 2.3. Stock security systems 2.4. Safe lifting, handling and storage procedures 2.5. Warehouse plan/layout 2.6. Protocols and procedures for liaising with supplier representatives, drivers and colleagues using appropriate technology 2.7. Relevant OHS and environmental regulations and procedures 2.8. Relevant codes of practice and legislative requirements (for example dangerous goods regulations, health and hygiene regulations, etc.) 2.9. Completion of relevant records/documentation 2.10. Attitudes in the workplace should include: 2.10.1 Honest 2.10.2 Dependable 2.10.3 Accurate 2.10.4 Environment-conscious 2.10.5 Positive work values 2.10.6 Cost conscious 2.10.7 Safety conscious
3. Underpinning Skills	3.1. Ability to read and interpret instructions, procedures and labels relevant to receiving and storing stock

	3.2. Ability to select and use relevant communications/computing equipment when receiving and storing stock 3.3. Ability to select and use relevant personal protection equipment 3.4. Ability to follow work procedures 3.5. Oral and written communication skills 3.6. Recording and reporting skills
4. Methods of Assessment	Competency must be assessed through: 4.1. Direct observation/Demonstration with oral questioning 4.2. Written test 4.3. Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Specific work area/station 5.2 Equipment and tools for receiving and storing stock 5.3 Materials relevant to the proposed activity 5.4 Relevant workplace procedures, schedules and records
6. Context of Assessment	6.1. Assessment should occur on the job or in a simulated workplace 6.2 Ability to apply competency over time and on a number of occasions.

UNIT OF COMPETENCY: CONTROL AND ORDER STOCK

UNIT CODE : AGR741313

UNIT DESCRIPTOR: This unit covers the skills, knowledge and attitude required to control and order stock for a processing concern. It involves maintaining stock levels and records, organizing and administering stock takes, identifying stock losses, processing stock orders, and following up orders.

ELEMENT	PERFORMANCE CRITERIA ***Bold italicized terms*** are elaborated in the Range of Variables
1. Maintain stock levels and records	1.1. ***Stocks*** levels are monitored and maintained according to ***workplace requirements and OHS requirements*** 1.2. Stock security systems are monitored and adjusted as required according to workplace requirements 1.3. Stock re-order cycles are maintained, monitored and adjusted as required according to workplace requirements 1.4. Appropriate personnel are informed of their responsibilities in regard to recording of stock according to workplace procedures 1.5. Stock storage and movement records are maintained in accordance with workplace procedures 1.6. Stock performance is monitored and fast/slow moving items are identified and reported in accordance with workplace procedures
2. Organize and administer stock takes	2.1. Stock takes are organized and responsibilities allocated to staff in accordance with workplace procedures 2.2. Timely reports on stock take data are made in line workplace requirements
3. Identify stock losses	3.1. Losses are identified, recorded and assessed against potential losses in line with workplace procedures 3.2. Avoidable losses are identified, reasons established, and controls recommended and implemented to prevent future avoidable losses according to workplace procedures
4. Process stock orders	4.1. Stock orders are processed in accordance with workplace procedures 4.2. Stock ordering and recording systems are maintained in line with workplace procedures

	4.3. Appropriate purchase and supply agreements are used and details recorded in line with workplace requirements 4.4. Negotiated purchase and supply agreements are recorded and filed according to workplace procedures
5. Follow up orders	5.1. Delivery process is monitored to meet agreed deadlines according to workplace procedures 5.2. Appropriate liaison is undertaken with colleagues and suppliers to ensure continuity of supply according to workplace procedures 5.3. Routine supply problems are followed up or referred to the appropriate person in accordance with workplace policy 5.4. Stock is distributed in accordance with agreed allocations 5.5. All required ***records*** and documentation are completed in accordance with workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Stock	May include but not limited to: 1.1. Raw materials 1.2. Goods in process 1.3. Finished products 1.4. Packaging materials and supplies 1.5. Tools and equipment 1.6. Office and stationery supplies 1.7. Forms, brochures and documents 1.8. Vouchers and tickets
2. Workplace requirements	May include but not limited to: 2.1. standard operating procedures 2.2. workplace operations manual 2.3. occupational health and safety (OHS) procedures 2.4. manufacturers' advice 2.5. standard forms and reports 2.6. written or verbal instructions 2.7. workplace quality and customer service standards
3. Records	May include but not limited to: 3.1. Type of stock 3.2. Quantity 3.3. Quality specifications 3.4. Use by dates 3.5. Stock codes 3.6. Order frequency 3.7. Lead time 3.8. Minimum stock levels 3.9. Supplier information 3.10. Reports re: out-of-specification deliveries, if necessary

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1. maintained stock levels and records 1.2. organized and administered stock takes 1.3. identified stock losses 1.4. processed stock orders 1.5. followed work procedures 1.6. completed records and documentation The skills and knowledge required to control and order stock must be transferable to a different work environment.
2. Underpinning Knowledge and Attitudes	Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this competency standard are listed below: 2.1. Basic knowledge of relevant stock 2.2. Principles of stock control and ordering 2.3. Common examples of stock control and ordering documentation and systems used in the workplace 2.4. Interpretation of workplace specifications and orders for supplies 2.5. Stock security systems 2.6. Safe lifting, handling, storage and retrieval procedures 2.7. Warehouse plan/layout 2.8. Protocols and procedures for liaising with supplier representatives, drivers and colleagues using appropriate technology 2.9. Relevant OHS and environmental regulations and procedures 2.10. Use of appropriate personal protective equipment 2.11. Relevant codes of practice and legislative requirements (for example dangerous goods regulations, health and hygiene regulations, etc.) 2.12. Completion of relevant records/documentation 2.13. Attitudes in the workplace should include: 2.13.1 Honest 2.13.2 Accurate 2.13.3 Dependable 2.13.4 Systematic and organized 2.13.5 Environment-conscious 2.13.6 Positive work values

	2.13.7 Cost conscious 2.13.8 Safety conscious
3. Underpinning Skills	3.1. Ability to read and interpret instructions, procedures and labels relevant to controlling and ordering stocks 3.2. Ability to select and use relevant communications/computing equipment when controlling and ordering stocks 3.3. Ability to select and use relevant personal protection equipment 3.4. Ability to follow work procedures 3.5. Oral and written communication skills 3.6. Recording and reporting skills
4. Methods of Assessment	Competency must be assessed through: 4.1. Direct observation/Demonstration with oral questioning 4.2. Written test 4.3. Portfolio
5. Resource Implications	The following resources must be provided: 5.1. Specific work area/station 5.2. Equipment and tools for controlling and ordering stock 5.3. Materials relevant to the proposed activity 5.4. Relevant workplace procedures, schedules and records
6. Context of Assessment	6.1. Assessment should occur on the job or in a simulated workplace 6.2. Ability to apply competency over time and on a number of occasions.

UNIT OF COMPETENCY: APPLY PRODUCT KNOWLEDGE TO COMPLETE WORK OPERATIONS

UNIT CODE : AGR741314

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to apply product knowledge to complete work operations in accordance with workplace requirements including identifying products in a subsection of a warehouse or other storage area, examining quality and reporting on products, and using inventory and labeling systems to identify and locate products.

ELEMENT	PERFORMANCE CRITERIA ***Bold, italicized terms*** are elaborated in the Range of Variables
1. Identify products in a subsection of a warehouse or other storage area	1.1 ***Products*** are identified against specified ***criteria*** in accordance with workplace procedures 1.2 ***Storage and handling characteristics*** are identified and applied consistently 1.3 Products are described to internal customers identifying features which may affect location, safety or storage requirements
2. Examine quality and report on products	2.1 Products are inspected in accordance with workplace quality assurance procedures 2.2 Workplace procedures are followed to replace, return or dispose of stock/products which are not useable 2.3 Non-conforming products are recorded/reported in accordance with workplace procedures
3. Use inventory and labeling systems to identify and locate products	3.1 ***Inventory and labeling systems*** are used to locate products within the workplace 3.2 Goods are physically located and identified

RANGE OF VARIABLES

VARIABLE	RANGE
1. Products	Categories or groups of products/stock may include: 1.1 Perishable goods 1.2 Refrigerated products 1.3 Temperature controlled stock 1.4 Fragile goods 1.5 Dangerous goods 1.6 Overseas export
2. Identification criteria	Distinguishing identification criteria for products may include: 2.1 Shape 2.2 Size 2.3 Color 2.4 Bar codes 2.5 Labels 2.6 Traceability standards
3. Storage and handling characteristics	The characteristics of products/stock may include: 3.1 Perishability 3.2 Weight 3.3 Form 3.4 State 3.5 Size 3.6 Fragility 3.7 Product storage and handling requirements
4. Inventory and labeling systems	Inventory systems may be: 4.1 Automated 4.2 Manual 4.3 Paper-based 4.4 Computerized 4.5 Microfiche Labeling systems may include: 4.6 Batch code 4.7 Bar code 4.8 Identification numbering systems 4.9 Serial numbers 4.10 Symbols for safe handling 4.11 Nutritional labeling

