

# TRAINING REGULATIONS

## FOOD PROCESSING NC II



## PROCESSED FOODS & BEVERAGES SECTOR

**TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY**  
East Service Road, South Luzon Expressway (SLEX), Taguig City, Metro Manila

*Technical Education and Skills Development Act of 1994  
(Republic Act No. 7796)*

**Section 22, “Establishment and Administration of the National Trade Skills Standards” of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.**

The Training Regulations (TR) serve as basis for the:

- 1 Competency assessment and certification;
- 2 Registration and delivery of training programs; and
- 3 Development of curriculum and assessment instruments.

Each TR has four sections:

- Section 1     **Definition of Qualification** - refers to the group of competencies that describes the different functions of the qualification.
- Section 2     **The Competency Standards** - gives the specifications of competencies required for effective work performance.
- Section 3     **Training Arrangements** - contains information and requirements in designing training program for certain Qualification. It includes curriculum design, training delivery; trainee entry requirements; tools and requirements; tools and equipment; training facilities and trainer's qualification.
- Section 4     **Assessment and Certification Arrangements** - describes the policies governing assessment and certification procedure

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## TRAINING REGULATIONS FOR FOOD PROCESSING NC II

### SECTION 1 QUALIFICATION DESCRIPTION

#### FOOD PROCESSING NC II QUALIFICATION

The **FOOD PROCESSING NC II** Qualification consists of competencies that a person must have in order to process foods by salting, curing and smoking; process food by fermentation and pickling; process food by sugar concentration; process food by drying and dehydration and process food by thermal application. Inclusive to each of the above competencies, is the task of packing the processed food and operating simple packing equipment such as sealer. The person must also have competencies in practicing Food Safety Act 2013, cGMP, HACCP, OSHS and 7S of Good Housekeeping, including following relevant environmental rules and regulations.

It also includes competencies of a person in the production line of manufacturing processed food who is responsible for routinary works such as inspection of simple defects of packing materials, seal integrity and correct product label. It also comprises the calibrating and operating of basic food processing tools and equipment such as salinometer, refractometer, food processor and weighing scale. This qualification does not include dairy products and baking/pastry making.

This Qualification is packaged from the competency map of the Agriculture and Fishery, Processed Food and Beverage Sector as shown in Annex A.

The Units of Competency comprising this Qualification include the following:

#### **UNIT CODE      BASIC COMPETENCIES**

500311105	Participate in workplace communication
500311106	Work in team environment
500311107	Practice career professionalism
500311108	Practice occupational health and safety procedures

#### **UNIT CODE      COMMON COMPETENCIES**

PFB751210	Apply Food Safety and Sanitation
PFB751211	Use Standard Measuring Devices / Instruments
PFB751212	Use Food Processing Tools, Equipment and Utensils
PFB751213	Perform Mathematical Computation
PFB751214	Implement Good Manufacturing Practice Procedure
PFB751215	Implement Environmental Policies and Procedures

#### **UNIT CODE      CORE COMPETENCIES**

PFB751330	Process Food by Salting, Curing and Smoking
PFB751331	Process Food by Fermentation and Pickling
PFB751332	Process Food by Sugar Concentration
PFB751333	Process Food by Drying and Dehydration
PFB751334	Process Food by Thermal Application

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

- Food Processing Worker**
- Food Production Worker/Staff**
- Packing Staff /Packer**
- Quality Control Staff**

May also be known by specific products:

- Tocino Maker**
- Tinapa Maker**
- Dried-fish Processor**
- Cured-meat Processor**
- Fruit-candy Maker**

## SECTION 2 COMPETENCY STANDARDS

This section gives the details of the contents of the basic, common and core units of competency required in **FOOD PROCESSING NC II**.

### BASIC COMPETENCIES

**UNIT OF COMPETENCY** : **PARTICIPATE IN WORKPLACE COMMUNICATION**

**UNIT CODE** : **500311105**

**UNIT DESCRIPTOR** : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Participate in workplace meetings and discussions	1.1 Team meetings are attended on time 1.2 Own opinions are clearly expressed and those of others are listened to without interruption 1.3 Meeting inputs are consistent with the meeting purpose and established <b>protocols</b> 1.4 <b>Workplace interactions</b> are conducted in a courteous manner 1.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are tasked and responded to. 1.6 Meetings outcomes are interpreted and implemented.	2.1 Effective communication 2.2 Different modes of communication 2.3 Written communication 2.4 Organizational policies 2.5 Communication procedures and systems 2.6 Technology relevant to the enterprise and the individual's work responsibilities	2.1 Following simple spoken language 2.2 Performing routine workplace duties following simple written notices 2.3 Participating in workplace meetings and discussions 2.4 Completing work related documents 2.5 Estimating, calculating and recording routine workplace measures 2.6 Relating to people of social range in the workplace 2.7 Gathering and providing information in response to workplace requirements

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
2. Complete relevant work related documents	2.1 Range of <b>forms</b> relating to conditions of employment are completed accurately and legibly 2.2 Workplace data are recorded on standard workplace forms and documents 2.3 Basic mathematical processes are used for routine calculations 2.4 Errors in recording information on forms/ documents are identified and properly acted upon 2.5 Reporting requirements to supervisor are completed according to organizational guidelines	3.1 Effective communication 3.2 Different modes of communication 3.3 Written communication 3.4 Organizational policies 3.5 Communication procedures and systems 3.6 Technology relevant to the enterprise and the individual's work responsibilities	3.1 Completing work related documents 3.2 Applying basic mathematical processes of addition, subtraction, division and multiplication 3.3 Gathering and providing information in response to workplace requirements

### RANGE OF VARIABLES

<b>VARIABLE</b>	<b>RANGE</b>
1. Appropriate sources	1.1 Team members 1.2 Suppliers 1.3 Trade personnel 1.4 Local government 1.5 Industry bodies
2. Medium	2.1 Memorandum 2.2 Circular 2.3 Notice 2.4 Information discussion 2.5 Follow-up or verbal instructions 2.6 Face-to-face communication
3. Storage	3.1 Manual filing system 3.2 Computer-based filing system



4. Forms	4.1 Personnel forms 4.2 Telephone message forms 4.3 Safety reports
5. Workplace interactions	5.1 Face-to-face interactions 5.2 Telephone conversations 5.3 Electronic and two-way radio communication 5.4 Written communication including electronic mail, memos, instruction and forms 5.5 Non-verbal communication including gestures, signals, signs and diagrams
6. Protocols	6.1 Observing meeting 6.2 Compliance with meeting decisions 6.3 Obeying meeting instructions

**EVIDENCE GUIDE**

1. Critical aspects of competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Prepared written communication following standard format of the organization</li> <li>1.2 Accessed information using communication equipment</li> <li>1.3 Made use of relevant terms as an aid to transfer information effectively</li> <li>1.4 Conveyed information effectively adopting the formal or informal communication</li> </ul>
2. Resource implications	<p><b>The following resources MUST be provided:</b></p> <ul style="list-style-type: none"> <li>2.1 Fax machine</li> <li>2.2 Telephone</li> <li>2.3 Writing materials</li> <li>2.4 Internet</li> </ul>
3. Method of assessment	<p><b>Competency MUST be assessed through:</b></p> <ul style="list-style-type: none"> <li>3.1 Direct Observation</li> <li>3.2 Oral interview and written test</li> </ul>
4. Context of assessment	<ul style="list-style-type: none"> <li>4.1 Competency may be assessed individually in the actual workplace or through accredited institution</li> </ul>

**UNIT OF COMPETENCY : WORK IN TEAM ENVIRONMENT**

**UNIT CODE : 500311106**

**UNIT DESCRIPTOR :** This unit covers the skills, knowledge and attitudes required to identify role and responsibility as a member of a team.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Describe team role and scope	1.1 The <b><i>role and objective of the team</i></b> is identified from available <b><i>sources of information</i></b> 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources	1.1 Communication process 1.2 Team structure 1.3 Team roles 1.4 Group planning and decision making	1.1 Communicate appropriately, consistent with the culture of the workplace
2. Identify own role and responsibility within team	3.1 Individual role and responsibilities within the team environment are identified 3.2 Roles and responsibility of other team members are identified and recognized 3.3 Reporting relationships within team and external to team are identified	2.1 Communication process 2.2 Team structure 2.3 Team roles 2.4 Group planning and decision making	2.1 Communicate appropriately, consistent with the culture of the workplace

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
3. work as a team member	3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on individual skills and competencies and <b><i>workplace context</i></b> 3.3 Observed protocols in reporting using standard operating procedures 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.	3.1 Communication process 3.2 Team structure 3.3 Team roles 3.4 Group planning and decision making	3.1 Communicate appropriately, consistent with the culture of the workplace 3.2 Interacting effectively with others

**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>RANGE</b>
1. Role and objective of team	1.1 Work activities in a team environment with enterprise or specific sector 1.2 Limited discretion, initiative and judgment may be demonstrated on the job, either individually or in a team environment
2. Sources of information	2.1 Standard operating and/or other workplace procedures 2.2 Job procedures 2.3 Machine/equipment manufacturer's specifications and instructions 2.4 Organizational or external personnel 2.5 Client/supplier instructions 2.6 Quality standards 2.7 OHS and environmental standards
3. Workplace context	3.1 Work procedures and practices 3.2 Conditions of work environments 3.3 Legislation and industrial agreements 3.4 Standard work practice including the storage, safe handling and disposal of chemicals 3.5 Safety, environmental, housekeeping and quality guidelines

**EVIDENCE GUIDE**

1. Critical aspects of competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Operated in a team to complete workplace activity</li> <li>1.2 Worked effectively with others</li> <li>1.3 Conveyed information in written or oral form</li> <li>1.4 Selected and used appropriate workplace language</li> <li>1.5 Followed designated work plan for the job</li> <li>1.6 Reported outcomes</li> </ul>
2. Resource implications	<p><b>The following resources MUST be provided:</b></p> <ul style="list-style-type: none"> <li>2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place</li> <li>2.2 Materials relevant to the proposed activity or tasks</li> </ul>
3. Method of assessment	<p><b>Competency may be assessed through:</b></p> <ul style="list-style-type: none"> <li>3.1 Observation of the individual member in relation to the work activities of the group</li> <li>3.2 Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal</li> <li>3.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork</li> </ul>
4. Context of assessment	<ul style="list-style-type: none"> <li>4.1 Competency may be assessed in workplace or in a simulated workplace setting</li> <li>4.2 Assessment shall be observed while task are being undertaken whether individually or in group</li> </ul>

**UNIT OF COMPETENCY: PRACTICE CAREER PROFESSIONALISM****UNIT CODE : 500311107****UNIT DESCRIPTOR :** This unit covers the outcomes required in in promoting career growth and advancement.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Integrate personal objectives with organizational goals	1.1 Personal growth and work plans are pursued towards improving the qualifications set for the profession 1.2 Intra and interpersonal relationships are maintained in the course of managing oneself based on performance <b>evaluation</b> 1.3 Commitment to the organization and its goal is demonstrated in the performance of duties	1.1 Work values and ethics (code of conduct, code of ethics, etc.) 1.2 Company policies 1.3 Company operations, procedures and standards 1.4 Fundamental rights at work including gender sensitivity 1.5 Personal hygiene practices	1.1 Appropriate practice of personal hygiene 1.2 Intra and Interpersonal skills 1.3 Communication skills
2. Set and meet work priorities	2.1 Competing demands are prioritized to achieve personal, team and organizational goals and objectives. 2.2 <b>Resources</b> are utilized efficiently and effectively to manage work priorities and commitments 2.3 Practices along economic use and maintenance of equipment and facilities are followed as per established procedures	2.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 2.2 Company policies 2.3 Company operations, procedures and standards 2.4 Fundamental rights at work including gender sensitivity 2.5 Personal hygiene practices 2.6 Time management	2.1 Appropriate practice of personal hygiene 2.2 Intra and Interpersonal skills 2.3 Communication skills 2.4 Managing goals and time

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
3. Maintain professional growth and development	3.1 <b><i>Trainings and career opportunities</i></b> are identified and availed of based on job requirements 3.2 <b><i>Recognitions</i></b> are sought/received and demonstrated as proof of career advancement 3.3 <b><i>Licenses and/or certifications</i></b> relevant to job and career are obtained and renewed	3.1 Work values and ethics (Code of Conduct, Code of Ethics, etc.) 3.2 Company policies 3.3 Company operations, procedures and standards 3.4 Fundamental rights at work including gender sensitivity 3.5 Personal hygiene practices	3.1 Appropriate practice of personal hygiene 3.2 Intra and Interpersonal skills 3.3 Communication skills



**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>RANGE</b>
1. Evaluation	1.1 Performance Appraisal 1.2 Psychological Profile 1.3 Aptitude Tests
2. Resources	2.1 Human 2.2 Financial 2.3 Technology 2.3.1 Hardware 2.3.2 Software
3. Trainings and career opportunities	3.1 Participation in training programs 3.1.1 Technical 3.1.2 Supervisory 3.1.3 Managerial 3.1.4 Continuing Education 3.2 Serving as Resource Persons in conferences and workshops
4. Recognitions	4.1 Recommendations 4.2 Citations 4.3 Certificate of Appreciations 4.4 Commendations 4.5 Awards 4.6 Tangible and Intangible Rewards
5. Licenses and/or certifications	5.1 National Certificates 5.2 Certificate of Competency 5.3 Support Level Licenses 5.4 Professional Licenses

**EVIDENCE GUIDE**

1. Critical aspects of competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Attained job targets within key result areas (KRAs)</li> <li>1.2 Maintained intra and interpersonal relationship in the course of managing oneself based on performance evaluation</li> <li>1.3 Completed trainings and career opportunities which are based on the requirements of the industries</li> <li>1.4 Acquired and maintained licenses and/or certifications according to the requirement of the qualification</li> </ul>
1. Resource implications	<p><b>The following resources MUST be provided:</b></p> <ul style="list-style-type: none"> <li>2.1 Workplace or assessment location</li> <li>2.2 Case studies/scenarios</li> </ul>
2. Method of assessment	<p><b>Competency may be assessed through:</b></p> <ul style="list-style-type: none"> <li>3.1 Portfolio Assessment</li> <li>3.2 Interview</li> <li>3.3 Simulation/Role-plays</li> <li>3.4 Observation</li> <li>3.5 Third Party Reports</li> <li>3.6 Exams and Tests</li> </ul>
3. Context of assessment	<ul style="list-style-type: none"> <li>4.1 Competency may be assessed in the work place or in a simulated work place setting</li> </ul>

**UNIT OF COMPETENCY : PRACTICE OCCUPATIONAL HEALTH AND SAFETY PROCEDURES****UNIT CODE : 500311108****UNIT DESCRIPTOR :** This unit covers the knowledge, skills and attitudes required to comply with regulatory and organizational requirements for occupational health and safety.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Identify hazards and risks	1.1 <b>Safety regulations</b> and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures 1.2 Hazards/risks in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures 1.3 <b>Contingency measures</b> during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedure.	1.1 OHS procedures and practices and regulations 1.2 PPE types and uses 1.3 Personal hygiene practices 1.4 Hazards/risks identification and control 1.5 Threshold Limit Value (TLV) 1.6 OHS indicators 1.7 Organization safety and health protocol 1.8 Safety consciousness 1.9 Health consciousness	1.1 Practice of personal hygiene 1.2 Hazards/risks identification and control skills 1.3 Interpersonal skills 1.4 Communication skills

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
2. Evaluate hazards and risks	2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV) 2.2 Effects of the hazards are determined 2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation	2.1 OSH procedures and practices and regulations 2.2 Personal hygiene practices 2.3 Hazards/risks identification and control 2.4 Threshold Limit Value -TLV 2.5 OSH indicators 2.6 Organization safety and health protocol 2.7 Safety consciousness 2.8 Health consciousness	2.1 Practicing personal hygiene 2.2 Identifying hazards/risks and control 2.3 Interpersonal skills 2.4 Communication skills
3. Control hazards and risks	3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies 3.3 <b>Personal protective equipment (PPE)</b> is correctly used in accordance with organization OHS procedures and practices 3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with established organization protocol	3.1 OSH procedures and practices and regulations 3.2 PPE types and uses 3.3 Personal hygiene practices 3.4 Hazards/risks identification and control 3.5 OSH indicators 3.6 Organization safety and health protocol 3.7 Safety consciousness 3.8 Health consciousness	3.1 Practicing personal hygiene 3.2 Identifying hazards/risks and control 3.3 Interpersonal skills 3.4 Communication skills

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
4. Maintain OHS awareness	4.1 <b><i>Emergency-related drills and trainings</i></b> are participated in as per established organization guidelines and procedures 4.2 <b><i>OHS personal records</i></b> are completed and updated in accordance with workplace requirements	4.1 OSH procedures and practices and regulations 4.2 PPE types and uses 4.3 Personal hygiene practices 4.4 OSH indicators 4.5 Organization safety and health protocol 4.6 Safety consciousness 4.7 Health consciousness	4.1 Practicing personal hygiene 4.2 Interpersonal skills 4.3 Communication skills

**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>RANGE</b>
1. Safety regulations	<p><b>May include but are not limited to:</b></p> <ul style="list-style-type: none"> <li>1.1 Clean Air Act</li> <li>1.2 Building code</li> <li>1.3 National Electrical and Fire Safety Codes</li> <li>1.4 Waste management statutes and rules</li> <li>1.5 Philippine Occupational Safety and Health Standards</li> <li>1.6 DOLE regulations on safety legal requirements</li> <li>1.7 ECC regulations</li> </ul>
2. Hazards/Risks	<p><b>May include but are not limited to:</b></p> <ul style="list-style-type: none"> <li>2.1 Physical hazards – impact, illumination, pressure, noise, vibration, temperature, radiation</li> <li>2.2 Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects</li> <li>2.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gases, vapors</li> <li>2.4 Ergonomics <ul style="list-style-type: none"> <li>2.4.1 Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles</li> <li>2.4.2 Physiological factors – monotony, personal relationship, work out cycle</li> </ul> </li> </ul>
3. Contingency measures	<p><b>May include but are not limited to:</b></p> <ul style="list-style-type: none"> <li>3.1 Evacuation</li> <li>3.2 Isolation</li> <li>3.3 Decontamination</li> <li>3.4 (Calling designed) emergency personnel</li> </ul>
4. PPE	<p><b>May include but are not limited to:</b></p> <ul style="list-style-type: none"> <li>4.1 Mask</li> <li>4.2 Gloves</li> <li>4.3 Goggles</li> <li>4.4 Hair Net/cap/bonnet</li> <li>4.5 Face mask/shield</li> <li>4.6 Ear muffs</li> <li>4.7 Apron/Gown/coverall/jump suit</li> <li>4.8 Anti-static suits</li> </ul>
5. Emergency-related drills and training	<ul style="list-style-type: none"> <li>5.1 Fire drill</li> <li>5.2 Earthquake drill</li> <li>5.3 Basic life support/CPR</li> <li>5.4 First aid</li> <li>5.5 Spillage control</li> <li>5.6 Decontamination of chemical and toxic</li> <li>5.7 Disaster preparedness/management</li> </ul>

6. OHS personal records	6.1 Medical/Health records 6.2 Incident reports 6.3 Accident reports 6.4 OHS-related training completed
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## EVIDENCE GUIDE

1. Critical aspects of competency	<p><b>Assessment requires evidence that the candidate:</b></p> 1.1 Explained clearly established workplace safety and hazard control practices and procedures 1.2 Identified hazards/risks in the workplace and its corresponding indicators in accordance with company procedures 1.3 Recognized contingency measures during workplace accidents, fire and other emergencies 1.4 Identified terms of maximum tolerable limits based on threshold limit value (TLV). 1.5 Followed Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace 1.6 Used Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices 1.7 Completed and updated OHS personal records in accordance with workplace requirements
2. Resource implications	<p><b>The following resources MUST be provided:</b></p> 2.1. Workplace or assessment location 2.2. OHS personal records 2.3. PPE 2.4. Health records
3. Method of assessment	<p><b>Competency may be assessed through:</b></p> 3.1 Portfolio Assessment 3.2 Interview 3.3 Case Study/Situation
4. Context of assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

**COMMON COMPETENCIES****UNIT OF COMPETENCY : APPLY FOOD SAFETY AND SANITATION****UNIT CODE : PFB751210****UNIT DESCRIPTOR : This unit covers skills and attitude required to apply food safety and sanitation in the workplace**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Wear Personal Protective Equipment	1.1 Personal protective equipment are checked according to <b><i>manufacturer's specifications</i></b> 1.2 Personal protective equipment are worn according to the job requirement	1.1 Personal protective equipment (PPE) 1.2 Procedures in wearing in PPE 1.3 Good Food Manufacturing Practices 1.4 Parts and functions of personal protective equipment	1.1 Checking PPE 1.2 Practicing GMP
2. Observe Personal Hygiene and Good Grooming	2.1 Personal hygiene and good grooming is practiced in line with <b><i>workplace health and safety requirements</i></b>	2.1 Good grooming and personal hygiene 2.2 Workplace health and safety requirements	2.1 Practicing good grooming and personal hygiene practices
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.	3.1 Proper waste disposal 3.2 Environmental protection and concerns 3.3 Food safety principles and practices 3.4 TQM and other food quality system principles	3.1 Managing wastes 3.2 Implementing sanitary food handling practices 3.3 Practicing workplace safety



ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
4. Render Safety Measures and First Aid Procedures	4.1 <b>Safety measures</b> are applied according to workplace rules and regulations 4.2 <b>First aid procedures</b> are applied and coordinated with concerned personnel according to workplace standard operating procedures.	4.1 First aid procedures 4.2 Parts and functions of personal protective equipment 4.3 First Aid Kit	4.1 Applying safety measures 4.2 Applying first aid treatment 4.3 Practicing PPE 4.4 Coordinating with concerned personnel
5. Implement housekeeping activities	5.1 Work area and surroundings are cleaned in accordance with workplace health and safety regulations 5.1 Waste is disposed according to organization's waste disposal system 5.2 <b>Hazards</b> in the work area are recognized and reported to designated personnel according to workplace procedures	5.1 Hazards in work area 5.2 Waste disposal 5.3 Housekeeping / 7's 5.4 Proper waste disposal	5.1 Implementing housekeeping activities 5.2 Practicing proper waste disposal 5.3 Coordination skills

**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>RANGE</b>
1. Manufacturer's Specifications	<b>Manufacturer's specifications may include but not limited to:</b> 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	<b>Personal Protective Equipment may include but not limited to:</b> 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, earl plug
3. Workplace Health and Safety Requirements	<b>Workplace and Safety Requirements may include:</b> 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	<b>Safety measures may include but not limited to:</b> 4.1 Labeling of chemicals and other sanitizing agents 4.2 Installation of firefighting equipment in the work area 4.3 Installation of safety signage 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	<b>First Aid Procedures may include but not limited to:</b> 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	<b>Hazards in the workplace may include but not limited to:</b> 6.1 Physical 6.2 Biological 6.3 Chemical

**EVIDENCE GUIDE**

1. Critical aspects of competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Cleaned, checked and sanitized personal protective equipment</li> <li>1.2 Practiced proper personal hygiene and good grooming</li> <li>1.3 Implemented workplace food safety practices</li> <li>1.4 Applied first aid measures to victims</li> <li>1.5 Implemented good housekeeping activities in the work area</li> </ul>
2. Resource implications	<p><b>The following resources MUST be provided:</b></p> <ul style="list-style-type: none"> <li>2.1 Work area/station</li> <li>2.2 First Aid kit</li> <li>2.3 PPE relevant to the activities</li> <li>2.4 Fire extinguisher</li> <li>2.5 Stretcher</li> <li>2.6 Materials, tools and equipment relevant to the unit of competency</li> </ul>
3. Method of assessment	<p><b>Competency may be assessed through:</b></p> <ul style="list-style-type: none"> <li>3.1 A combination of direct observation and questioning of a candidate processing foods.</li> </ul>
4. Context of assessment	<ul style="list-style-type: none"> <li>4.1 Assessment should occur on the job or in a simulated workplace</li> </ul>

**UNIT OF COMPETENCY : USE STANDARD MEASURING DEVICES AND INSTRUMENTS****UNIT CODE : PFB751211****UNIT DESCRIPTOR : This unit covers skills and attitude required to use standard measuring devices, instruments in the workplace**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Identify Standard Measuring Devices and Instruments	1.1 <b><i>Standard measuring devices and instruments</i></b> are identified according to manufacturer's specifications 1.2 Devices and instruments for measuring are properly checked, sanitized and calibrated prior to use	1.1 Safe handling of measuring devices and instruments 1.2 Specifications and functions of measuring devices and instruments 1.3 Defects and breakages of measuring devices and instruments 1.4 Procedures in sanitizing and calibrating and stowing equipment and instruments	1.1 Communication skills 1.2 Sanitary handling of devices and instruments 1.3 Calibrating skills
2. Review the Procedures in Using Standard Measuring Devices and Instruments	2.1 Procedures in using the <b><i>standard measuring devices</i></b> and instruments are recalled according to manufacturer's specifications 2.2 Printed procedures/ brochures/ catalogues are consulted according to specified <b><i>food processing methods</i></b>	2.1 Procedures in using different standard measuring devices 2.2 Different food processing methods	2.1 Reading and following printed manuals and brochures 2.2 Using standard measuring devices