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified products/stock stored in the subsection of the workplace 1.2 Identified properties and purposes of specific categories of goods 1.3 Explained the characteristics of stock in relation to specific handling and storage requirements 1.4 Interpreted and used workplace policies, procedures and practices in relation to product location and condition 1.5 Used workplace maps and location guides with inventory systems to physically locate goods in an efficient manner
2. Underpinning Knowledge and Attitudes	2.1 Codes and regulations relevant to the products being identified, handled, transported, stacked and/or stored as part of work operations 2.2 Relevant OHS and environmental protection procedures and guidelines 2.3 Workplace procedures and policies for the identification, handling, stacking and storage of particular categories of products 2.4 Focus of operation of work systems, equipment, management and site operating systems for the packaging of goods 2.5 Categories or groups of products and the special handling, stacking and storage requirements for each 2.6 Purpose and use of cataloguing and labeling systems 2.7 Types of equipment and storage areas appropriate for different types of goods including perishable, fragile, dangerous, composition/state goods 2.8 Housekeeping standard procedures required in the workplace 2.9 Site layout and obstacles 2.10 Attitudes in the workplace should include: 2.10.1 Punctual/Time conscious 2.10.2 Cost conscious 2.10.3 Environmental and pollution conscious 2.10.4 Flexible/adaptable 2.10.5 Honest 2.10.6 Dependable 2.10.7 Innovative 2.10.8 Alert 2.10.9 Systematic and organized 2.10.10 Committed

	2.10.11 Good listener and fast learner 2.10.12 Creative 2.10.13 Resourceful 2.10.14 Self–starter 2.10.15 Decisive
3. Underpinning Skills	3.1 Ability to read and interpret instructions, procedures and labels relevant to the handling and storage of goods 3.2 Ability to use required personal protective clothing and equipment conforming to industry and OHS standards 3.3 Ability to estimate the size, shape and special requirements of goods/loads 3.4 Locating, interpreting and applying relevant information 3.5 Conveying information in written and oral form 3.6 Maintaining workplace records 3.7 Providing customer/client service and working effectively with others 3.8 Selecting and using appropriate workplace colloquial and technical language and communication technologies in the workplace context
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Demonstration/Direct observation with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	Resources may include: 5.1 Range of exercises 5.2 Case Studies 5.3 Simulated practical and knowledge assessments 5.4 Range of operational and workplace situations
6. Context of Assessment	6.1 Assessment may be conducted in the workplace or simulated workplace environment.

UNIT OF COMPETENCY: PERFORM BASIC TESTS ON RAW MATERIALS, IN-PROCESS AND FINISHED PRODUCTS

UNIT CODE : AGR741315

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to perform basic tests and/or procedures on raw materials, in-process and finished products using standard methods.

ELEMENT	PERFORMANCE CRITERIA ***Bold, italicized terms*** are elaborated in the Range of Variables
1. Receive, label, and store samples for testing	1.1 Laboratory samples are labeled to ensure all required information are transcribed accurately and legibly according to workplace procedures. 1.2 Samples are registered into the laboratory system according to workplace procedures.. 1.3 Sample testing requirements are recorded according to workplace procedures.. 1.4 Sample integrity is maintained according to workplace procedures. 1.5 Storage condition is monitored according to workplace procedures. 1.6 Sample contamination is eliminated according to workplace procedures.
2. Prepare sample	2.1 ***Materials*** to be tested, appropriate standard method and safety requirements are identified 2.2 ***Personal protective equipment*** is used as specified for standard method and material to be tested 2.3 Sample description is recorded and compared with specification and discrepancies recorded and reported 2.4 ***Sample is prepared*** in accordance with appropriate standard methods.
3. Perform tests on samples	3.1 Calibration status of equipment is checked and calibrated if applicable. 3.2 Perform sequence of ***tests*** to be performed as per standard method 3.3 Sample and standards to be tested are identified, prepared and weighed or measured 3.4 ***Test reagents*** or equipment/instrumentation are set up as per standard method

	3.5 Tests are conducted in accordance with enterprise procedures 3.6 Results are recorded in accordance with enterprise procedures 3.7 "Out of specification" or atypical results are identified and reported promptly to appropriate personnel 3.8 ***Test equipment*** is cleaned and cared for. 3.9 Unused reagents are stored as required by relevant regulations and codes 3.10 Wastes are disposed in accordance with safety, industry and environmental requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials	Materials may include any one but not limited to the following: 1.1 Fruits and vegetables 1.2 Livestock and poultry 1.3 Fish and other marine products 1.4 Fats and oils 1.5 Cereals and starches 1.6 Sugars and sweeteners
2. Personal Protective Equipment	PPE requirements include: 2.1 Apron/laboratory gown 2.2 Mouth masks 2.3 Gloves 2.4 Rubber boots 2.5 Head gears such as caps, hairnets, ear plug
3. Sample preparation	3.1 Preparation of sample can include but not limited to: 3.1.1 Sub-sampling or splitting using procedures such as riffling, coning and quartering, manual and mechanical splitters 3.1.2 Physical treatments such as ashing, dissolving, filtration, sieving, centrifugation and comminution.
4. Tests	A typical test involved in this Unit of Competency may include: 4.1 Appearance, color, identity, freshness 4.2 Melting points, boiling points, refractive indices, densities including compacted densities, viscosity measurements 4.3 Ashes including sulfated ashes 4.4 Pinhole dispersion, wet dry variation, compression strength and flexural strength 4.5 Spot tests, gravimetric tests, time/temperature, texture, pH, dipsticks, TSS (total soluble solids), salt content, TA (titrable acidity), and moisture
5. Test reagent	Test reagents may include but not limited to prepared solutions of: 5.1 Sodium hydroxide 5.2 Hydrochloric acid 5.3 Sulfuric acid 5.4 Hydrogen peroxide 5.5 Anhydrous alcohol
6. Test Equipment	Test equipment may include any one of the following: 6.1 Centrifuge 6.2 Thermometers 6.4 pH meter 6.5 Color chart/Colorimeter 6.6 Texture meter 6.7 Weighing scales 6.8 Refractometer 6.9 Salinometer

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Applied SOPs to efficiently prepare samples for test and analyses 1.2 Used safety information (eg, MSDSs) and performed procedures safely 1.3 Checked testing equipment calibration status 1.4 Completed all tests within required timeline without sacrificing safety, accuracy or quality 1.5 Calculated, recorded and presented results accurately and legibly 1.6 Cleaned and maintained equipment
2. Underpinning Knowledge and Attitudes	2.1 Purpose of tests 2.2 Principles of the standard methods 2.3 Calibration procedures and their basis 2.4 Relevant standards/specifications and their interpretation 2.5 Recording and Interpretation of test result, including calculation of results from test data where required 2.6 Procedures for recognition of unexpected or unusual results and likely causes 2.7 OHS procedures for sample testing 2.8 Attitudes in the workplace should include 2.8.1 Accurate 2.8.2 Self-esteem 2.8.3 Punctual/Time conscious 2.8.4 Cost conscious 2.8.5 Environmental and pollution conscious 2.8.6 Flexible/adaptable 2.8.7 Honest 2.8.8 Dependable 2.8.9 Innovative 2.8.10 Alert 2.8.11 Systematic and organized 2.8.12 Committed 2.8.13 Good listener and fast learner 2.8.14 Creative 2.8.15 Resourceful 2.8.16 Self–starter
3. Underpinning Skills	3.1 Oral and written communication skills 3.2 Calibrating skills 3.3 Basic computer skills 3.4 Basic mathematical skills (conversion, percentage and formulation) 3.5 Recording and reporting skills

4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Demonstration/Direct observation with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Standard laboratory equipped with appropriate equipment and calibration standards 5.2 SOPs, calibration and testing procedures. 5.3 Materials relevant to the proposed activity
6. Context of Assessment	6.1 Assessment should be done in the workplace or simulated workplace environment.

UNIT OF COMPETENCY: OPERATE A BOILER

UNIT CODE : AGR7413xx

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes involved to start, operate, monitor, shut down and store a boiler under the supervision of an engineer.

ELEMENT	PERFORMANCE CRITERIA ***Bold, italicized terms*** are elaborated in the Range of Variables
1. Start boiler	1.1 ***Personal protective clothing*** **and** ***equipment*** is selected for use, following statutory requirements and work place procedures 1.2 ***Pre-operational safety checks*** are conducted in accordance with statutory requirements, manufacturer's recommendations and plant operating procedures 1.3 ***Hazards and potential hazards*** in work area are identified and reported in accordance with statutory requirements and work place procedures 1.4 Prevention/control measures are selected in accordance with the hierarchy of control. 1.5 Boiler is started and brought on line safely, in accordance with statutory requirements, manufacturer's recommendations and work place procedures 1.6 ***Maintenance requirements*** are identified and reported in accordance with workplace requirements
2. Operate and monitor boiler	2.1 Operating status is diagnosed and ***operating log*** is maintained clearly and accurately, in accordance with statutory requirements and workplace procedures 2.2 Boiler is ***monitored*** in accordance with statutory requirements, manufacturer's recommendations and workplace procedures 2.3 Water quality tests are conducted in accordance with manufacturers recommendations and workplace procedures and adjusted as a result of tests to meet workplace criteria 2.4 Boiler ***house chemicals*** are stored and handled in accordance with statutory requirements, manufacturer's recommendations and workplace procedures