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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	3.1 Methods/practice of using measuring devices and instruments  3.2 Procedures in cleaning, and stowing equipment and instruments	3.1 Applying methods/practices in using measuring devices and instruments  3.2 Cleaning and stowing measuring devices and instruments

### RANGE OF VARIABLES

<b>VARIABLE</b>	<b>RANGE</b>
1. Standard Measuring Devices	<b>Standard Measuring Devices may include but not limited to the following:</b> 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	<b>Standard Measuring Instruments may include but not limited to the following:</b> 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	<b>Food Processing Methods include the following:</b> 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	<p><b>Assessment requires evidence that the candidate:</b></p> <p>1.1 Identified, prepared and calibrated standard measuring devices and instruments</p> <p>1.2 Followed correctly the procedures in using standard measuring devices and instruments</p> <p>1.3 Followed proper cleaning and sanitizing and stowing procedures of measuring devices and equipment before and after use</p>
2. Resource implications	<p><b>The following resources MUST be provided:</b></p> <p>2.1 Work area/station</p> <p>2.2 Materials, tools and equipment relevant to the Unit of Competency</p>
3. Method of assessment	<p><b>Competency may be assessed through:</b></p> <p>3.1 Direct observation and questioning of a candidate using measuring devices and instruments</p>
4. Context of assessment	<p>4.1 Assessment should occur on the job or in a simulated workplace</p>

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

**UNIT CODE : PFB751212**

**UNIT DESCRIPTOR :** This unit covers skills and attitude required to operate food processing tools, equipment and instruments in the workplace.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Perform pre-operation activities	1.1 Appropriate tools and equipment/utensils are assembled according to <b><i>food processing method</i></b> 1.2 <b><i>Food processing tools and equipment/utensils</i></b> are inspected and checked according to manufacturer's specifications 1.3 Food processing equipment is set up, adjusted and readied according to job requirements	1.1 Procedures in assembling equipment/utensils 1.2 Methods in inspecting food processing tools and equipment / utensils 1.3 Procedures in setting-up and adjusting equipment 1.4 Equipment, tools and instruments: Parts and Functions 1.5 Written and oral communication 1.6 Interpreting manufacturer's specifications 1.7 Following manufacturer's manual	1.1 Assembling equipment/ utensils 1.2 Inspecting and checking condition of equipment/ machines 1.3 Setting-up and adjusting food processing equipment 1.4 Reporting equipment/ machine, tools, instruments breakdown and recording same in standard forms 1.5 Communication skills

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Operate food processing equipment	2.1 Food processing equipment is switched on according to <b><i>manufacturer's specifications</i></b> 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	2.1 Procedures on operating food processing equipment 2.2 Inspection of equipment with conformity with required output 2.3 Equipment/ machine wear and tear process 2.4 Minor trouble shooting of food processing tools, equipment and utensils 2.5 Following manufacturer's manual 2.6 PPE 2.7 OSHS	2.1 Inspecting and checking condition of equipment/ machines 2.2 Performing minor troubleshooting



ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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 <b>Minor preventive maintenance</b> 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 <b>Condition of machine</b> is monitored to ensure serviceability in accordance with workplace rules and regulations	3.1 Procedures of shutting down food processing equipment 3.2 Inspection machine main parts 3.3 Main machine parts 3.4 Minor preventive maintenance 3.5 Monitoring procedures for condition of machine 3.6 Monitoring checklist 3.7 PPE 3.8 OSHS 3.9 Environmental rules and regulations 3.10 Sanitizing agents: Uses and Specification 3.11 Proper cleaning and stowing of tools and equipment/instruments	3.1 Shutting down food processing equipment 3.2 Sanitizing, cleaning and stowing measuring devices and instruments 3.3 Checking main machine parts 3.4 Performing minor preventive maintenance 3.5 Monitoring machine condition 3.6 Accomplishing monitoring checklist 3.7 Wearing PPE 3.8 Applying OSHS 3.9 Performing regular maintenance

**RANGE OF VARIABLES**

<b>VARIABLES</b>	<b>RANGE</b>
1. Food processing methods	<p><b>Food Processing Methods include:</b></p> <ul style="list-style-type: none"> <li>1.1 Salting</li> <li>1.2 Curing</li> <li>1.3 Smoking</li> <li>1.4 Fermentation</li> <li>1.5 Pickling</li> <li>1.6 Canning</li> <li>1.7 Bottling</li> <li>1.8 Sugar concentration</li> <li>1.9 Drying</li> <li>1.10 Dehydration</li> </ul>
2. Food processing tools, equipment and utensils	<p><b>Tools, equipment and utensils may include but not limited to:</b></p> <p><b>2.1 Tools</b></p> <ul style="list-style-type: none"> <li>○ Cutting implements such as: <ul style="list-style-type: none"> <li>○ Knives</li> <li>○ Slicer</li> <li>○ Vegetable cutter</li> <li>○ Cutter</li> <li>○ Peeler</li> </ul> </li> <li>○ Measuring spoons and cups</li> <li>○ Scales</li> <li>○ wire basket</li> <li>○ Blow torch</li> <li>○ steam jacketed kettle</li> <li>○ lifter</li> <li>○ Exhaust box</li> <li>○ Cooking tools like: <ul style="list-style-type: none"> <li>○ Saucepans</li> <li>○ Non-stick pan</li> </ul> </li> <li>○ Containers for Fermentation <ul style="list-style-type: none"> <li>○ large stoneware crocks</li> <li>○ food-grade plastic containers</li> <li>○ large glass jars</li> <li>○ a heavy plate or glass lid that fits down inside the container</li> </ul> </li> </ul>

VARIABLES	RANGE
	<p><b>2.2 Equipment,</b></p> <ul style="list-style-type: none"> <li>○ Cold storage equipment like: <ul style="list-style-type: none"> <li>○ refrigerators</li> <li>○ Chiller</li> </ul> </li> <li>○ Smoke house</li> <li>○ Food processor</li> <li>○ Sealers (can &amp; plastic)</li> <li>○ Jack lifts</li> <li>○ Soaking vat</li> <li>○ Meat grinder/chopper</li> <li>○ Meat slicer</li> <li>○ Sausage stuffer</li> <li>○ Vacuum packaging machine</li> <li>○ Machine sealer</li> <li>○ Soaking container</li> <li>○ Grinder</li> <li>○ Enamel kettle/vat</li> <li>○ Freezer</li> <li>○ Oven</li> <li>○ Pressure cooker</li> <li>○ Plastic protect cap sealer</li> <li>○ wheelers</li> <li>○ Stove/burner</li> <li>○ Tumbler</li> <li>○ Octo clam</li> <li>○ Trolleys</li> <li>○ Impulse sealer</li> <li>○ blanching machine</li> <li>○ Fermentation vat</li> <li>○ Sterilizer mixer</li> </ul> <p><b>2.3 Apparatus/Instruments</b></p> <ul style="list-style-type: none"> <li>○ Salinometer</li> <li>○ Weighing scales of varying capacities &amp; sensitivities</li> <li>○ Refractometer</li> <li>○ Politer</li> <li>○ Polyscalers</li> <li>○ Jelly thermometer</li> <li>○ Candy thermometer</li> </ul> <p><b>2.4 Utensils</b></p> <ul style="list-style-type: none"> <li>○ Kitchen utensils like: <ul style="list-style-type: none"> <li>○ Casserole</li> <li>○ Colanders</li> <li>○ Food tongs</li> <li>○ Wooden ladle</li> <li>○ Chopping boards</li> <li>○ Mixing bowls</li> <li>○ Spoon ladder</li> <li>○ Wooden spoon</li> </ul> </li> <li>○ Bowls made from: <ul style="list-style-type: none"> <li>○ Stoneware</li> <li>○ Aluminum</li> <li>○ Unchipped enamelware.</li> <li>○ Glass</li> <li>○ Stainless steel</li> </ul> </li> <li>○ Funnel</li> <li>○ Strainers</li> <li>○ Juice extractor</li> <li>○ Basting spoons paddle</li> <li>○ Smoking trays</li> <li>○ Food tray</li> <li>○ Strainer</li> <li>○ Exhauster</li> <li>○ Steamer</li> <li>○ Sorting tray</li> <li>○ Utility trays</li> </ul>
3. Manufacturer's specifications	<p><b>Manufacturer's specifications may include but not limited to:</b></p> <p>3.1 Handling requirements</p> <p>3.2 Operating requirements</p> <p>3.3 Discharge Label</p>

VARIABLES	RANGE
	3.4 Reporting 3.5 Testing 3.6 Positioning 3.7 Refilling
4. Minor preventive machine maintenance	<b>Minor Preventive Machine Maintenance may include but not limited to checking of the following:</b> 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	<b>Assessment requires evidence that the candidate:</b> 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. Methods of Assessment	<b>Competency in this unit must be assessed through:</b> 2.1 Direct observation and questioning of a candidate operating food processing tools and equipment/instruments 2.2 Submission of written report on the performance and condition of equipment/machine, tools, instruments used.
3. Resource Implications	<b>The following resources must be provided:</b> 3.1 Work area/station 3.2 Materials, tools and equipment relevant to the Unit of Competency
4. Context of Assessment	4.1 Assessment should occur on the job or in a simulated workplace

**UNIT OF COMPETENCY : PERFORM MATHEMATICAL COMPUTATIONS**

**UNIT CODE : PFB751213**

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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Gather and tabulate the recorded data	1.1 Records of <b>weights and measurements</b> 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	1.1 Data gathering 1.2 Record keeping 1.3 Data summary and analysis 1.4 Basic Mathematical Operations	1.1 Gathering data 1.2 Keeping of records 1.3 Summarizing and analyzing data 1.4 Basic Mathematical skills 1.5 Basic Accounting skills
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	2.1 Percentages and formulations of raw materials and ingredient and finished products 2.2 Procedures in checking raw materials and finished products formulation and percentages 2.3 Basic Mathematical Operations	2.1 Checking percentages formulations of raw materials and ingredient 2.2 Reviewing percentages and formulations of finished products 2.3 Numeracy skills

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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	3.1 Record keeping 3.2 Mensuration 3.3 Fraction, ratios and proportions 3.4 Basic Mathematical Operations 3.5 Conversion factors 3.6 Percentage formulation	3.1 Basic Mathematical skills 3.2 Recording skills
4. Compute production cost	4.1 <b>Costs of production</b> are computed according to organization's standard procedures 4.2 Computed costs of production are reviewed and validated according to organization's production requirements	4.1 Cost of production 4.2 Validation procedures for computer costs 4.3 Basic Mathematical Operations	4.1 Basic Mathematical skills 4.2 Basic Accounting skills 4.3 Reviewing and validating computed costs

**RANGE OF VARIABLES**

<b>VARIABLES</b>	<b>RANGE</b>
1. Weights and measurements	<b>Weights and measurements may include:</b> 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	<b>Costs of production are computed using the following:</b> 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	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Gathered the records of weights and measurements of raw materials/ingredients and finished processed products</li> <li>1.2 Summarized and tabulated all raw data gathered</li> <li>1.3 Calculated the production inputs and outputs</li> <li>1.4 Computed the costs of production</li> <li>1.5 Reviewed all formulations and concentrations of solutions according to specifications and standards of the enterprise</li> </ul>
2. Methods of Assessment	<p><b>Competency in this unit must be assessed through:</b></p> <ul style="list-style-type: none"> <li>2.1 A combination of direct observation and questioning of a candidate computing costs of production</li> <li>2.2 Submission of a written report showing a record of production data including raw data</li> </ul>
3. Resource Implications	<p><b>The following resources should be provided:</b></p> <ul style="list-style-type: none"> <li>3.1 Work area/station</li> <li>3.2 Materials relevant to recording and documentation of production data</li> <li>3.3 Computer with printer and software</li> <li>3.4 Calculator</li> <li>3.5 Work table</li> </ul>
4. Context of Assessment	<ul style="list-style-type: none"> <li>4.1 Assessment should occur on the job or in a simulated workplace</li> </ul>



**UNIT OF COMPETENCY : IMPLEMENT GOOD MANUFACTURING PRACTICE AND PROCEDURES**

**UNIT CODE : PFB751214**

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

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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	1.1 GMP Requirements 1.2 GMP Codes of practice, policies and procedures 1.3 GMP Role of internal and external auditors 1.4 Contamination events and performance improvement processes 1.5 Personal clothing and footwear requirements at work areas 1.6 Use of personal clothing, storage and disposal requirements 1.7 Micro biological, physical and chemical contaminants 1.8 Basic concepts of quality assurance 1.9 Control methods and procedures used in GMP	1.1 Planning and organizing work (time management) 1.2 Working with others and in teams 1.3 Practicing GMP 1.4 Following contamination investigation procedures

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		1.10 GMP responsibilities and requirements relating to work role 1.11 Basic properties, handling and storage requirements of raw materials, packaging components and final product 1.12 Standards for materials, equipment and utensils used in the work area 1.13 Recall and traceability procedures relevant to work role 1.14 Procedures for identifying or isolating materials or product of unacceptable quality 1.15 Record keeping and the recording requirements of GMP.	

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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	2.1 Workplace entry and exit procedures 2.2 Personal hygiene 2.3 PPE	2.1 Following workplace entry and exit procedures 2.2 Practicing OSHS 2.3 Practicing GMP
3. Implement GMP requirements when carrying out work activities	3.1 GMP requirements are identified 3.2 <b>Work area</b> , 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 standard	3.1 Monitoring methods of work area, materials and equipment 3.2 Handling of raw materials, packaging components and product 3.3 Control resource allocation and processes in the workplace 3.4 Contaminants 3.5 Good Manufacturing Practices (GMP)	3.1 Identifying GMP requirements 3.2 Monitoring routinely of work area, materials equipment and product 3.3 Handling of raw materials, packaging components and product 3.4 Maintaining cleanliness in the workplace

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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	4.1 Non-compliance and corrective action in GMP 4.2 Corrective actions	4.1 Practicing GMP 4.2 Reporting workplace condition 4.3 Implementing corrective measures
5. Participate in validation processes	5.1 Validation procedures are followed to GMP requirements 5.2 Issues arising from validation are raised with designated personnel 5.3 Validation procedures are documented to meet GMP requirements	5.1 Validation procedures in GMP 5.2 Issues arising from validation 5.3 Documentation of validation procedures	5.1 Following validation procedures 5.2 Reporting issues arising from validation 5.3 Documenting validation procedures
6. Complete workplace documentation to support GMP	6.1. Documentation and recording requirements are identified 6.2. Information is recorded according to <b>workplace reporting procedures</b> to meet GMP requirements	6.1. Documentation and workplace reporting procedures in GMP 6.2. Information and workplace reporting procedures	6.1. Keeping records 6.2. Recording information

**RANGE OF VARIABLES**

<b>VARIABLES</b>	<b>RANGE</b>
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. 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	<p><b>Assessment requires evidences that the candidate:</b></p> <p>1.1 Located and followed workplace information relating to GMP responsibilities</p> <p>1.2 Maintained personal hygiene consistent with GMP</p> <p>1.3 Followed workplace procedures when moving around the workplace and/or from one task to another to maintain GMP</p> <p>1.4 Used, stored and disposed of appropriate clothing/footwear as required by work tasks and consistent with GMP</p> <p>1.5 Identified and reported situations that do or could compromise GMP</p> <p>1.6 Applied appropriate control measures to control contamination</p>
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	<p>1.7 Recorded results of monitoring, and maintain records as required by GMP</p> <p>1.8 Followed validation procedures within level of responsibility</p> <p>1.9 Identified and responded to out-of-specification or unacceptable raw materials, packaging components, final or part processed product within level of responsibility</p> <p>1.10 Followed procedures to isolate or quarantine non-conforming product</p> <p>1.11 Handled, cleaned and stored equipment, utensils, raw materials, packaging components and related items according to GMP and workplace procedures</p> <p>1.12 Maintained GMP for own work</p> <p>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</p> <p>1.14 Maintained the work area in a clean and tidy state</p> <p>1.15 Identified and reported signs of pest infestation</p>
2. Resource Implication	<p><b>The following resources should be provided:</b></p> <p>2.1 Workplace location and access to workplace policies</p> <p>2.2 Materials relevant to the proposed activity and tasks</p>
3. Methods of Assessment	<p><b>Competency in this unit must be assessed using at least two (2) of the following methods:</b></p> <p>3.1 A combination of direct observation and oral questioning</p> <p>3.2 Written report</p> <p>3.3 Written Test Portfolio</p>
4. Context of Assessment	<p>Assessment should occur on the job or in a simulated workplace</p>

**UNIT OF COMPETENCY** : IMPLEMENT ENVIRONMENTAL POLICIES AND PROCEDURES

**UNIT CODE** : PFB751215

**UNIT DESCRIPTOR** : This unit covers skills and attitude required to implement environmental policies and procedures when carrying out work responsibilities

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
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. <b>Hazards</b> 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	1.1 Workplace approach to managing environmental issues 1.2 Responsibilities of self and employer to manage environmental issues on site 1.3 Sources of advice on environmental issues in the workplace 1.4 Environmental hazards and risks associated with the work 1.5 Work procedures as they relate to environmental responsibilities 1.6 Procedures used to prevent or control environmental risks associated with own work 1.7 Basic concepts of hazard identification, risk assessment	1.1 Planning and organizing work (time management) 1.2 Working with others and in teams 1.3 Practicing environmental skills environmental skills

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		and control options 1.8 Identifying and responding to hazards 1.9 Impact of work practices on resource utilization and wastage 1.10 Procedures used to handle and dispose of waste 1.11 The difference between trade waste and storm water drains 1.12 Consequences of inappropriate waste handling and disposal 1.13 Procedures for responding to unplanned incidents such as spills and leaks 1.14 Emergency response system and procedures 1.15 Responsible use of resources in own work area 1.16 Reporting procedures and responsibilities 1.17 Consultative processes in the workplace for raising issues/ suggestions on environmental issues.	



<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
2. Participate in improving environmental practices at work	<p>2.1 Processes or conditions which could result in an unacceptable environmental outcome are identified and reported according to workplace reporting requirements.</p> <p>2.2 Corrective action is taken in accordance with the environmental management and emergency response plans as required.</p> <p>2.3 Contributions are made to participative arrangements for managing environmental issues in the workplace within workplace procedures and level of responsibility.</p>	<p>2.1 Unacceptable environmental outcomes</p> <p>2.2 Corrective action</p> <p>2.3 Emergency response plan</p> <p>2.4 Improvement in environmental practices</p> <p>2.5 Report preparation</p>	<p>2.1 Identifying and reporting unacceptable environmental outcomes</p> <p>2.2 Implementing corrective actions</p> <p>2.3 Participating in improvement of environmental practices</p> <p>2.4 Practicing written communication skills</p>
3. Respond to an environmental emergency	<p>3.1 Emergency situations are identified and reported according to workplace reporting requirements</p> <p>3.2 Emergency procedures are followed as appropriate to the nature of the emergency and according to workplace procedures</p>	<p>3.1 Emergency situations</p> <p>3.2 Emergency procedures</p>	<p>3.1 Identifying emergency situations</p> <p>3.2 Following emergency procedures</p> <p>3.3 Practicing written communication skills</p>

**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>RANGE</b>
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	<p><b>Assessment requires evidences that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Accessed and apply workplace information on environmental policies and procedures relating to own work</li> <li>1.2 Fitted and used appropriate personal protective clothing and equipment</li> <li>1.3 Checked own work area to identify environmental hazards</li> <li>1.4 Reported hazards according to workplace procedure in a clear and timely manner</li> <li>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</li> <li>1.6 Recorded environmental information as required by the environmental management program</li> <li>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</li> <li>1.8 Followed procedures to collect, deposit, recycle and/or dispose of waste in own work area</li> <li>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</li> <li>1.10 Maintained housekeeping standards in work area</li> </ul>
2. Resource Implication	<p><b>The following resources should be provided:</b></p> <ul style="list-style-type: none"> <li>2.1 Workplace location and access to workplace policies</li> <li>2.2 Materials relevant to the proposed activity and tasks</li> </ul>
3. Methods of Assessment	<p><b>Competency in this unit must be assessed using at least two (2) of the following methods:</b></p> <ul style="list-style-type: none"> <li>3.1 A combination of direct observation and oral questioning</li> <li>3.2 Written report</li> <li>3.3 Written Test</li> <li>3.4 Portfolio</li> </ul>
4. Context of Assessment	4.1 Assessment should occur on the job or in a simulated workplace

## CORE COMPETENCIES

**UNIT OF COMPETENCY : PROCESS FOODS BY SALTING, CURING AND SMOKING**

**UNIT CODE : PFB751330**

**UNIT DESCRIPTOR :** This unit deals with the knowledge, skills and attitudes required to process foods by salting, curing and smoking. Include packaging using plastic bags only.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Prepare equipment tools, materials and utensils	1.1 <b>Equipment and tools</b> are <b>prepared</b> in accordance with manufacturer's specifications 1.2 <b>Processing materials</b> are sourced-out and made available according to work requirements. 1.3 <b>Kitchen utensils</b> are checked and sanitized in accordance with manufacturer's specifications. 1.4 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)	1.1 Inspection and checking procedures of various equipment, tools and utensils 1.2 Calibration of quality control tools 1.3 Calibration of weighing scales 1.4 Quality processing materials 1.5 Procedures on reporting of conditions and defects/ breakdown of equipment, tools and utensils to immediate head/supervisor 1.6 Methods of accomplishing inspection forms and checklists for preparation of equipment, tools and kitchen utensils 1.7 Basic components of a report 1.8 Proper waste disposal 1.9 Occupational Safety and Health Standards (OSHS) 1.10 Current Good Manufacturing Practices 1.11 Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and	1.1 Inspecting and checking skills 1.2 Calibrating of weighing scales and quality control tools such as thermometer, salinometer and refractometer 1.3 Selecting quality processing materials 1.4 Recording and reporting skills on the condition and defects of tools, utensils and equipment. 1.5 Practicing communication skills <ul style="list-style-type: none"> <li>• Interpersonal skills</li> <li>• Oral communication</li> <li>• Writing skills, accomplishing forms and checklist in line with preparation activities</li> </ul> 1.6 Following environment rules and regulations in segregating and

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		kitchen utensils Guidelines 1.12 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping 1.13 Halal guidelines 1.14 Knowledge on instructional manuals 1.15 Parts and functions of equipment, quality control tools/ instruments and utensils 1.16 Sources of good quality supplies and materials in line with preparation activities. 1.17 Regular upkeep of various equipment, tools and utensils 1.18 Preventive maintenance of various equipment and tools <b>Values</b> <ul style="list-style-type: none"> <li>• Socially responsible</li> <li>• Cost conscious</li> <li>• Creative</li> <li>• Resourceful</li> <li>• Self-starter</li> <li>• Nationalistic and patriotic</li> <li>• Self-esteem</li> <li>• Environmental and pollution conscious</li> <li>• Flexible/adaptable</li> <li>• Honest</li> <li>• Dependable</li> <li>• Innovative</li> <li>• Alert</li> <li>• Systematic and organized</li> <li>• Committed</li> <li>• Good listener and fast learner</li> <li>• Punctual/time conscious</li> </ul>	disposing wastes 1.7 Practicing OSHS such as wearing PPE (Personal Protective Equipment) 1.8 Practicing cGMP, SSOP and 7S of Housekeeping 1.9 Practicing sanitation in preparing various equipment, tools and utensils 1.10 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 1.11 Sourcing of quality supplies and materials according to specifications.

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Prepare the raw materials	<p>2.1 <b>Raw materials</b> are sorted and graded in accordance with product specifications and standards.</p> <p>2.2 Raw materials are <b>prepared</b> based on specified procedures and methods of processing.</p> <p>2.3 Cleaned raw materials are weighed in accordance with approved specifications.</p> <p>2.4 Tools and utensils for raw materials are used based on work requirements and manuals.</p> <p>2.5 Equipment are operated following manufacturer's manual.</p>	<p>2.1 Accepts and rejects</p> <p>2.2 Preparing procedures of raw materials</p> <p>2.3 Sorting and grading methods for raw materials</p> <p>2.4 Steps in using tools and operating equipment (weighing scales, food processor and cutter)</p> <p>2.5 Functions and uses of tools and utensils for raw material preparation</p> <p>2.6 Trimmings of raw materials</p> <p>2.7 Methods of accomplishing forms and checklists of raw materials as received and rejects</p> <p>2.8 Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</p> <p>2.9 Recording and reporting of inputs</p> <p>2.10 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>2.11 Conversions (metric and English system) for weights and measures</p> <p>2.12 Ratio and proportions for preparing raw materials</p> <p>2.13 Percentages</p> <p>2.14 Food safety principles and</p>	<p>2.1 Segregating reject raw materials</p> <p>2.2 Preparing raw materials</p> <p>2.3 Sorting and grading of raw materials</p> <p>2.4 Using tools and utensils</p> <p>2.5 Operating equipment such as weighing scales, food processor and cutter</p> <p>2.6 Practicing sanitation in preparation of raw materials</p> <p>2.7 Utilizing raw material trimmings</p> <p>2.8 Reading process flow charts for raw materials preparation</p> <p>2.9 Recording through accomplishing forms and checklist of raw materials as received and rejects including other inputs</p> <p>2.10 Recording and reporting skills on the condition and defects of tools, utensils and equipment.</p> <p>2.11 Interpersonal skills</p> <p>2.12 Oral communication skills</p> <p>2.13 Performing basic mathematical skills</p> <p>2.14 Performing conversions</p>