	2.5 ***Boiler emergency*** is responded to in accordance with statutory requirements, manufacturer's recommendations and workplace procedures
3. Shut down and store boiler	3.1 Boiler is shut down in accordance with statutory requirements, manufacturer's recommendations and workplace procedures. 3.2 Boiler is cleaned internally and externally in accordance with statutory requirements, manufacturer's recommendations and workplace procedures 3.3 Boiler ***valves and fittings*** are removed for maintenance in accordance with statutory requirements, manufacturer's recommendations and workplace procedures. 3.4 Appropriate ***mode of storage*** is identified in accordance with statutory requirements, manufacturer's recommendations and workplace procedures. 3.5 Boiler is stored in accordance with statutory requirements, manufacturer's recommendations and workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Protective clothing and equipment	Relevant personal protective equipment may include but not limited to: 1.1 Thermally insulated gloves 1.2 Hard hat head protection 1.3 Ear protection (muffs or plugs) 1.4 Chemical resistant gloves and apron 1.5 Respiratory devices 1.6 Working protective gloves 1.7 Eye protection 1.8 Whole body fire-resistant clothing
2. Pre-operational safety checks	Pre-operational checks may include but not be limited to: 2.1 Checks of feed water supply and system 2.2 Fuel supply/heat source system 2.3 Operation and position of boiler valves 2.4 Boiler water level 2.5 Combustion air supply system 2.6 Combustion equipment 2.7 Essential fittings 2.8 Fire fighting equipment 2.9 Inspection and location of explosion doors
3. Hazards and potential hazards	Hazards that may be encountered in the workplace include but are not limited to: 3.1 Chemical hazards 3.2 Thermal hazards 3.3 Boiler low water condition 3.4 Manual handling hazards 3.5 Machinery guard requirements 3.6 Leakage of steam plant 3.7 Leakage of fuel 3.8 Rubbish and combustibles in area 3.9 Fumes from a liquid chemical spill 3.10 Odor of gas
4. Maintenance requirements	Maintenance requirements that may be encountered in the workplace include but are not limited to: 4.1 Leaking steam pipe 4.2 Exposed electrical wiring 4.3 Leaks in high pressure feed line 4.4 Leaking feed pump gland 4.5 Leaking gauge glass mounting

	4.6 Defective lighting in the workplace 4.7 Leaking safety valve 4.8 Lockout tags.
5. Operating log	Information contained in the operating log may include: 5.1 Time in use 5.2 Steam pressure 5.3 Chemical treatment 5.4 Test results 5.5 Maintenance/repair requirements.
6. Boiler monitoring	Monitoring may include but not be limited to: 6.1 Checks of steam reticulation line pressure 6.2 Usage of and supply of steam 6.3 Quality of steam 6.4 Combustion/heat source system 6.5 Feed water system 6.6 Fuel system 6.7 Combustion air supply 6.8 Water level 6.9 Steam pressure 6.10 Operation of control/safety devices
7. House chemicals	Chemicals may include but not be limited to: 7.1 Extinguishing agent's carbon dioxide 7.2 Water 7.3 Soda acid 7.4 Organic foam and dry powder 7.5 Oxygen scavenger 7.6 Feed water additives 7.7 Other chemicals 7.8 Amines 7.9 Condensate chemicals
8. Boiler emergency	Responses to an emergency may include but not limited to: 8.1 Identification of emergency 8.2 Isolation of heat source 8.3 Selection and application of appropriate fire-fighting equipment 8.4 Establishment of water level 8.5 Notification of downstream users 8.6 Operation of boiler only when safe to do so 8.7 Notify appropriate regulatory authorities
9. Valves and fittings	Valves and fittings may include but not be limited to: 9.1 Safety valves 9.2 Gauge glasses

	9.3 Main steam stop valve 9.4 Feed water stop valve 9.5 Blow down valve 9.6 Flame failure detection device 9.7 Water level controller 9.8 Boiler steam pressure gauge
10. Mode of storage	Modes for storing boilers include: 10.1 Dry storage 10.2 Open/close condition 10.3 Wet storage

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Operated tools, boiler and equipment safely and effectively 1.2 Knew the operating principles and operating methods of boilers and steam equipment 1.3 Knew the processes and procedures relevant to working with a boiler and steam equipment 1.4 Located, interpreted and applied relevant information, standards and specifications 1.5 Complied with the site safety plan and occupational health and safety legislation/regulations/codes of practice/advisory standards applicable to workplace operations 1.6 Complied with organizational policies and procedures including quality requirements 1.7 Communicated and worked effectively and safely with others.
2. Underpinning Knowledge and Attitudes	2.1 Components, controls and features of reciprocating steam engines and their functions 2.2 Principles of the safe removal of obstacles and hazards from the workplace 2.3 Electrical/steam/boiler hazards 2.4 The hierarchy of hazard control measures with elimination of substitution, isolation and engineering control measures being selected before safe work practices and personal protective equipment 2.5 Occupational health and safety legislation, standards, codes of practices and advisory standards 2.6 Licenses and permits including legislative requirements with regard to licensing 2.7 Demonstrate safe and environmentally responsible workplace practices. 2.8 Attitudes in the workplace should include 2.8.1 Punctual/Time conscious 2.8.2 Cost conscious 2.8.3 Environmental and pollution conscious 2.8.4 Flexible/adaptable 2.8.5 Honest 2.8.6 Dependable 2.8.7 Innovative 2.8.8 Alert 2.8.9 Systematic and organized

	2.8.10 Committed 2.8.11 Good listener and fast learn 2.8.12 Creative 2.8.13 Resourceful 2.8.14 Self–starter
3. Underpinning Skills	3.1 Reading and interpreting manufacturers' specifications, work and maintenance plans and material safety data sheets 3.2 Communicating faults, malfunctions and workplace hazards, reports and maintain operational records 3.3 Working with other boiler operators and personnel in a team environment 3.4 Understand interrelationship among workplace processes and procedures in the English language 3.5 Manual lifting 3.6 Understand tables and figures for job procedures 3.7 Understand and interpret signals and instructions in the English language. 3.8 Able to listen and understand job requirement 3.9 Perform routine safety, basic service and maintenance procedures 3.10 Demonstrate emergency operating procedures.
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation/Demonstration with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Workplace 5.2 Temperature measuring equipment 5.3 Lifting equipment 5.4 Tubes, valves, and fittings 5.5 Personal protective clothing and equipment 5.6 Chemicals e.g. soda acid, amines, additives 5.7 First aid kit/fire fighting equipment 5.8 Water testing/gas monitoring equipment
6. Context of Assessment	6.1 Assessment must be applied in a real work environment or replicated industrial workplace.

UNIT OF COMPETENCY: OPERATE PUMPING EQUIPMENT

UNIT CODE : AGR741317

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to operate pumping equipment

ELEMENT	PERFORMANCE CRITERIA ***Bold, italicized terms*** are elaborated in the Range of Variables
1. Prepare pumps for operation	1.1 ***Equipment, tools, materials*** and services are confirmed as available and ready for operation according to requirements 1.2 Equipment and tools are checked and calibrated to confirm readiness for use in accordance with manufacturer's specifications
2. Operate Pumping Equipment	2.1 Pumps are started up according to company procedures 2.2 Pump performance is monitored to confirm performance is maintained in accordance with manufacturers' specification 2.3 Equipment performance not within specification is identified, rectified and/or reported based on operating manuals and company reporting system
3. Shutdown and Maintain Pumping Equipment	3.1 Pumping equipment is shut-down according to company procedures 3.2 Pumps are dismantled for cleaning or cleaned in place according to manufacturers' specifications 3.3 Parts and things in motors and pumps are replaced according to the preventive maintenance schedule and with his level of responsibility 3.4 ***Corrective action*** is taken when the pump or motor fails based on knowledge of the pump or motor lifecycle and within his level of responsibility 3.5 ***Workplace information*** is recorded in the company prescribed format

RANGE OF VARIABLES

VARIABLE	RANGE
1. Equipment, Tools, Materials	Equipment, tools, materials for this unit of competency 1.1 Pumps like positive displacement pumps, kinetic pumps, centrifugal pumps, etc 1.2 Jack lifts and trolleys 1.3 Wrenches and screw drivers 1.4 Pipes, seals, valves, bearings, impeller, etc.
2. Corrective action	Corrective action may include but not limited to 2.1 Alignment of pump and motor 2.2 Tightening/Replacement of loose/worn out belts 2.3 Tightening of nuts and bolts
3. Workplace Information	This can include 3.1 Standard operating procedures 3.2 Manufacturers' specifications 3.3 Production schedules 3.4 Batch/recipe instructions

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Accessed workplace information to identify pumping requirements 1.2 Checked the alignment of the pump and motor 1.3 Operated the pumping system 1.4 Monitored pump operation and the supply and flow of materials to and from the pump 1.5 Took corrective action in response to out-of-specification results or non-compliance 1.6 Cleaned and sanitized equipment and tools
2. Underpinning Knowledge and Attitudes	2.1 Purpose and basic principles of pumping 2.1.1 Effect of raw materials on pumping 2.1.2 Effect of pumping on material quality 2.1.3 Pumping procedures and operating parameters 2.1.4 Pumping system and equipment components 2.2 Basic operating principles of process control systems where relevant 2.3 Codes and Regulations 2.3.1 TQM and other good food quality system principles 2.3.2 HACCP, ISO & EMS 2.3.3 Good Manufacturing Practices 2.3.4 OHS hazards and controls 2.4 Select, fit and use personal protective clothing and/or equipment 2.4.1 Gloves, Boots 2.4.2 Hairnets, etc. 2.5 Materials: Uses and Specifications 2.5.1 Raw materials 2.5.2 Ingredients and spices 2.6 Maintenance 2.6.1 Maintaining equipment and tools 2.6.2 Trouble shooting 2.6.3 Cleaning requirements associated with changeovers and types of shut downs 2.7 Attitudes in the workplace should include: 2.7.1 Self- esteem 2.7.2 Time conscious/punctual 2.7.3 Cost conscious

	2.7.4 Environment and pollution conscious 2.7.5 Flexible/adaptable 2.7.6 Honest 2.7.7 Dependable 2.7.8 Self starter 2.7.9 Alert 2.7.10 Systematic and organized 2.7.11 Committed 2.7.12 Good team worker 2.7.13 Good listener and fast learner 2.7.14 Creative
3. Underpinning Skills	3.1 Communication skills (oral & written) 3.2 Calibrating skills 3.3 Basic computer skills 3.4 Basic mathematical skills (arithmetic, conversion, weights and measurements, ratios and proportions) 3.5 Recording and reporting skills 3.6 Sanitary food handling practices
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation/Demonstration with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Work area/ station 5.2 Equipment, tools and materials to pump for processing 5.3 Materials relevant to the proposed activity
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace.

UNIT OF COMPETENCY: OPERATE AND MONITOR FOOD PROCESSES AND EQUIPMENT

UNIT CODE : AGR7413xx

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to combine ingredients, additives and materials in the correct quantities and sequence and to operate, monitor, control and shut down food processes and equipment to achieve the required process and product characteristics. The key factors are the successful operation of the equipment and the ability to recognize when the process is not working as intended

ELEMENT	PERFORMANCE CRITERIA ***Bold, italicized terms*** are elaborated in the Range of Variables
1. Prepare the food equipment and process for operation	1.1 Identify work requirements from workplace approved operating procedures 1.2 ***Materials*** are confirmed and available to meet production requirements 1.3 Pre-mixes are prepared as required according to the production schedule 1.4 Cleaning and maintenance requirements and status are identified and confirmed 1.5 ***Machine components and related attachments*** are fitted and adjusted to meet operating requirements 1.6 Processing/operating parameters are entered as required to meet safety and production requirements 1.7 ***Food equipment*** performance is checked and adjusted as required according to manufacturers' specifications 1.8 ***Pre-start checks*** are carried out as required by workplace requirements
2. Operate and Monitor the Food Process	2.1 Ingredients and additives are delivered to the food equipment in the required quantities and sequence to meet recipe specifications 2.2 The ***process*** is started and operated according to

	workplace procedures 2.3 Equipment is monitored to identify variation in operating conditions according to operating manuals 2.4 Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements 2.5 The process is monitored to confirm that specifications are met based on production requirements 2.6 Out-of-specification product/process/packaging outcomes are identified, rectified and/or reported to maintain the process within specification 2.7 ***Product*** is transferred to required production or storage location 2.8 The workplace is maintained according to housekeeping standards 2.9 ***Workplace records*** are maintained according to workplace recording requirements
3. Shutdown, Clean and Maintain the Food Process	3.1 The appropriate shut down procedure is identified according to operating manuals 3.2 The process is shut down according to workplace procedures 3.3 Maintenance requirements are identified, reported, and conducted according to workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials	Materials for processing may include any one but not limited to: 1.1 Fresh fruit 1.2 Fresh vegetables 1.3 Fish and other marine products 1.4 Meat and poultry 1.5 Jam and jelly 1.6 Sauces and catsup 1.7 Food additives 1.8 Cereals and starches 1.9 Fats and oil 1.10 Sugar and sweeteners 1.11 Gases
2. Machine Components and Related attachments	Machine components and related attachments for this unit of competency may include any one of the following: 2.1 Mixing kettles 2.2 Stirrers, mixers, agitators, paddles 2.3 Vacuum cookers 2.4 Concentrators 2.5 Weighing scales 2.6 Pumps 2.7 Materials transfer and handling equipment 2.8 Storage tank
3. Food Equipment	Food equipment may include any one of the following 3.1 Heat exchanger 3.2 Spray dryer 3.3 Retort equipment 3.3.1 Static and batch retorts 3.3.2 Continuous retorts 3.3.3 Hydrostatic cookers with or without over-pressure 3.3.4 Water retort 3.4 Steaming/cooking equipment 3.4.1 Hot water blanchers 3.4.2 Steam blanchers 3.5 Water purification equipment 3.5.1 Dosing equipment 3.5.2 Storage tanks 3.5.3 Pumps and valves 3.5.4 Distillation systems 3.5.5 Reverse osmosis systems 3.5.6 Ultra violet light

	3.5.7 Deionization plants 3.5.8 Softeners, carbon tanks and filters 3.6 Dehydration equipment 3.7 Packaging equipment
4. Pre-start checks	This may involve 4.1 Inspecting equipment condition to identify any signs of wear 4.2 Selecting appropriate settings and/or related parameters 4.3 Canceling isolation or lockouts as required 4.4 Confirming that equipment is clean, correctly configured for processing requirements 4.5 Sensors and controls are correctly positioned 4.6 Any scheduled maintenance has been carried out and all safety guards are in place and operational
5. Process	Processes may include any one of the following 5.1 Use of high temperatures 5.1.1 Thermal processing 5.1.2 Dry heat cooking 5.1.3 Moist heat cooking 5.1.4 Heat application 5.1.5 Dehydration 5.2 Use of low temperatures 5.2.1 Chilling 5.2.2 Freezing
6 Product	Products from processing may include any one but not limited to Food products in the following forms 6.1 Fresh/chilled products 6.2 Canned products 6.3 Bottled products 6.4 Poached products Water produced may include 6.5 Purified water 6.6 Deionized Water 6.7 Reverse Osmosis (RO) 6.8 Distilled water 6.9 Water for Injection (WFI)
7 Workplace records	Records can include 7.1 Standard operating procedures 7.2 Manufacturers' advice 7.3 Production schedules and instructions 7.4 Batch/recipe instructions 7.5 Standard forms and reports

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Accessed workplace information to identify processing requirements 1.2 Understood the importance of critical material properties and quantities 1.3 Conducted pre-start checks 1.4 Loaded materials in correct quantities and sequence and monitored automatic ingredient addition and/or manual addition 1.5 Started, operated, monitored and adjusted process equipment to achieve required outcomes 1.6 Monitored the supply and flow of ingredients, additives and materials to and from the process 1.7 Paced the process to meet production requirements 1.8 Cooled, cleaned and handled post-treated containers to meet requirements 1.9 Took corrective action in response to out-of-specification results or non-compliance 1.10 Responded to and/or reported equipment failure within level of responsibility 1.11 Located emergency stop functions on equipment
2. Underpinning Knowledge and Attitudes	2.1 Purpose and basic principles of preparing mixes and blends, heat treatment and retort process, freezing, steaming/cooking, water purification, dehydration 2.1.1 Characteristics and basic function of ingredients and additives used 2.1.2 Method and sequence of ingredient addition required to achieve required blend characteristics 2.2 Basic operating principles of equipment for mixing/ blending, retort/thermal processing, freezing and refrigeration, steaming/cooking, water purification, dehydration including packaging processes 2.2.1 Operational understanding of main equipment components 2.2.2 Status and purpose of guards 2.2.3 Basic principles and operation of processing system 2.2.4 Equipment operating capacities and applications 2.2.5 Purpose and location of sensors and related feedback instrumentation 2.3 Principles of use of high and low temperatures 2.4 The flow of the process and the effect of mix preparation/ product output on downstream processes 2.5 Quality characteristics required of the product

	2.6 Techniques used to monitor the process 2.7 Typical equipment faults and related causes. This includes recognition of signs and symptoms of faulty equipment and early warning signs of potential problems 2.8 Codes and Regulations 2.8.1 Food Standards Code including labeling, weights and measures legislation 2.8.2 Food safety 2.8.3 Environmental management 2.8.4 Good Manufacturing Practices 2.8.5 OHS hazards and controls 2.9 Select, fit and use personal protective clothing and/or equipment 2.9.1 Gloves, Boots 2.9.2 Hairnets, etc. 2.9 Maintenance 2.9.1 Maintaining equipment and tools 2.9.2 Cleaning requirements associated with changeovers and types of shut downs 2.10 Understanding of methods and procedures for non-food handlers when carrying out work responsibilities in a food handling area 2.11 Waste collection, recycling, and handling procedures 2.12 Attitudes in the workplace should include 2.12.1 Self- esteem 2.12.2 Time conscious/punctual 2.12.3 Cost conscious 2.12.4 Environment and pollution conscious 2.12.5 Flexible/adaptable 2.12.6 Honest 2.12.7 Dependable 2.12.8 Self starter 2.12.9 Alert 2.12.10 Systematic and organized 2.12.11 Committed 2.12.12 Good team worker 2.12.13 Good listener and fast learner 2.12.14 Creative
3. Underpinning Skills	3.1 Communication skills (oral & written) 3.2 Calibrating skills 3.3 Basic computer skills 3.4 Basic mathematical skills (arithmetic, conversion,

	weights and measurements, ratios and proportions) 3.5 Recording and reporting skills 3.6 Sanitary food handling practices 3.7 Using process control systems 3.8 Conduct product/batch changeovers 3.9 Collecting samples and conduct tests 3.10 Conducting routine maintenance 3.11 Cleaning and sanitizing equipment
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation/Demonstration with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Work area/station 5.2 Equipment, tools and components for mixing/ blending, retort/thermal processing, freezing and refrigeration, steaming/cooking, water purification, dehydration 5.3 Materials relevant to the proposed activity
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace.