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		practices on raw materials preparations 2.15 Food handling practices on raw materials preparations 2.16 Proper waste disposal 2.17 Occupational Safety and Health Standards (OSHS) for raw materials preparations 2.18 Current Good Manufacturing Practices (cGMP) 2.19 Hazard Analysis & Critical Control Points (HACCP) basic principles 2.20 SSOP Guidelines 2.21 7S of Good Housekeeping 2.22 Halal guidelines 2.23 Kosher and organic food processing guidelines 2.24 Knowledge on instructional manuals 2.25 Parts and functions of equipment, quality control tools/ instruments and utensils 2.26 Sourcing of quality raw materials and ingredients 2.27 Regular upkeep of various equipment, tools and utensils 2.28 Preventive maintenance of various equipment and tools use for preparing raw materials  <b>Values</b> <b>Same as element # 1</b>	2.15 Practicing of sanitary food handling for raw materials preparations 2.16 Following environment rules and regulations in segregating and disposing wastes 2.17 Practicing OSHS such as wearing of PPE  2.18 Practicing cGMP, 7S HACCP and SSOP on preparing raw materials 2.19 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 2.20 Sourcing quality raw materials and ingredients
3. Cure raw materials	3.1 Required <i>ingredients</i> for salting and curing are measured and	3.1 Salting procedures and techniques 3.2 Curing procedures and techniques	3.1 Curing /Salting skills 3.2 Formulating and making curing

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>weighed in line with approved specifications and Philippine National Standards (PNS)</p> <p>3.2 <b>Curing solutions</b> are prepared in line with approved specifications and formulation.</p> <p>3.3 Tools and equipment are operated following instructional manuals.</p> <p>3.4 Raw materials are cured in accordance with curing conditions and enterprise requirements</p>	<p>3.3 Operation of various equipment (such as weighing scales and chiller) in line with curing procedures</p> <p>3.4 Using tools (such as salinometer and meat thermometer) and utensils in line with curing procedures</p> <p>3.5 Reporting procedures for defects, breakdown and irregularities during the curing activities to immediate head/supervisor</p> <p>3.6 Steps in recording inputs during curing activities using enterprise forms</p> <p>3.7 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>3.8 Conversions (metric and English system) for weights and measures</p> <p>3.9 Ratio and proportions and percentages of ingredients for formulation curing solution</p> <p>3.10 Food safety principles and practices for curing activities</p> <p>3.11 Food handling practices during curing operations</p> <p>3.12 Proper waste disposals</p> <p>3.13 Occupational Safety and Health Standards for curing activities</p> <p>3.14 HACCP basic principles</p> <p>3.15 Current Good Manufacturing</p>	<p>solutions and mixtures</p> <p>3.3 Operating weighing scales and chiller</p> <p>3.4 Using salinometer and meat thermometer</p> <p>3.5 Recording weights of ingredients used, time and temperature of curing / salting</p> <p>3.6 Reporting of any equipment malfunction, product or process non-conformance</p> <p>3.7 Accomplishing enterprise forms</p> <p>3.8 Reading process flow diagrams/flow charts</p> <p>3.9 Performing basic mathematical skills</p> <p>3.10 Performing conversions</p> <p>3.11 Computing ratio and proportions and percentages for formulation of curing solution.</p> <p>3.12 Applying environmental rules and regulations such waste segregation and disposals</p> <p>3.13 Practicing sanitary food handling practices on curing operations</p>



ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		Practices for curing raw materials 3.16 SSOP for curing of raw materials 3.17 Philippine National Standards on cured meats and smoked fish Guidelines 3.18 7S of Good Housekeeping 3.19 Halal guidelines 3.20 Kosher and organic food processing guidelines 3.21 Knowledge on instructional manuals 3.22 Parts and functions of equipment, quality control tools/ instruments and utensils 3.23 Sources of curing ingredients 3.24 Formulation and making of salting and curing solutions and mixtures 3.25 Regular upkeep of various equipment, tools and utensils 3.26 Preventive maintenance of various equipment and tools use for curing activities  <b>Values</b> <b>Same as element# 1</b>	3.14 Practicing OSHS such as wearing PPE 3.15 Practicing cGMP, 7S, HACCP, PNS on cured meats and SSOP on curing activities 3.16 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 3.17 Sourcing curing ingredients 3.18 Curing raw materials
4. Process cured materials	4.1 Cured materials are washed and drained in accordance with standard operating procedures. 4.2 <i>Post-curing processes</i> are performed in accordance to processing requirements. 4.3 Food safety measures are	4.1 Procedures of washing and draining of cured materials 4.2 Post-curing methods and techniques <ul style="list-style-type: none"> <li>• Smoking</li> <li>• Cooking</li> <li>• Cooling</li> <li>• Air drying</li> </ul> 4.3 Different types and parts of smokehouse 4.4 Sensory testing (visual, smell and taste)	4.1 Demonstrating washing and draining methods 4.2 Performing post-curing methods and techniques 4.3 Reading flow diagrams/flow charts 4.4 Recording time and temperature for post-curing processes through

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	practiced following PNS, HACCP and cGMP 4.4 Work safety practices are applied according to OSHS 4.5 Products are evaluated using <i>sensory testing</i> according to enterprise procedures	4.5 Reporting procedures for defects, irregularities and breakdown during processing of cured materials to immediate head/supervisor 4.6 Steps in recording time and temperature of post-curing processes 4.7 Accomplishing enterprise forms and checklist for post-curing activities 4.8 Food safety principles and practices for post-curing activities 4.9 Food handling practices for post-curing activities 4.10 Proper waste disposal 4.11 Occupational Safety and Health Standards for post-curing activities 4.12 HACCP basic principles 4.13 Good Manufacturing practices 4.14 SSOP for post-curing activities 4.15 Philippine National Standards on cured meats and smoked fish 4.16 7S of Good Housekeeping 4.17 Halal guidelines 4.18 Kosher and organic food processing guidelines 4.19 Knowledge on instructional manuals 4.20 Parts and functions of equipment, quality control tools/ instruments and utensils	accomplishing enterprise forms 4.5 Reporting of any equipment malfunction, product or process nonconformance 4.6 Practicing oral communication skills 4.7 Performing interpersonal skills 4.8 Applying environmental rules and regulations such waste segregation and disposals 4.9 Practicing sanitary food handling practices on post-curing activities 4.10 Practicing OSHS such as wearing PPE 4.11 Practicing cGMP, HACCP basic principles, SSOP, PNS and 7S on post-curing activities 4.12 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 4.13 Sourcing post-curing ingredients and materials 4.14 Maintaining smokehouse and facilities

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		4.21 Sourcing of post-curing ingredients and materials for smoking 4.22 Regular upkeep of various equipment, tools, utensils and smokehouse facilities 4.23 Preventive maintenance of various equipment and tools use in post-curing activities  <b>Values</b> Same as element # 1	4.15 Evaluating products through sensory testing
5. Pack processed cured materials	5.1 Processed cured materials are packed and weighed in accordance with product specifications 5.2 Processed cured products are sealed and labeled in accordance with product specifications 5.3 Packing procedures are practiced in accordance to cGMP 5.4 <b>Packing equipment</b> is operated in accordance with instructions manual 5.5 <b>Finished product inspection</b> is performed to ensure conformity with specifications. 5.6 Food safety practices are employed according to HACCP and cGMP	5.1 Different packing materials 5.2 Packing procedures and techniques 5.3 Primary, secondary, and tertiary packaging 5.4 Labeling information <ul style="list-style-type: none"> <li>• Name of products</li> <li>• Net weight</li> <li>• Ingredients</li> <li>• Production/expiry date</li> <li>• Manufacturer's address</li> <li>• Allergen program</li> </ul> 5.5 Sealing procedures and techniques 5.6 Different packing equipment 5.7 Steps of operating packing equipment 5.8 Checking techniques for finished products 5.9 Reporting of defects, irregularities and breakdown during packing operations to immediate head/supervisor 5.10 Accomplishing enterprise forms for recording of products weights 5.11 Recording of non-conformance packed products	5.1 Packing skills for processed cured materials 5.2 Labeling and sealing skills for processed cured products 5.3 Operating packing equipment such as sealer 5.4 Inspecting finished products for conformance to specifications 5.5 Reading flow diagrams/flow charts 5.6 Recording of finished products weights using enterprise forms/checklist 5.7 Reporting of any equipment malfunction, product or process nonconformance during packing operations 5.8 Practicing oral communication skills 5.9 Performing interpersonal skills

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	5.7 Work safety measures are applied in accordance with OSHS.	5.12 Four fundamental operations (addition, subtraction, multiplication and division) 5.13 Conversions (metric and English system) for weights of packed products 5.14 Food safety principles and practices for packing operations 5.15 Food handling practices for packing operations 5.16 Proper waste disposal 5.17 Occupational Safety and Health standards for packing operations 5.18 HACCP basic principles 5.19 Current Good Manufacturing practices 5.20 SSOP of packing operations 5.21 PNS on cured meats and smoked fish 5.22 7S of Good Housekeeping 5.23 Halal guidelines 5.24 Knowledge on instructional manuals 5.25 Parts and functions of packing equipment 5.26 Sourcing of packing materials for finished products 5.27 Regular upkeep of various equipment, tools, utensils and packing facilities 5.28 Preventive maintenance of packing equipment and tools  <b>Values</b> Same as element # 1	5.10 Performing basic mathematical skills 5.11 Performing conversions 5.12 Applying environmental rules and regulations such waste segregation and disposals 5.13 Practicing sanitary food handling during packing operations 5.14 Practicing OSHS such as wearing of PPE 5.15 Practicing cGMP, 7S, SSOP, PNS and HACCP 5.16 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 5.17 Sourcing packing materials 5.18 Maintaining packing areas and facilities
6. Perform post-	6.1. Packed finished food products are stored	6.1. Different storage conditions	6.1. Storing packaged food products

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
production activities	<p>according to required <b>storage condition</b></p> <p>6.2. Tools, materials and equipment are cleaned and stored based on workplace procedures and operation manuals</p> <p>6.3. Proper disposal of wastes are practiced according to environmental rules and regulations.</p> <p>6.4. <b>Production data</b> checklist is accomplished according to enterprise protocol</p>	<p>6.2. Operation of storage equipment (chiller/freezer)</p> <p>6.3. Storing procedures and techniques for packed products</p> <p>6.4. Cleaning and storing methods for equipment, tools and utensils</p> <p>6.5. Storing procedures for excess materials and ingredients</p> <p>6.6. Production data</p> <p>6.7. Recording of storage time and temperature.</p> <p>6.8. Preparation of daily production input report (spoilage and rejects)</p> <p>6.9. Recording procedures of production data using enterprise forms</p> <p>6.10. Reporting procedures on conditions of tools, equipment and utensils to immediate head/ supervisor.</p> <p>6.11. Inventory of excess materials and of finished products</p> <p>6.12. Proper waste disposal</p> <p>6.13. Occupational Safety and Health Standards on post production activities</p> <p>6.14. HACCP basic principles on storage of finished products</p> <p>6.15. Current Good Manufacturing practices</p> <p>6.16. SSOP of post-production activities</p> <p>6.17. PNS on storage of finished products</p> <p>6.18. 7S of Good Housekeeping</p> <p>6.19. Halal guidelines</p> <p>6.20. Knowledge on instructional manuals</p>	<p>6.2. Cleaning and storing of equipment, tools and utensils</p> <p>6.3. Storing excess materials and ingredients</p> <p>6.4. Recording of storage time and temperature for finished products</p> <p>6.5. Recording of spoilage and rejects</p> <p>6.6. Recording of production data</p> <p>6.7. Accomplishing/ completing enterprise forms and checklist on packing activities</p> <p>6.8. Practicing interpersonal skills</p> <p>6.9. Demonstrating oral communication skills</p> <p>6.10. Accomplishing inventory forms</p> <p>6.11. Demonstrating basic mathematical skills for production data recording</p> <p>6.12. Following environmental rules and regulations such as wastes segregating and disposals.</p> <p>6.13. Practicing sanitary food handling upon storing finished products</p> <p>6.14. Practicing OSHS such as wearing PPE during post</p>

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		6.21. Parts and functions of all equipment, tools and utensils used in salting, curing and smoking operations, including storage ingredients 6.22. Basic arithmetical operations like multiplication, division, addition and subtraction 6.23. Inventory of equipment, tools, utensils and materials 6.24. Environmental protection and concern 6.25. Food safety principles and practices for storage equipment 6.26. Sourcing of cleaning materials during shutting down operations 6.27. Regular upkeep of various equipment, tools, utensils and packing facilities 6.28. Preventive maintenance of equipment, tools and utensils use in post-production activities 6.29. Maintenance of storage facilities and room <b>Values</b> Same as element # 1	production activities 6.15. Practicing cGMP, 7S, SSOP, PNS and HACCP 6.16. Maintaining various equipment, tools and utensils such as cleaning and sanitizing 6.17. Stowing of equipment, tools, utensils and materials 6.18. Sourcing cleaning materials 6.19. Maintaining working areas and storage facilities