UNIT OF COMPETENCY: OPERATE A PACKAGING PROCESS

UNIT CODE : AGR741319

UNIT DESCRIPTOR: This unit deals with the skills, knowledge and attitudes required to set up, operate, adjust and shut down a process for can seaming, high speed wrapping, and other packaging systems

ELEMENT	PERFORMANCE CRITERIA ***Bold, italicized terms*** are elaborated in the Range of Variables
1. Prepare equipment and process for operation	1.1 ***Materials*** are confirmed and available to meet operating requirements 1.2 ***Utilities*** are confirmed as available and ready for operation 1.3 Cleaning and maintenance requirements and status are identified and confirmed 1.4 ***Machine components*** and related attachments are fitted and adjusted to meet operating requirements 1.5 Operating parameters are entered as required to meet safety and production requirements 1.6 Materials, product and packaging components/ consumables are loaded or positioned as required to meet packaging requirements 1.7 Equipment performance is checked and adjusted as required 1.8 ***Pre-start checks*** are carried out as required by workplace requirements
2. Operate and Monitor the Process	2.1 The process is started and operated according to workplace procedures 2.2 Equipment is monitored to identify variation in operating conditions 2.3 Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements 2.4 The process is monitored and packed item inspected to confirm that specifications are met 2.5 Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the

	process within specification 2.6 The workplace meets housekeeping standards 2.7 ***Workplace records*** are maintained according to workplace recording requirements
3. Shutdown the Process	3.1 The appropriate shut down procedure is identified 3.2 The process is shut down according to workplace procedures 3.3 Equipment is prepared for cleaning and maintenance according to workplace requirements 3.4 Maintenance requirements are identified and reported according to workplace reporting requirements 3.5 Waste is collected, treated and disposed or recycled according to company procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials	Packaging materials and supplies may include any one of the following 1.1 Plastic 1.2 Bottles 1.3 Glass 1.4 Can 1.5 Laminates 1.6 Paper 1.7 Carton
2. Utilities	Utilities may include 2.1 Power 2.2 Steam 2.3 Water 2.4 Vacuum and compressed and instrumentation air
3. Machine components	Typical equipment that may form a packaging sub-system may include any one of the following 3.1 Conveyor systems 3.2 Filling, sealing, wrapping, thermo-form equipment 3.3 Case packers 3.4 Bundlers 3.5 Ink jet coders 3.6 Labelers 3.7 Palletizers 3.8 Shrink wrappers and strappers
4. Pre-start checks	Checks for this unit of competency may involve: 4.1 Inspecting equipment condition to identify any signs of wear 4.2 Setting coders and printers 4.3 Selecting appropriate settings and/or related parameters; 4.4 Canceling isolation or lockouts as required 4.5 Confirming that equipment is clean, correctly configured for wrapping requirements 4.6 Sensors and controls are correctly positioned 4.7 Any scheduled maintenance has been carried out and all safety guards are in place and operational
5. Workplace records	Records can include 5.1 Standard operating procedures 5.2 Manufacturers' advice 5.3 Production schedules and instructions

	5.4 Specifications 5.5 Batch instructions 5.6 Standard forms and reports

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Accessed workplace information to identify packaging requirements 1.2 Selected, fitted and used personal protective clothing and/or equipment 1.3 Conducted pre-start checks 1.4 Confirmed supply of necessary materials and services 1.5 Started, operated, monitored and adjusted the equipment to achieve required outcomes. 1.6 Monitored supply and flow of materials to and from the process 1.7 Inspected packing components and packed items 1.8 Took corrective action in response to out-of-specification results 1.9 Responded to and/or reported equipment failure within level of responsibility 1.10 Located emergency stop functions on equipment
2. Underpinning Knowledge and Attitudes	2.1 Purpose and basic principles of can seaming, wrapping, and other packaging systems 2.2 Basic operating principles of equipment 2.2.1 Operational understanding of main equipment components 2.2.2 Equipment operating capacities and applications 2.2.3 Equipment and instrumentation components, purpose and operation 2.2.4 Purpose and location of sensors and related feedback instrumentation 2.3 Product and packaging coding requirements and related legal requirements including product weight 2.4 The flow of processes supplying the packaging process and the effect of outputs on downstream processes 2.5 Quality characteristics to be achieved by the can seaming, wrapping, and packaging process 2.6 Packaging components and parameters 2.7 Operating requirements and parameters and corrective action required where operation is outside specified operating parameters 2.8 Typical equipment faults and related causes 2.9 Contamination/food safety risks and related control measures 2.10 Common causes of variation and corrective action required 2.11 Attitudes in the workplace should include 2.11.1 Self- esteem

	2.11.2 Time conscious/punctual 2.11.3 Cost conscious 2.11.4 Environment and pollution conscious 2.11.5 Flexible/adaptable 2.11.6 Honest 2.11.7 Dependable 2.11.8 Self starter 2.11.9 Alert 2.11.10 Systematic and organized 2.11.11 Committed 2.11.12 Good team worker 2.11.13 Good listener and fast learner 2.11.14 Creative
3. Underpinning Skills	3.1 Using process control systems 3.2 Conduct product/batch changeovers 3.3 Conducting routine maintenance 3.4 Cleaning and sanitizing equipment 3.5 Report and record workplace information 3.6 Shut down equipment in response to an emergency situation or routine shut down requirements 3.7 Maintain work area to meet housekeeping standards 3.8 Sort, collect, treat, recycle or dispose of waste
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation/demonstration with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Work area/ station 5.2 Equipment, tools and materials for wrapping process 5.3 Materials relevant to the proposed activity
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace.

UNIT OF COMPETENCY: WORK IN A FREEZER STORAGE AREA

UNIT CODE : AGR741320

UNIT DESCRIPTOR: This unit deals with the knowledge, skills and attitudes required to enter a freezer storage environment; monitor equipment operation in a freezer storage environment; handle frozen product safely; and respond to freezer storage area exposure and gas leaks

ELEMENT	PERFORMANCE CRITERIA ***Bold italicized terms*** are elaborated in the Range of Variables
1. Prepare to enter a freezer storage environment	1.1 ***Personal protective equipment and clothing*** (PPE) is selected, correctly fitted, checked and inspected prior to entering a freezer according to ***organizational requirements*** 1.2 Correct points of entry and exit are identified and used in accordance with organizational requirements 1.3 All doors and screens are kept secure in accordance with organizational requirements 1.4 Personal hygiene and product safety procedures are followed according to organizational requirements
2. Monitor equipment operation in a freezer storage environment	2.1 The effect of freezing temperatures have on equipment is identified 2.2 Equipment is monitored to ensure it is in operational order when used in a freezer, according to organizational requirements. 2.3 Freezer temperatures are monitored according to organizational requirements
3. Handle frozen product safely	3.1 ***Handling requirements*** for frozen product are identified according to organizational requirements 3.2 Frozen product is handled safely according to organizational requirements
4. Respond to freezer storage area exposure and gas leaks	4.1 Signs and symptoms of exposure are identified 4.2 Action is taken to minimize effects of exposure of self and others, according to organizational requirements 4.3 Emergency procedures for gas leaks are identified in accordance with organizational requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Personal protective equipment and clothing	Personal protective equipment and clothing may include but not limited to: 1.1 Rubber Boots 1.2 Head gear such as Hat/hard hat, caps, ear plugs/muffs 1.3 Heavy Sweaters/Coat/Apron/Overalls 1.4 Gloves 1.5 Dust/gas mask/mouth masks 1.6 Protective eyewear 1.7 Safety harness
2. Organizational requirements	Organizational requirements in this Unit of Competency may include but not limited to: 1.1 Site-specific and company standard operating procedures (SOP) 1.2 Occupational health and safety 1.3 Food safety and quality management requirements
3. Handling requirements	Handling requirements may include but is not limited to: 3.1 Temperatures 3.2 Documentation 3.3 Product rotation 3.4 Packing arrangements

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Selected and used PPE according to organizational requirements 1.2 Read and followed organizational requirements 1.3 Operated and monitored equipment according to approved specifications 1.4 Checked and adjusted the freezer temperatures 1.5 Handled frozen products properly
2. Underpinning Knowledge and Attitudes	2.1 Basic principles and operation of freezer storage 2.2 Parts and functions of equipment 2.3 Personal hygiene and product safety procedures 2.4 Effect of freezing temperature on equipment 2.5 Freezer temperature requirements for a range of products 2.6 Handling requirements for a range of products 2.7 Signs and symptoms of gas exposure 2.8 Emergency procedures for gas leaks 2.9 Attitudes in the workplace should include 2.9.1 Time conscious/punctual 2.9.2 Cost conscious 2.9.3 Environment and pollution conscious 2.9.4 Flexible/adaptable 2.9.5 Honest 2.9.6 Self-starter 2.9.7 Alert 2.9.8 Systematic and organized 2.9.9 Committed 2.9.10 Good team worker 2.9.11 Good listener and fast learner 2.9.12 Creative
3. Underpinning Skills	3.1 Sanitary food products handling 3.2 Communication skills (oral & written) 3.3 Recording and reporting skills 3.4 Use of PPE
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation/Demonstration with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Work area/ station 5.2 Equipment and tools in freezer storage

	5.3 Materials relevant to the proposed activity
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace.

UNIT OF COMPETENCY: WORK WITH TEMPERATURE CONTROLLED STOCK

UNIT CODE : AGR741321

UNIT DESCRIPTOR: This unit deals with the knowledge, skills and attitudes required to work in stores designed for temperature controlled stock

ELEMENT	PERFORMANCE CRITERIA ***Bold italicized terms*** are elaborated in the Range of Variables
1. Store stock to meet temperature control requirements	1.1. ***Goods*** requiring temperature control are identified 1.2. Goods are located in appropriate storage temperature zone to meet ***storage requirements***
2. Monitor and maintain temperature of stock within specifications	2.1 The temperature of goods is monitored to confirm temperature is within specified limits 2.2 Temperature of storage areas is monitored to confirm temperature is within storage zone limit 2.3 Short term storage times are complied with for transit stock 2.4 ***Stocks handling procedures*** to maintain temperature control are implemented according to workplace procedures
3. Identify and rectify problems	3.1 Out-of-specification storage or product temperatures are identified, rectified and/or reported 3.2 Damaged product is segregated according to workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Goods	Goods in storage may include but not limited to any one of the following: 1.1 Fruits 1.2 Vegetables 1.3 Fish and other marine products 1.4 Meat and poultry 1.5 Cereals and starches 1.6 Dairy products 1.7 Fats and oil 1.8 Sugars and sweeteners 1.9 Confectionery products 1.10 Cakes, breads and pastries
2. Storage requirements	Storage requirements in this Unit of Competency may include but not limited to: 2.1 Temperature limits for a range of goods 2.2 Short and long term storage periods for a range of goods 2.3 Segregation 2.4 Co-storage requirements
3. Stocks handling procedures	Handling procedures in this Unit of Competency may include but not limited to: 3.1 Stock rotation 3.2 Identification, segregation, and disposal of damaged stock

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified storage requirements for a range of goods 1.2 Identified temperature controlled storage facilities and temperature zones 1.3 Used materials handling equipment in a temperature controlled environment 1.4 Followed procedures to measure temperature of product 1.5 Used instrumentation to monitor stores and zone temperatures 1.6 Identified and reported out-of-standard temperatures 1.7 Took corrective action in response to out-of-specification temperatures 1.8 Implemented procedures to segregate damaged product
2. Underpinning Knowledge and Attitudes	2.1 Temperature control storage facilities 2.2 Short and long term storage requirements of products 2.3 HACCP 2.4 OHS hazards and controls 2.5 Environmental aspects, impacts and controls 2.6 Attitudes in the workplace should include 2.6.1 Time conscious/punctual 2.6.2 Cost conscious 2.6.3 Environment and pollution conscious 2.6.4 Flexible/adaptable 2.6.5 Honest 2.6.6 Dependable 2.6.7 Self-starter 2.6.8 Alert 2.6.9 Systematic and organized 2.6.10 Committed 2.6.11 Good team worker 2.6.12 Good listener and fast learner
3. Underpinning Skills	3.1 Operating goods handling equipment 3.2 Stock handling skills 3.3 Monitoring and use of instrumentation 3.4 Housekeeping skills 3.5 Recording and reporting skills
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation/Demonstration with oral questioning 4.2 Written test

	4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Work area/ station 5.2 Equipment and tools needed to measure and control temperature of stock 5.3 Materials relevant to the proposed activity
6. Context of Assessment	6.1 Assessment should occur on the job or in a simulated workplace.

UNIT OF COMPETENCY: HANDLE DANGEROUS GOODS/HAZARDOUS SUBSTANCES

UNIT CODE : AGR741322

UNIT DESCRIPTOR: This unit deals with the knowledge, skills and attitudes required to handle dangerous goods and hazardous substances, including identifying requirements for working with dangerous goods and/or hazardous substances, confirming site incident procedures, selecting handling techniques, and handling and storing dangerous goods and hazardous substances

ELEMENT	PERFORMANCE CRITERIA ***Bold italicized terms*** are elaborated in the Range of Variables
1. Identify requirements for working with dangerous goods and/or hazardous substances	1.1. ***Dangerous goods and/or hazardous substances*** are identified 1.2. Storage requirements for hazardous substances and/or dangerous goods are identified and applied according to workplace procedures 1.3. Legislative requirements for hazardous substances and/or dangerous goods are known and used to plan work activities according to statutory regulations 1.4. Handling procedures for different classes and characteristics of goods are observed 1.5. Confirmation is sought from relevant personnel where dangerous goods or hazardous materials do not appear to be appropriately marked according to set specifications of authority
2. Confirm site incident procedures	2.1 Incident reporting processes are identified 2.2 Emergency equipment is located and checked according to workplace procedures and statutory regulations 2.3 ***Emergency procedures*** are identified and confirmed
3. Select handling techniques	3.1 Load handling and shifting procedures are selected in accordance with identified requirements for particular goods 3.2 Handling equipment is checked for conformity with ***workplace requirements*** and manufacturer's guidelines 3.3 Where relevant, suitable signage is checked for compliance with workplace procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Dangerous goods and/or hazardous substances	Dangerous goods and/or hazardous substances may include but not limited to: 1.1 Chemicals 1.2 Cleaning and sanitizing agents 1.3 Combustible/Explosive materials 1.4 Spills, leakages, ruptures 1.5 Dust/vapors
2. Emergency procedures	Emergency procedures may include: 2.1 Response to spillage/leaks 2.2 Evacuation 2.3 Fire-fighting 2.4 First aid
3. Workplace requirements	Workplace requirements in this Unit of Competency may include but not limited to: 3.1 Site restrictions and procedures 3.2 Use of safety and personal protection equipment 3.3 Communications equipment 3.4 Specialized lifting and/or handling equipment 3.5 Incident breakdown procedures 3.6 Authorities and permits 3.7 Hours of operations 3.8 Noise restrictions 3.9 Additional gear and equipment 3.10 Segmentation procedures 3.11 Emergency procedures

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified dangerous goods/hazardous substances 1.2 Handled dangerous goods/hazardous substances safely 1.3 Assessed handling and storage precautions and requirements for dangerous goods/hazardous substances 1.4 Estimated weight and dimensions of load and any special requirements 1.5 Selected appropriate equipment and work systems including personal protection equipment 1.6 Identified job and site hazards and planned work to minimize risks 1.7 Located, interpreted and applied relevant information 1.8 Applied hierarchy of hazard control
2. Underpinning Knowledge and Attitudes	2.1 Relevant regulations and codes concerning the handling of dangerous goods and hazardous substances 2.2 Workplace procedures for handling and storing dangerous goods/hazardous substances 2.3 Risks when handling dangerous goods and hazardous substances and related precautions to control the risk 2.4 Equipment applications, capacities, configurations, safety hazards and control mechanisms 2.5 Housekeeping standards procedures required in the workplace 2.6 Permit and license requirements 2.7 OHS policies and procedures 2.8 Attitudes in the workplace should include 2.8.1 Time conscious/punctual 2.8.2 Environment and pollution conscious 2.8.3 Honest 2.8.4 Dependable 2.8.5 Self-starter 2.8.6 Alert 2.8.7 Systematic and organized 2.8.8 Committed 2.8.9 Good team worker 2.8.10 Good listener and fast learner 2.8.11 Creative
3. Underpinning Skills	3.1 Modification of activities depending on differing workplace contexts, risk situations and environments

	3.2 Identification of containers and goods coding, markings and, where applicable, emergency information panels 3.3 Planning own work including predicting consequences and identifying improvements 3.4 Performing first aid 3.5 Ability to read and comprehend simple statements in English
4. Methods of Assessment	Competency in this unit must be assessed through: 4.1 Direct observation/Demonstration with oral questioning 4.2 Written test 4.3 Portfolio
5. Resource Implications	The following resources must be provided: 5.1 Work area/station 5.2 Range of exercises, case studies and other simulated practical and knowledge assessments 5.3 Range of operational situations 5.4 Materials relevant to the proposed activity
6. Context of Assessment	6.1 Assessment should occur in an appropriate work situation or at accredited training institution or in a simulated workplace.

SECTION 3 TRAINING STANDARDS

These guidelines are set to provide the Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for Food Processing NC III.

3.1. CURRICULUM DESIGN

Course Title: FOOD PROCESSING NC Level: NC III

Nominal Training Duration: 20 hours (Basic)
128 hours (Common)
752 hours (Core)
900 hours (Total)

Course Description:

This course is designed to enhance the knowledge, desirable skills and attitudes of Food Processing NC III in accordance with industry standards. It covers the basic, common and core competencies.