**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>SCOPE</b>
1. Equipment and tools	<p><b>Equipment and tools may include:</b></p> <p>1.1 Equipment</p> <p>1.1.1 Smokehouse</p> <p>1.1.2 Chiller/refrigerator</p> <p>1.1.3 Freezer</p> <p>1.1.4 Cooking vats</p> <p>1.1.5 Drying Oven (Optional)</p> <p>1.1.6 Trolleys/ wheelers</p> <p>1.1.7 Grinder and stuffer</p> <p>1.1.8 Weighing scales of varying capacities and sensitivities</p> <p>1.1.9 Impulse sealer/ Pouch tray</p> <p>1.1.10 Stove</p> <p>1.1.11 Pressure cooker</p> <p>1.1.12 Vacuum packaging machine</p> <p>1.1.13 Meat slicer (Optional)</p> <p>1.1.14 Tie linker (Optional)</p> <p>1.1.15 Steamer</p> <p>1.2 Tools</p> <p>1.2.1 Syringe/needles</p> <p>1.2.2 Soaking vats</p> <p>1.2.3 Frying vats (Kawa)</p> <p>1.2.4 Salinometer</p> <p>1.2.5 Probe thermometer</p> <p>1.2.6 Timer</p> <p>1.2.7 Graduated cylinder</p> <p>1.2.8 Measuring/liquid cups</p> <p>1.2.9 Funnel</p> <p>1.2.10 Calculator</p> <p>1.2.11 Knives</p> <p>1.2.12 Sharpening stones/steel</p> <p>1.2.13 Kitchen shears</p> <p>1.2.14 Chopping board</p> <p>1.2.15 Stirring rod/ Wooden ladle</p> <p>1.2.16 Set of weights</p>
2. Preparation of equipment and tools	<p><b>Preparation of equipment and tools includes:</b></p> <p>2.1 Sanitation</p> <p>2.2 Calibration/adjustments</p> <p>2.3 Checking/inspecting</p> <p>2.3.1 Equipment performance</p> <p>2.3.2 Defective equipment and tools</p>
3. Processing materials	<p><b>Processing materials may include:</b></p> <p>3.1 Smoking materials</p> <p>3.1.1 Wood</p> <p>3.1.2 Unprocessed wood chips</p> <p>3.1.2 Wood shavings</p> <p>3.1.3 Coconut husks &amp; shells</p>

VARIABLE	SCOPE
	3.1.4 Corn cobs 3.1.5 Saw dust 3.2 Raw materials 3.3 Salting and curing ingredients 3.4 Ham nets 3.5 Packaging materials 3.5.1 Sausage casings 3.5.2 Plastic bags
4. Kitchen utensils	<b>Kitchen utensils may include:</b> 4.1 Casseroles 4.2 Non-stick frying pan 4.3 Food turner 4.4 Mixing bowls 4.5 Chopping boards 4.6 Colander 4.7 Saucepans 4.8 Utility trays 4.9 Food tongs 4.10 Mixing implements 4.11 Cutting implements like knives, slicers, peelers 4.12 Knife honer/honing steel 4.13 Whetstone (carborandum)
5. Raw Materials	<b>Raw materials include:</b> 5.1 Eggs 5.2 Poultry 5.3 Meat 5.4 Fish
6. Preparation of raw materials	<b>Preparation may include:</b> 6.1 Cleaning 6.2 Washing 6.3 Descaling 6.4 Eviscerating 6.5 Deboning 6.6 Filleting 6.7 Slicing 6.8 Deskinning 6.9 Chopping 6.10 Mincing
7. Ingredients	<b>Ingredients may include:</b> 7.1 Salt 7.2 Sugar 7.3 Condiments 7.4 Spices 7.5 Herbs 7.6 Food-grade colorants 7.7 Food Additives for curing 7.8 Liquid smoke (flavoring)
8. Curing solutions	<b>Curing solution includes:</b>



VARIABLE	SCOPE
	8.1. Pumping pickle 8.2. Cover pickle 8.3. Dry cure mixture
9. Post curing processes	<b>Post curing processes include:</b> 9.1. Drying 9.2. Smoking 9.3. Cooking 9.4. Cooling 9.5. Air drying
10. Finished product inspection	<b>Finished products inspection includes:</b> 10.1 Package integrity 10.2 Appropriateness of label 10.3 Conformance to product specifications
11. Packing equipment	<b>Packing equipment may include:</b> 11.1 Impulse sealer 11.2 Band sealer 11.3 Vacuum sealer
12. Storage Conditions	<b>Storage conditions include:</b> 12.1 Room/ambient temperature (27C-30C) 12.2 Chilling (0-4°C) 12.3 Freezing (-18°C or colder)
13. Production Data	<b>Production data include:</b> 13.1 Production schedule 13.2 Production target 13.3 Production input <ul style="list-style-type: none"> <li>13.3.1 Raw Materials</li> <li>13.3.2 Ingredients</li> <li>13.3.3 Processing materials</li> <li>13.3.4 Packaging materials</li> </ul> 13.4 Production output <ul style="list-style-type: none"> <li>13.3.5 Quantity of finished goods</li> <li>13.3.6 Rejects</li> <li>13.3.7 Yields</li> </ul>

**EVIDENCE GUIDE**

1. Critical Aspects of Competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ol style="list-style-type: none"> <li>1.1. Prepared equipment, tools, materials and utensils used for curing, salting and smoking</li> <li>1.2. Prepared the raw materials for curing, salting and smoking</li> <li>1.3. Cured raw materials</li> <li>1.4. Processed cured materials</li> <li>1.5. Packed processed cured materials</li> <li>1.6. Performed post-production activities</li> <li>1.7. Followed PNS requirements for usage of food additives</li> <li>1.8. Practiced cGMP, HACCP, SSOP, 7S of Good Housekeeping and OSHS for curing, salting and smoking</li> </ol>
2. Resource Implications	<p><b>The following resources should be provided:</b></p> <ol style="list-style-type: none"> <li>2.1 Specific work area/station</li> <li>2.2 Equipment, tools and utensils to be prepared for salting, curing and smoking</li> <li>2.3 Fish/other marine products, meat, poultry and eggs to be processed by salting, curing and smoking</li> <li>2.4 Materials relevant to the proposed activity</li> </ol>
3. Methods of Assessment	<p><b>Competency in this unit must be assessed using at least two (2) of the following methods:</b></p> <ol style="list-style-type: none"> <li>3.1 A combination of direct observation and questioning of a candidate processing foods by salting, curing and smoking</li> <li>3.2 Written test</li> <li>3.3 Demonstration</li> <li>3.4 Portfolio</li> </ol>
4. Context of Assessment	4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

**UNIT OF COMPETENCY** : **PROCESS FOODS BY FERMENTATION AND PICKLING**  
**UNIT CODE** : **PFB751331**  
**UNIT DESCRIPTOR** : This unit deals with the knowledge, skills and attitudes required to process foods by fermentation and pickling

ELEMENT	PERFORMANCE CRITERIA	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<i>Italicized terms</i> are elaborated in the Range of Variables		
1. Prepare equipment, tools, materials and utensils	1.1 <b>Equipment and tools</b> are prepared in accordance with manufacturer's specifications 1.2 <b>Processing materials</b> are sourced-out and made available according to work requirements 1.3 <b>Kitchen utensils</b> are checked and sanitized in accordance with manufacturer's specifications. 1.4 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)	1.1 Uses and functions of equipment, tools and utensils. 1.2 Inspection and checking procedures of various equipment, tools and utensils 1.3 Calibration of quality control tools 1.4 Calibration of weighing scales 1.5 Testing methods of equipment 1.6 Cleaning procedures of weighing scales 1.7 Sanitation methods of kitchen utensils 1.8 Procedures on reporting of conditions and defects/ breakdown of equipment, tools and utensils to immediate head/supervisor 1.9 Methods of accomplishing inspection forms and checklists for preparation of equipment, tools and kitchen utensils 1.10 Basic components of a report 1.11 Proper waste disposal 1.12 Occupational Safety and Health Standards (OSHS) 1.13 Current Good Manufacturing Practices	1.1 Inspecting and checking skills 1.2 Calibrating of weighing scales and quality control tools such as pH meter. 1.3 Testing of equipment 1.4 Cleaning and sanitizing kitchen utensils 1.5 Recording and reporting skills on the condition and defects of tools, utensils and equipment. 1.6 Practicing communication skills Interpersonal skills Oral communication Writing skills, accomplishing forms and checklist in line with preparation activities 1.7 Following environment rules and regulations in segregating and disposing wastes 1.8 Practicing OSHS such as wearing PPE Personal Protective Equipment) 1.9 Practicing cGMP, SSOP and 7S 1.10 Practicing sanitation in

		<p>1.14 Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and kitchen utensils Guidelines</p> <p>1.15 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</p> <p>1.16 Halal guidelines</p> <p>1.17 Usage of instructional manuals</p> <p>1.18 Parts and functions of equipment, quality control tools/ instruments and utensils</p> <p>1.19 Sources of good quality supplies and materials in line with preparation activities.</p> <p>1.20 Regular upkeep of various equipment, tools and utensils</p> <p>1.21 Preventive maintenance of various equipment and tools</p> <p><b>Values:</b></p> <ul style="list-style-type: none"> <li>• Self- esteem</li> <li>• Time conscious/</li> <li>• Punctual</li> <li>• Flexible/</li> <li>• Adaptable</li> <li>• Honest</li> <li>• Dependable</li> <li>• Self-starter</li> <li>• Alert</li> <li>• Systematic and organized</li> <li>• Committed</li> <li>• Good team worker</li> <li>• Good listener and fast learner</li> <li>• Creative</li> <li>• Nationalistic and patriotic</li> </ul>	<p>preparing various equipment, tools and utensils</p> <p>1.11 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>1.12 Sourcing quality supplies and processing materials according to specifications.</p> <p>1.13 Preparing processing materials</p>
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**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>RANGE</b>
1. Equipment and tools	<p><b>Equipment and tools may include the following:</b></p> <p><b>Equipment:</b></p> <ul style="list-style-type: none"> <li>1.1 Cold storage equipment like chiller, refrigerator, freezer,</li> <li>1.2 Trolleys</li> <li>1.3 Weighing scale of various capacities and sensitivities</li> <li>1.4 Food processor</li> <li>1.5 Plastic impulse sealer</li> <li>1.6 Cooking vat</li> </ul> <p><b>Tools and instruments</b></p> <ul style="list-style-type: none"> <li>1.7 Probe thermometer</li> <li>1.8 Timer</li> <li>1.9 pH meter</li> <li>1.10 calculator</li> <li>1.11 Fermentation vats</li> </ul>
2. Processing materials	<p><b>Processing materials may include:</b></p> <ul style="list-style-type: none"> <li>2.1 Water</li> <li>2.2 Sugar</li> <li>2.3 Salt</li> <li>2.4 Yeast</li> <li>2.5 Mother vinegar</li> </ul>
3. Kitchen utensils	<p><b>Kitchen utensils may include the following:</b></p> <ul style="list-style-type: none"> <li>3.1 Casserole,</li> <li>3.2 colanders</li> <li>3.3 bowls</li> <li>3.4 food tongs</li> <li>3.5 strainers</li> <li>3.6 basting spoon</li> <li>3.7 paddle</li> <li>3.8 lifter</li> <li>3.9 wire baskets</li> </ul> <p><b>Cutting implements such as</b></p> <ul style="list-style-type: none"> <li>3.10 knives,</li> <li>3.11 peelers,</li> <li>3.12 slicer,</li> <li>3.13 cutter,</li> <li>3.14 chopping boards</li> </ul>
4. Raw materials	<p><b>Raw materials include:</b></p> <ul style="list-style-type: none"> <li>4.1 Fruits and fruit juices <ul style="list-style-type: none"> <li>4.1.1 Coco water</li> </ul> </li> <li>4.2 Fish and Other marine products</li> </ul>