BASIC COMPETENCIES
(20 hours)

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Lead workplace communication	1.1 Communicate information about workplace processes 1.2 Lead workplace discussions 1.3 Identify and communicate issues arising in the workplace	• Group discussion • Role playing • Brainstorming	• Observation • Interviews
2. Lead small team	2.1 Provide team leadership 2.2 Assign responsibilities 2.3 Set performance expectations for team members 2.4 Supervise team performance	• Lecture • Demonstration • Self-paced (modular)	• Demonstration • Case studies
3. Develop and practice negotiation skills	3.1 Plan negotiations 3.2 Participate in negotiations	• Direct observation • Simulation/ role playing • Case studies	• Written test • Practical/ performance test

4. Solve problems related to work activities	4.1 Identify the problem 4.2 Determine fundamental causes of the problem 4.3 Determine corrective action 4.4 Provide recommendation/s to manager	• Direct observation • Simulation/ role playing • Case studies	• Written test • Practical/ performance test
5. Use relevant technologies	5.1 Study/select appropriate technology 5.2 Apply relevant technology 5.3 Maintain/enhance relevant technology	• Direct observation • Simulation/ role playing • Case studies	• Interview • Practical/ performance test

COMMON COMPETENCIES
(128 hours)

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Apply Food Safety and Sanitation (24 hrs)	1.1 Wear personal protective equipment 1.2 Observe personal hygiene and good grooming 1.3 Implement food sanitation practices 1.4 Render safety measures and first aid procedures 1.5 Implement housekeeping activities	• Demonstration • Dual training • Individual Self-paced learning • Lecture	• Written examination • Demonstration of practical skills • Direct observation • Interview
2. Use Standard Measuring Devices/ Instruments (16 hrs)	2.1 Identify standard measuring devices and instruments 2.2 Review the procedures in using standard measuring devices and instruments 2.3 Follow procedures of using measuring devices and instruments	• Demonstration • Dual training • Individual Self-paced Learning • Lecture	• Written examination • Demonstration of practical skills • Direct observation • Interview

3. Use Food Processing Tools, Equipment and Utensils (16 hrs)	3.1 Perform Pre-Operation Activities 3.2 Operate, monitor and maintain Food processing Equipment 3.3 Perform post operation activities	• Demonstration • Dual training • Individual Self-paced Learning • Lecture	• Written examination • Demonstration of practical skills • Direct observation • Interview
4. Perform Mathematical Computations (8 hrs)	4.1 Gather, summarize and tabulate the recorded data 4.2 Review the various formulations 4.3 Calculate production input and output 4.4 Compute production cost	• Lecture • Practical exercise	• Written examination • Practical exercise • Direct Observation
5. Implement Good Manufacturing Practice (32 hrs)	5.1 Perform pre-work activities in relation to GMP 5.2 Identify requirements of GMP related to own work 5.3 Observe personal hygiene and conduct to meet GMP requirements 5.4 Follow GMP requirements when carrying out work activities 5.5 Perform post-work activities in relation to GMP 5.6 Complete workplace documentation to support GMP	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Written/Oral examination • Demonstration of practical skills • Direct observation • Interview
6. Implement Environmental Policies and Procedures (32 hrs)	6.1 Access and apply workplace information on environmental policies and procedures relating to own work 6.2 Follow work procedures 6.3 Identify, control and report unacceptable performance 6.4 Maintain housekeeping standards in work area	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Written/Oral examination • Demonstration of practical skills • Direct observation • Interview

CORE COMPETENCIES
(752 hours)

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Receive and store stock (16 hrs)	1.1 Take delivery of stock 1.2 Store stock 1.3 Rotate and maintain stock	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
2. Control and order stock (16 hrs)	2.1 Maintain stock levels and records 2.2 Organize and administer stock takes 2.3 Identify stock losses 2.4 Process stock orders 2.5 Follow up orders	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
3. Apply product knowledge to complete work operations (24 hrs)	3.1 Identify products in a subsection of a warehouse or other storage area 3.2 Examine quality and report on products 3.3 Use inventory and labeling systems to identify and locate products	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
4. Perform basic tests in raw materials, in process and finished products (40 hrs)	4.1 Receive, label, and store samples for testing 4.2 Prepare samples 4.3 Perform tests on samples	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning
5. Operate a boiler (32 hrs)	5.1 Start boiler 5.2 Operate and monitor boiler 5.3 Shut down and store boiler	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
6. Operate pumping	6.1 Prepare pumps for	• Audio Visual	• Observation

equipment (32 hrs)	operation 6.2 Operate Pumping Equipment 6.3 Shutdown and Maintain Pumping Equipment	• Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Demonstration • Questioning • Written Test
7. Operate and monitor food processes and equipment (320 hrs)	7.1 Prepare the food equipment and process for operation 7.2 Operate and Monitor the Food Process 7.3 Shutdown, Clean and Maintain the Food Process	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
8. Operate a packaging process (200 hrs)	8.1 Prepare equipment and process for operation 8.2 Operate and Monitor the Process 8.3 Shutdown the Process	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
9. Work in a freezer storage area (24 hrs)	9.1 Prepare to enter a freezer storage environment 9.2 Monitor equipment operation in a freezer storage environment 9.3 Handle frozen product safely 9.4 Respond to freezer storage area exposure and gas leaks	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
10. Work with temperature controlled stock (24 hrs)	10.1 Store stock to meet temperature control requirements 10.2 Monitor and maintain temperature of stock within specifications 10.3 Identify and rectify problems	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test
11. Handle dangerous goods/ hazardous substances (24 hrs)	11.1 Identify requirements for working with dangerous goods and/or hazardous substances 11.2 Confirm site incident procedures 11.3 Select handling techniques	• Audio Visual • Lecture/ Discussion • Practical Lab • Demonstration • Individual Self-paced Learning	• Observation • Demonstration • Questioning • Written Test

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of competency-based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training is based both on and off-the-job components;
- Allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Approved training programs are Nationally Accredited

The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations.

- Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer just facilitates the training delivery.

- Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.

- Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.

- Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video or computer technologies.

- Project-based instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applications.

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students wishing to gain entry into this course should possess the following requirements:

- can communicate both oral and written
- physically and mentally fit
- with good moral character
- can perform basic mathematical computation

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS

FOOD PROCESSING NC III

Recommended list of tools, equipment and materials for the training of 25 trainees for Food Processing NC III.

TOOLS		EQUIPMENT		MATERIALS	
QTY	**Description**	**QTY**	**Description**	**QTY**	**Description**
5	Weighing scales and balances of various capacities and sensitivities	1 set	Food processing system with retort, pump, boiler, cooker, steamer, dehydrator	**A. Food supplies**	
5	Dietetic scales (1 kg. capacity)	1	Chiller	5 doz	Fresh eggs
15	Pairing knives	1	Refrigerator	10 kg	Fresh meat
10	Peelers	1	Freezer	10 pcs	Dressed poultry
5	Measuring spoons, sets	5	Stoves	20 kg	Fresh fish (medium size)
5	Measuring cups (solid)	1 set	Food packaging system with filling & sealing, can seamer, shrink wrapper, strapper, case packer, labeler	1 set	Curing ingredients (good for 10 kg)
5	Measuring cups (liquid)	1	Jack lift	20 kg	Fresh fish (small)
1 set	Wrench, screw driver, belts, nuts & bolts	1	Trolley	10 kg	Fresh fruits
2	Clocks/timer	1	Wheeler	10 kg	Fresh vegetables

15	Mixing bowls, stainless steel	1	Poly/temperature sealer	2 gal	All spice pickling solution
10	Hard plastic chopping boards	1	Cap sealer	3 kg	Salt (Pangasinan)
5	Thermometers of varying temperature range	1	Pressure canner	1 sack	Refined sugar
5	Glasswares like cylinder, beaker, flask	1	Pressure cooker	3 gal	Vinegar
5	Jar liter	1	Cap seal	1 gal	Mother vinegar
1	Food processor, set	1	Oven	1 kg	Citric acid
5	Wire baskets	2	Steam-jacketed kettle	1 kg	Sodium benzoate
15	Casseroles stainless steel	5	Smoking trays	1 kg	Firming agent
10	Saucepan, stainless steel	1	Meat grinder	1 can	Active dry yeast
15	Spoons, wooden	1	Stuffer/linker		
10	Spoon, basting	1	Silent cutter	**B. Non food**	
4	Paddles, wooden	2	Brix refractometers (0-90^{o} brix)	5 sets	Packaging materials – can, paper, plastic, bottle, glass, carton, laminates
10	Food tongs	1	Salinometer	1 pack	Tags/labels
2	Steamer	2	Electronic scales (0.1 gm capacity)	1 set	Chemicals – soda acid, amines, condensate chemicals
5	Soaking container	1	Consistometer/ viscosimeter	3 boxes	8 oz., 12 oz., round bottles w/ PVC caps
5	Fermented containers	1	Vacuum pack machine	3 boxes	Catsup bottles w/ plastic caps
20	Utility trays	1	Laboratory scale cabinet drier or forced draft oven	2 packs	Cap seals
15	Colanders, stainless steel	1	Headspace gauge	2 gals	Disinfectant/ sanitizers
		5 sets	Test equipment – pH meter, centrifuge, moisture meter, color chart /colorimeter, texture meter	3 set	Various test reagents e.g. hydrochloric acid, sulfuric acid, sodium

					hydroxide, hydrogen peroxide
	TRAINING MATERIALS	5 sets	Computer	5	Bar soap/ detergent
	Books/reference	5 sets	Fire Fighting Equipment	1 btl.	Glue
	Manuals	5 sets	First aid kit		
	Videos	5 sets	PPE – apron, mouth mask, gloves, rubber boots, head gear, hard hat, goggles, heavy sweater		

3.5 TRAINING FACILITIES

FOOD PROCESSING NC III

The food processing workshop must be of concrete structure. Based on a class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS
A. Building (permanent)			
Laboratory area	6 x10	60	60
Tool room & S/M storage area	4 x 5	20	20
Learning resource area	5 x 6	30	30
Wash area/comfort room (male & female)	2.5 x 4	10	10
Total			120
Facilities/Equipment/Circulation (30% of teaching accommodation)			40
B. Experimental Land Area			n/a
Total workshop area			160

Note: Experimental area will change according to availability of land.

3.6 TRAINER'S QUALIFICATIONS FOR FOOD PROCESSING NC III

TRAINER QUALIFICATION (TQ III)

- Must be a holder of Food Processing NC III or its equivalent
- Must have undergone training on Training Methodology III (TM III)
- Must be computer literate
- Must be physically and mentally fit
- Must have at least 2 years job/industry experience
- Must be a civil service eligible (for government position or appropriate professional license issued by the Professional Regulatory Commission)

Reference: TESDA Board Resolution No. 2004 03

3.7 INSTITUTIONAL ASSESSMENT

Institutional Assessment is to be undertaken by the learner who enrolled in a structured learning program to determine the achievement of competencies. It is administered by the trainer/assessor at end of each learning module.

The result of the institutional assessment may be considered as an evidence for national assessment.

SECTION 4 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1 To attain the National Qualification of **Food Processing NC III,** the candidate must demonstrate competence of all the units listed in Section 1. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General.

4.2 The qualification of Food Processing NC III may be attained through accumulation of Certificates of Competency (COCs) in the following areas:

- 4.2.1 Receive, store, control and order stock
  - 4.2.1.1 Receive and store stock
  - 4.2.1.2 Control and order stock
  - 4.2.1.3 Apply product knowledge to complete work operations
  - 4.2.1.4 Handle dangerous goods/hazardous substances
- 4.2.2 Perform basic tests in raw materials, in process and finished products
- 4.2.3 Operate a boiler
- 4.2.4 Operate pumping equipment
- 4.2.5 Operate and monitor food processes and equipment
- 4.2.6 Operate a packaging process
- 4.2.7 Work in a freezer and with temperature controlled stock
  - 4.2.7.1 Work in a freezer storage area
  - 4.2.7.2 Work with temperature controlled stock

Successful candidates shall be awarded Certificates of Competency (COCs)

4.3 Accumulation and submission of all COCs acquired for the relevant units of competency comprising a qualification, an individual shall be issued the corresponding National Certificate

4.4 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.

4.5 The following are qualified to apply for assessment and certification:

- 4.5.1 Graduates of formal, non formal and informal including enterprise-based training programs.
- 4.5.2. Experienced workers (wage employed or self-employed)

4.6 The guidelines on assessment and certification are discussed in detail in the Procedures manual on Assessment and Certification and Guidelines on the implementation of the Philippine TVET Qualification and Certification System (PTQCS).

COMPETENCY MAP FOR PROCESSED FOOD AND BEVERAGES SECTOR

CORE UNITS OF COMPETENCY

Implement sampling procedures	Load and unload raw materials, products and/or supplies	Control and order stock	Operate a packaging process	Participate in sensory analysis
Inspect and sort materials and product	Process Food by Salting, Curing and Smoking	Apply product knowledge to complete work operations	Work in a freezer storage area	Set up and operate processes in a production / packaging system
Dispense non bulk ingredients	Process Food by Fermentation and Pickling	Perform basic tests in raw materials, in process and finished products	Work with temperature controlled stock	Participate in an audit process
Prepare raw materials for processing	Process food by sugar concentration	Operate a boiler	Handle dangerous goods/hazardous substances	Participate in a HACCP team
Operate basic equipment	Package Finished / Processed Food Products	Operate pumping equipment	Apply raw materials / ingredients and process knowledge	Monitor workplace performance and participate in improvement processes
Clean and sanitize equipment and processing/packaging area	Receive and store stock	Operate and monitor food processes and equipment	Maintain food safety when loading, unloading and transporting food	

Continuation ….. Competency Map for Processed Food and Beverages Sector

COMMON UNITS OF COMPETENCY

Apply Food Safety and Sanitation	Use Standard Measuring Devices / Instruments	Use Food Processing Tools, Equipment and Utensils	Follow work procedures to maintain Good Manufacturing Practice	Perform Mathematical Computation
Implement Good Manufacturing Practice Procedures	Implement Environmental Policies and Procedures	Monitor the Implementation of Good Manufacturing Practice Procedures	Monitor the Implementation of Environmental Policies and Procedures	

BASIC UNITS OF COMPETENCY

Receive and Respond to Workplace Communication	Participate in Workplace Communication	Lead Workplace Communication	Use Relevant Technologies	Collect, analyze and organize information
Work with Others	Work in a Team Environment	Lead Small Team	Utilize Specialized Communication Skills	Plan and Organize Work
Demonstrate Work Values	Practice Career Professionalism	Develop and practice negotiation skills	Develop Team and Individual	
Practice Housekeeping Procedures	Practice Occupational Health and Safety Procedures	Solve Workplace Problems Related to Work Activities	Apply Problem Solving Techniques in the Workplace	

DEFINITION OF TERMS

For the purpose of this competency standard, the following words are defined:

.1 **Competency** – is the application of knowledge, skills and attitudes to perform work activities to the standard expected in the workplace.

.2 **Unit of Competency** – describes a work activity.

.3 **Elements** – are building blocks of a unit of competency. It describes in outcome terms the functions that a person who works in a particular area of work is able to perform.

.4 **Performance Criteria** – are evaluative statements that specify what is to be assessed and the required level of performance.

.5 **Range of Variables** – describe the circumstances or context in which the work is to be performed.

.6 **Evidence Guide** – a guide for assessment that provides information on critical aspects of competency, underpinning knowledge, underpinning skills, resource implications, context of assessment and assessment methods.

.7 **Blanching** – refers to a heat treatment in which the raw food material is immersed in hot water or exposed to live steam.

.8 **Bottling/Canning** – refers to a preservation of foods in hermetically sealed containers such as tin cans and glass jars by sterilization with heat

.9 **BFAD** - means Bureau of Food and Drug

.10 **Brine** – refers to a salt solution

.11 **Cabinet Drying** - refers to a process of dehydrating food material using a cabinet drier consisting of a closed chamber which is well insulated against heat loss

.12 **Chilling** – is subjecting meat to a temperature of 2-4°C(36-40°F at certain period of time

.13 **Curing** – refers to a process by which salt, sugar and salitre and other preservatives and adjuncts are introduced/are used to prolong the keeping quality of the products

.14 **Dehydration**- refers to drying by artificially produced heat under carefully controlled conditions of temperature, humidity and airflow within a chamber

.15 **Dry Curing**– refers to a method of curing meat where curing mixture is rubbed on the surface of the food material being cured.

.16 **Exhausting** – refers to the removal of air and gases from the raw material and the container before sealing; It refers to the heating of canned foods to a center can temperature of 180°C to 205°F before sealing.

.17 **Fermentation** – refers to the anaerobic oxidation of carbohydrates by microbial enzymes

.18 **Food Additives**- refer to substances intentionally added to foods to achieve or retain desired characteristics

.19 **Food Processing** – refers to the application of heat in varying degree to the food enclosed in a container for a sufficient time to sterilize the product

.20 **GMP** – Good Manufacturing Practice which is a combination of manufacturing and quality control procedures aimed at ensuring that products are consistently manufactured to their specifications

.21 **GRAS** - means generally regarded as safe

.22 **HACCP** – Hazard Analysis Critical Control Point is a food safety management system which concentrates prevention strategies on known hazards and the risks of them occurring at specific points in the food chain

.23 **Hazard** – the potential to cause harm which may include bacteria, virus, toxin, parasite, chemical or physical hazard. Operational malpractices or other operations/processes can also become hazards if they lead to unacceptable contamination or growth and survival of organisms and microorganisms

.24 **Hermetic Sealing** - refers to the closure of tin cans or glass jars tightly to prevent the entrance of microorganisms

.25 **Packaging** – any container or material used in the packaging of a product which may include materials in direct contact with the product, printed packs including labeling, and other materials including outer cartons or delivery cases

.26 **Packing Medium** – refers to brine, syrup, broth, oil or other similar ingredients used as canning medium

.27 **Pickling**- refers to the preservation of foods by brine and vinegar with or without bacterial fermentation

.28 **pH meter** – refers to an instrument used to measure the acidity of a sample

.29 **Preservatives-** refer to food additives that retard spoilage and preserve the natural color & flavor of food products

.30 **Pulverize** – to reduce by crushing or grinding to very small particles

.31 **Raw Materials** – consist of the main food material to be processed including minor food ingredients

.32 **Retort Specification** – refers to a steam pressure canner used in sterilizing low acid canned foods

.33 **Salinometer**- refers to the instrument to measure strength of brine

.34 **Sanitation** - refers to the process of treating food contact and non-food contact surface with physical agents and chemicals to kill the residual microorganisms present after cleaning

.35 **Smoke** – refers to the gas from burning wood material containing combustible and noncombustible substances, the combustible substances are the main sources of smoke which consist of cellulose, lignin, pentosans, tannic acid, protein substances, resins and terpenes

.36 **Smoking** – refers to subjecting the product to the action of smoke from burning wood materials

.37 **Smoke House**- refers to a closed smoke chamber where smoke is produced which may range from the temporary (barrel) smoke house to the permanent frame or concrete smoke house.

.38 **Standard Measurement** – refers to something set up as a rule for measuring or a model to be followed

.39 **Sugar Concentrates** – refer to products cooked with sugar to attain a concentration of 40-65% or to saturated sucrose level

.40 **Syrup** – refers to a sugar solution whether light, medium or heavy syrup

.41 **Thermal Processing** – refers to the method of processing food in hermetically sealed container by applying heat with the right temperature and time, enough to kill microorganisms responsible in the spoilage of food which involve bottling and canning

.42 **Water Bath** – it is a set up used for canning consisting of a large kettle with fitting cover deep enough to have an inch or two over the tops of the containers of food and an extra 1-2 inch space for boiling with a wooden or metal rack made for holding filled containers; used for processing high acid canned products.

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