5. Sorting and grading criteria	<p>5.1 Fresh fruits and vegetable crops are sorted and graded according to:</p> <ul style="list-style-type: none"> <li>5.1.1 size</li> <li>5.1.2 shape</li> <li>5.1.3 maturity</li> <li>5.1.4 degree of ripeness</li> <li>5.1.5 presence/absence of defects/damaged parts</li> </ul> <p>5.2 Fish and other marine products are checked and sorted according to:</p> <ul style="list-style-type: none"> <li>5.2.1 level of spoilage</li> <li>5.2.2 quality of eyes, gills and scales</li> </ul>
6. Preparation of raw materials	<p><b>Preparation of raw materials includes:</b></p> <ul style="list-style-type: none"> <li>6.1. Removal of foreign matters</li> <li>6.2. Cleaning and washing</li> <li>6.3. Peeling</li> <li>6.4. Slicing</li> <li>6.5. Mincing</li> </ul>
7. Fermentation procedures	<p><b>Fermentation procedures include:</b></p> <ul style="list-style-type: none"> <li>7.1. Alcoholic fermentation for wine</li> <li>7.2. Acetic acid fermentation for vinegar</li> </ul>
8. Post fermentation procedures	<p><b>Post fermentation procedures include:</b></p> <ul style="list-style-type: none"> <li>8.1. Siphoning and ageing</li> <li>8.2. Clarifying of mixture</li> <li>8.3. Heating of fermented products</li> <li>8.4. Addition of food grade alcohol (optional)</li> <li>8.5. Pasteurization</li> </ul>
9. Sensory testing	<p><b>Sensory testing includes:</b></p> <ul style="list-style-type: none"> <li>9.1. Visual (color and appearance)</li> <li>9.2. Smell (aroma)</li> <li>9.3. Flavor</li> </ul>
10. Ingredients	<p><b>Ingredients may include:</b></p> <ul style="list-style-type: none"> <li>10.1. Refined sugar</li> <li>10.2. Salt</li> <li>10.3. Water</li> <li>10.4. Spices</li> <li>10.5. Herbs</li> <li>10.6. Condiments</li> </ul>
11. Pickling procedure	<p><b>Pickling procedure include:</b></p> <ul style="list-style-type: none"> <li>11.1 Desalination</li> <li>11.2 Pasteurization</li> </ul>
12. Fermented products	<p><b>Fermented products include:</b></p> <ul style="list-style-type: none"> <li>12.1 Fish paste</li> <li>12.2 Shrimp paste</li> <li>12.3 Fish sauce</li> </ul>
13. Integrity of seal	<p><b>Integrity of seal includes:</b></p> <ul style="list-style-type: none"> <li>13.1 Absence of leaks</li> <li>13.2 Absence of pin holes</li> <li>13.3 Absence of fold and creases</li> </ul>
14. Production data	<p><b>Production data include:</b></p>

	<ul style="list-style-type: none"> <li>14.1 Production schedule</li> <li>14.2 Production target</li> <li>14.3 Production input <ul style="list-style-type: none"> <li>14.3.1 Raw Materials</li> <li>14.3.2 Ingredients</li> <li>14.3.3 Processing materials</li> <li>14.3.4 Packaging materials</li> </ul> </li> <li>14.4 Production output <ul style="list-style-type: none"> <li>14.4.1 Quantity of finished goods</li> <li>14.4.2 Rejects</li> <li>14.4.3 Yields</li> </ul> </li> </ul>
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## EVIDENCE GUIDE

1. Critical Aspects of Competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Prepared equipment, tools, materials and utensils</li> <li>1.2 Prepared the raw materials</li> <li>1.3 Performed alcoholic and acetic acid fermentation</li> <li>1.4 Performed pickling activities</li> <li>1.5 Performed lactic acid fermentation</li> <li>1.6 Packed fermented products</li> <li>1.7 Conducted post- production activities</li> <li>1.8 Practiced cGMP, HACCP, 7S of Good Housekeeping, SSOP and OSHS</li> </ul>
2. Methods of Assessment	<p><b>Competency in this unit must be assessed using at least two (2) of the following methods:</b></p> <ul style="list-style-type: none"> <li>2.1 A combination of direct observation and questioning</li> <li>2.2 Demonstration</li> <li>2.3 Written test</li> <li>2.4 Portfolio</li> </ul>
3. Resource Implications	<p><b>The following resources should be provided:</b></p> <ul style="list-style-type: none"> <li>3.1 Work area/ station</li> <li>3.2 Equipment, tools and utensils to prepare and to process fruits, vegetables, fish and other marine products by fermentation and pickling</li> <li>3.3 Materials relevant to the proposed activity</li> </ul>
4. Context of Assessment	<ul style="list-style-type: none"> <li>4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.</li> </ul>

**UNIT OF COMPETENCY : PROCESS FOOD BY SUGAR CONCENTRATION**

**UNIT CODE : PFB751332**

**UNIT DESCRIPTOR :** This unit deals with the knowledge, skills and attitudes required to process foods by sugar concentration which include to prepare equipment, tools, materials and utensils, prepare the raw materials, pack sugar concentrated products and perform post- production activities.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Prepare equipment, tools, materials and utensils	1.1 <b>Equipment and tools</b> are prepared in accordance with manufacturer's specifications 1.2 <b>Processing materials</b> are sourced-out and made available according to work requirements. 1.3 <b>Kitchen utensils</b> are checked and sanitized in accordance with manufacturer's specifications. 1.4 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)	1.1 Types of equipment and tools for processing food by sugar concentration 1.2 Inspection and checking procedures of various equipment, tools and utensils 1.3 Calibration of quality control tools 1.4 Calibration of weighing scales 1.5 Procedures on reporting of conditions and defects/ breakdown of equipment, tools and utensils to immediate head/supervisor 1.6 Methods of accomplishing inspection forms and checklists for preparation of equipment, tools and kitchen utensils 1.7 Basic components of a report	1.1 Inspecting and checking skills 1.2 Calibrating of weighing scales and quality control tools such as thermometer, and refractometer 1.3 Recording and reporting skills on the condition and defects of tools, utensils and equipment. 1.4 Accomplishing of monitoring checklist 1.5 Sourcing of processing materials 1.6 Checking and sanitizing kitchen utensils 1.7 Communication skills 1.1.1 Interpersonal skills 1.1.2 Oral communication 1.1.3 Writing skills, accomplishing forms and checklist in line with preparation activities 1.8 Following environment rules and regulations in



ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		1.8 Process materials sourcing 1.9 Sanitation of kitchen utensils 1.10 Proper waste disposal 1.11 Occupational Safety and Health Standards <b>(OSHS)</b> 1.12 Current Good Manufacturing Practices 1.13 Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and kitchen utensils 1.14 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping 1.15 OSHS 1.16 Halal guidelines 1.17 Kosher guidelines 1.18 Usage of instructional manuals 1.19 Parts and functions of equipment, quality control tools/ instruments and utensils 1.20 Source of good quality supplies and materials in line with	segregating and disposing wastes 1.9 Practicing OSHS such as wearing PPE Personal Protective Equipment) 1.10 Practicing cGMP, SSOP and 7S 1.11 Practicing sanitation in preparing various equipment, tools and utensils 1.12 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 1.13 Sourcing quality supplies and materials according to specifications

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		preparation activities.  1.21 Regular upkeep of various equipment, tools and utensils 1.22 Preventive maintenance of various equipment and tools  <b>Values:</b> <ul style="list-style-type: none"> <li>• Self-esteem</li> <li>• Punctual/Time conscious</li> <li>• Cost conscious</li> <li>• Environmental and pollution conscious</li> <li>• Flexible/adaptable</li> <li>• Honest</li> <li>• Socially responsible</li> <li>• Dependable</li> <li>• Innovative</li> <li>• Alert</li> <li>• Systematic and organized</li> <li>• Committed</li> <li>• Good listener and fast learner</li> <li>• Creative</li> <li>• Resourceful</li> <li>• Self-starter</li> <li>• Nationalistic and patriotic</li> </ul>	
2. Prepare the raw materials	2.1 <b>Raw materials</b> are sorted and graded in accordance with product specifications and standards. 2.2 Sorted fruits are <b>prepared</b> according to required forms and target finished product 2.3 Prepared fruits for jelly and marmalade making are boiled to	2.1 Identifying acceptable quality raw materials and other ingredients used to preserve fruits by sugar concentration 2.2 Preparing procedures of raw materials 2.3 Sorting and grading methods for raw materials	2.1 Sorting and grading of raw materials 2.2 Segregating reject raw materials 2.3 Preparing sorted fruits 2.4 Performing jelly and marmalade making 2.5 Using tools and utensils 2.6 Operating equipment such

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	<p>obtain the juice extract</p> <p>2.4 Required amounts of pectin (jams and jellies), sugar and citric acid are measured according to specifications</p> <p>2.5 Tools and utensils for raw materials are used based on work requirements and manuals.</p> <p>2.6 Equipment are operated following manufacturer's manual.</p>	<p>2.4 Preparation of sorted fruits</p> <p>2.5 Jelly and marmalade making</p> <p>2.6 Measurement of required pectin, sugar and citric acid</p> <p>2.7 Steps in using tools and operating equipment (weighing scales, food processor, pH meter and cutter)</p> <p>2.8 Functions and uses of tools and utensils for raw material preparation</p> <p>2.9 Trimmings of raw materials</p> <p>2.10 Procedure in testing pectin content, total soluble solids (TSS) and pH</p> <p>2.11 Methods of accomplishing forms and checklists of raw materials as received and rejects</p> <p>2.12 Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</p> <p>2.13 Recording and reporting of inputs</p>	<p>as weighing scales, food processor, cutter</p> <p>2.7 Practicing sanitation in preparation of raw materials</p> <p>2.8 Utilizing raw material trimmings</p> <p>2.9 Preparing Acid and Sugar Mixture and Pectin</p> <p>2.10 Testing pectin concentration</p> <p>2.11 Determining TSS and ph</p> <p>2.12 Reading process flow charts for raw materials preparation</p> <p>2.13 Recording through accomplishing forms and checklist of raw materials as received and rejects including other inputs</p> <p>2.14 Recording and reporting skills on the condition and defects of tools, utensils and equipment.</p> <p>2.15 Interpersonal skills</p> <p>2.16 Oral communication skills</p> <p>2.17 Computing brix/acid ratio</p> <p>2.18 Performing basic mathematical skills</p> <p>2.19 Performing conversions</p> <p>2.20 Acid ratio adjustment and computation</p>

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		2.14 Four fundamental operations (addition, subtraction, multiplication and division) 2.15 Conversions (metric and English system) for weights and measures 2.16 Ratio and proportions for formulation of 2.17 Percentages 2.18 Food safety principles and practices on raw materials preparations 2.19 Food handling practices on raw materials preparations 2.20 Proper waste disposal 2.21 Occupational Safety and Health Standards (OSHS) for raw materials preparations 2.22 Current Good Manufacturing Practices 2.23 Hazard Analysis & Critical Control Points (HACCP) basic principles 2.24 Philippine Quality Challenge (PQC) and 2.25 ISO, HACCP, EMS (Environmental Management System)	2.21 Practicing of sanitary food handling for raw materials preparations 2.22 Following environment rules and regulations in segregating and disposing wastes 2.23 Practicing OSHS such as wearing of PPE 2.24 Practicing cGMP, 7S HACCP, SSOP and AQL on preparing raw materials 2.25 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 2.26 Sourcing quality raw materials and ingredients

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		2.26 Acceptable Quality Level (AQL) of raw materials and ingredients 2.27 SSOP Guidelines 2.28 7S of Good Housekeeping 2.29 Halal guidelines 2.30 Kosher and organic food processing guidelines 2.31 Usage of instructional manuals 2.32 Parts and functions of equipment, quality control tools/ instruments and utensils 2.33 Sourcing of quality raw materials and ingredients 2.34 Regular upkeep of various equipment, tools and utensils 2.35 Preventive maintenance of various equipment and tools use for preparing raw materials  <b>Values:</b> Same as element # 1	
3. Cook sugar concentrates	3.1 Prepared fruits in any form are blended with sugar mixture 3.2 Mixture is cooked to required temperature and total soluble solids	3.1 Blending, cooking and cooling procedures 3.2 Sugar Preserves Product Standards: <ul style="list-style-type: none"> <li>• Jam</li> </ul>	3.1 Performing blending, cooking and cooling procedures 3.2 Determining required temperature and TSS

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	3.3 Desired endpoint is checked using spoon test.	<ul style="list-style-type: none"> <li>• Jellies</li> <li>• Marmalade</li> <li>• Fruit juice concentrate</li> <li>• Candied fruits</li> </ul> 3.3 Methods of calibrating and using thermometer and refractometer 3.4 Spoon test 3.5 Methods of accomplishing enterprise forms for temperature and TSS monitoring 3.6 Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor 3.7 Recording and reporting of inputs 3.8 Four fundamental operations (addition, subtraction, multiplication and division) 3.9 Conversions (metric and English system) for temperature and TSS 3.10 Food safety principles and practices on cooking of sugar concentrates 3.11 Food handling practices on	3.3 Determining and checking correct endpoint of different product standards 3.4 Calibrating refractometer 3.5 Reading temperature and refractometer 3.6 Demonstrating spoon testing 3.7 Reading process flow charts for cooking sugar concentrates 3.8 Recording through accomplishing forms including other inputs 3.9 Recording and reporting skills on the condition and defects of tools, utensils and equipment. 3.10 Interpersonal skills 3.11 Oral communication skills 3.12 Performing basic mathematical skills 3.13 Performing conversions 3.14 Practicing of sanitary food handling during cooking of sugar concentrates 3.15 Following environment rules and regulations in segregating and disposing wastes 3.16 Practicing OSHS such as wearing of PPE

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		cooking of sugar concentrates 3.12 Proper waste disposal 3.13 Occupational Safety and Health Standards (OSHS) for cooking of sugar concentrates 3.14 Current Good Manufacturing Practices 3.15 Hazard Analysis & Critical Control Points (HACCP) basic principles 3.16 Philippine Quality Challenge (PQC) and 3.17 HACCP, EMS (Environmental Management System) 3.18 Acceptable Quality Level (AQL) of raw materials and ingredients 3.19 SSOP Guidelines 3.20 7S of Good Housekeeping 3.21 Halal guidelines 3.22 Kosher and organic food processing guidelines 3.23 Usage of instructional manuals 3.24 Parts and functions of equipment, quality control tools/ instruments and utensils	3.17 Practicing cGMP, 7S HACCP, SSOP and AQL on cooking sugar concentrates 3.18 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 3.19 Sourcing quality raw materials and ingredients

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		3.25 Sourcing of quality raw materials and ingredients 3.26 Regular upkeep of various equipment, tools and utensils 3.27 Preventive maintenance of various equipment and tools use for cooking sugar concentrates  <b>Values:</b> Same as element # 1	
4. Pack sugar concentrated products	4.1 Sugar concentrated products are packed and weighed in accordance with product specifications and required filling temperature 4.2 Sugar concentrated products are sealed and labeled in accordance with product specifications 4.3 Air cooling is performed according to product requirements. 4.4 <b>Packing equipment</b> is operated in accordance with instructions manual  4.5 <b>Finished product inspection</b> is performed following quality <b>control parameters</b>  4.6 Food safety practices are employed according to HACCP and cGMP 4.7 Work safety measures are applied in	4.1 Different packing materials 4.2 Packing procedures and techniques 4.3 Significance of TSS and filling temperature 4.4 Primary, secondary, and tertiary packaging 4.5 Labeling information <ul style="list-style-type: none"> <li>• Name of products</li> <li>• Net weight</li> <li>• Ingredients</li> <li>• Production/expiry date</li> <li>• Manufacturer's address</li> <li>• Allergen Program</li> </ul> 4.6 Sealing procedures and techniques 4.7 Sealing integrity/standards: <ul style="list-style-type: none"> <li>• Checking headspace</li> <li>• Checking leakage</li> </ul> 4.8 Air-cooling procedures	4.1 Packing skills for sugar concentrated products 4.2 Labeling and sealing skills for sugar concentrated products 4.3 Performing air cooling procedures 4.4 Operating packing equipment such as sealer 4.5 Inspecting finished products for conformance to specifications 4.6 Determining correct headspace through visual means 4.7 Reading temperature 4.8 Reading flow diagrams/flow charts 4.9 Recording of finished products weights using enterprise forms/checklist



<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
	accordance with OSHS.	4.9 Different packing equipment 4.10 Steps of operating packing equipment 4.11 Checking techniques for finished products 4.12 Quality control parameters 4.13 Reporting of defects, irregularities and breakdown during packing operations to immediate head/supervisor 4.14 Accomplishing enterprise forms for recording of products weights 4.15 Recording of non-conformance packed products 4.16 Four fundamental operations (addition, subtraction, multiplication and division) 4.17 Conversions (metric and English system) for weights of packed products 4.18 Food safety principles and practices for packing operations 4.19 Food handling practices for packing operations 4.20 Proper waste disposal	4.10 Reporting of any equipment malfunction, product or process nonconformance during packing operations 4.11 Practicing oral communication 4.12 skills 4.13 Performing interpersonal skills 4.14 Performing basic mathematical skills 4.15 Performing conversions 4.16 Applying environmental rules and regulations such waste segregation and disposals 4.17 Practicing sanitary food handling during packing operations 4.18 Practicing OSHS such as wearing of PPE 4.19 Practicing cGMP, 7S, SSOP, PNS and HACCP 4.20 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 4.21 Sourcing packing materials 4.22 Maintaining packing areas and facilities

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		4.21 Occupational Safety and Health standards for packing operations 4.22 HACCP basic principles 4.23 Current Good Manufacturing practices 4.24 SSOP of packing operations Guidelines 4.25 7S of Good Housekeeping 4.26 Halal guidelines 4.27 Usage of instructional manuals 4.28 Parts and functions of packing equipment 4.29 Sourcing of packing materials for finished products 4.30 Regular upkeep of various equipment, tools, utensils and packing facilities 4.31 Preventive maintenance of packing equipment and tools  <b>Values:</b> Same as element # 1	
5. Perform post-production activities	5.1 Packed food products are incubated according to required storage period. 5.2 Tools, materials and equipment are cleaned and stored based on workplace procedures and operation manuals	5.1 Incubation of packed products 5.2 Different storage conditions and period 5.3 Operation of storage equipment (chiller/freezer) 5.4 Storing procedures and	5.1 Incubating packed food products 5.2 Storing packaged food products 5.3 Cleaning and storing of equipment, tools and utensils 5.4 Storing excess materials and ingredients

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	<p>5.3 Proper disposal of wastes are practiced according to environmental rules and regulations.</p> <p>5.4 <b><i>Production data</i></b> checklist is accomplished according to enterprise protocol.</p>	<p>techniques for packed products</p> <p>5.5 Cleaning and storing methods for equipment, tools and utensils</p> <p>5.6 Storing procedures for excess materials and ingredients</p> <p>5.7 Production data</p> <p>5.8 Recording of storage time and temperature.</p> <p>5.9 Preparation of daily production input report (spoilage and rejects)</p> <p>5.10 Recording procedures of production data using enterprise forms</p> <p>5.11 Reporting procedures on conditions of tools, equipment and utensils to immediate head/supervisor.</p> <p>5.12 Inventory of excess materials and ingredients</p> <p>5.13 Basic arithmetical operations like multiplication, division, addition and subtraction</p> <p>5.14 Inventory of equipment, tools, utensils and materials</p> <p>5.15 Environmental protection and concern</p> <p>5.16 Food safety principles and</p>	<p>5.5 Operating storage equipment</p> <p>5.6 Recording of storage time and temperature for finished products</p> <p>5.7 Recording of spoilage and rejects</p> <p>5.8 Recording of storage time and temperature</p> <p>5.9 Recording of production data</p> <p>5.10 Accomplishing/ completing enterprise forms and checklist on packing activities</p> <p>5.11 Practicing interpersonal skills</p> <p>5.12 Demonstrating oral communication skills</p> <p>5.13 Accomplishing inventory forms</p> <p>5.14 Demonstrating basic mathematical skills for production data recording</p> <p>5.15 Computation of yields, recoveries and rejects</p> <p>5.16 Following environmental rules and regulations such as wastes segregating and disposals.</p> <p>5.17 Practicing sanitary food handling upon storing finished products</p> <p>5.18 Practicing proper wastes disposal</p>

ELEMENT	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
		practices for storage of finished products 5.17 Proper waste disposal 5.18 Occupational Safety and Health Standards on post production activities 5.19 CHACCP basic principles on storage of finished products 5.20 Current Good Manufacturing practices 5.21 SSOP of post-production activities Guidelines 5.22 7S of Good Housekeeping 5.23 Halal guidelines 5.24 Kosher and organic guidelines 5.25 Usage of instructional manuals 5.26 Parts and functions of all equipment, tools and utensils used in processing food by sugar concentration, including storage equipment 5.27 Sourcing of cleaning materials during shutting down operations 5.28 Regular upkeep of various equipment, tools,	5.19 Practicing OSHS such as wearing PPE during post production activities 5.20 Practicing cGMP, 7S, SSOP, PNS and HACCP 5.21 Maintaining various equipment, tools and utensils such as cleaning and sanitizing 5.22 Stowing of equipment, tools, utensils and materials 5.23 Sourcing of cleaning materials 5.24 Maintaining working areas and storage facilities

ELEMENT	PERFORMANCE CRITERIA <i>Italicized terms</i> are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
		utensils and packing facilities 5.29 Preventive maintenance of equipment, tools and utensils use in post-production activities 5.30 Maintenance of storage facilities and room <b>Values:</b> Same as element # 1	

### RANGE OF VARIABLES

VARIABLES	RANGE
1. Equipment and tools	<b>Equipment, tools and kitchen utensils and materials may include but not limited to:</b> 1.1 Cold storage equipment like chiller, refrigerator, freezer 1.2 Refractometer, pH meter, candy thermometer, jelly thermometer/tester 1.3 Weighing scale of various capacities and sensitivities 1.4 Cooking equipment like stove/burner 1.5 Steam jacketed kettle, jar lifter, wire baskets, chopping boards, vegetable cutter, blender (stainless steel), food processor, <b>juice</b> extractor 1.6 Personal Protective Equipment (PPE) include apron, mouth masks, gloves and rubber boots, headgears such as caps, hairnets
2. Processing materials	<b>Processing materials include the following:</b> 2.1 Sugar 2.2 Water 2.3 Food additives
3. Kitchen utensils	<b>Kitchen utensils may include the following:</b> 3.1 Cutting implements such as: 3.1.1 knives 3.1.2 peelers 3.1.3 pulper finisher 3.1.4 slicer 3.1.5 cutter (for small scale) 3.2 Cooking utensils like: 3.2.1 stainless enameled plastic casserole 3.2.2 colanders 3.2.3 bowls

VARIABLES	RANGE
	3.2.4 food tongs 3.2.5 steamer 3.2.6 strainer 3.2.7 basting spoon paddle 3.2.8 spatula 3.2.9 ladle
4. Raw materials	<b>Raw materials include:</b> 4.1. Fruits 4.2. Vegetables
5. Preparation of sorted fruits	<b>Preparation of sorted fruits includes:</b> 5.1 Wash 5.2 Sanitize 5.3 Peel 5.4 Slice 5.5 Cut
6. Packing equipment	<b>Packing equipment may include:</b> 6.1 Impulse sealer 6.2 Band sealer 6.3 Vacuum sealer 6.4 Plastic protect cap sealer 6.5 Plastic sealer 6.6 Hot blower
7. Finished product inspection	<b>Finished product inspection includes:</b> 7.1 Package integrity 7.2 Appropriateness of label 7.3 Conformance to product specifications
8. Quality control parameters	<b>Quality control parameters include:</b> 8.1 Raw material (TSS and condition of the raw material) 8.2 Inline processing (temperature and TSS) 8.3 Finish product (TSS and Titrable Acidity) 8.4 Cut Out Test (drained weight, net weight, vacuum)
9. Production data	<b>Production data include:</b> 9.1 Production schedule 9.2 Production target 9.3 Production input 9.3.1 Raw Materials 9.3.2 Ingredients 9.3.3 Processing materials 9.3.4 Packaging materials 9.4 Production output 9.4.1 Quantity of finished goods 9.4.2 Rejects 9.4.3 Yields

**EVIDENCE GUIDE**

1. Critical Aspects of Competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Prepared equipment, tools, materials and utensils</li> <li>1.2 Prepared the raw materials</li> <li>1.3 Cooked sugar concentrates</li> <li>1.4 Packed sugar concentrated products</li> <li>1.5 Performed post production activities</li> <li>1.6 Practiced cGMP, HACCP, 7S of Good Housekeeping, SSOP, AQL and OSHS</li> </ul>
2. Methods of Assessment	<p><b>Competency in this unit must be assessed using at least two (2) of the following methods:</b></p> <ul style="list-style-type: none"> <li>2.1 A combination of direct observation and questioning</li> <li>2.2 Demonstration</li> <li>2.3 Written test</li> <li>2.4 Portfolio</li> </ul>
3. Resource Implications	<p><b>The following resources should be provided:</b></p> <ul style="list-style-type: none"> <li>3.1 Specific work area/station</li> <li>3.2 Equipment, tools and utensils to prepare and to process fruits and vegetables by sugar concentration.</li> <li>3.3 Materials relevant to the proposed activity</li> </ul>
4. Context of Assessment	<ul style="list-style-type: none"> <li>4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.</li> </ul>

**UNIT OF COMPETENCY : PROCESS FOOD BY DRYING AND DEHYDRATION**

**UNIT CODE : PFB751333**

**UNIT DESCRIPTOR :** This unit deals with the knowledge, skills and attitudes required to process foods by sun drying, dehydrator, and solar drying. It includes drying and dehydration of fruits, vegetables, herbs and spices, root crops, fish and meat.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Prepare equipment, tools, materials and utensils	1.1 <b>Equipment and tools</b> are prepared in accordance with manufacturer's specifications 1.2 <b>Processing materials</b> are sourced-out and made available according to work requirements. 1.3 <b>Kitchen utensils</b> are checked and sanitized in accordance with manufacturer's specifications. 1.4 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)	1.1 Types of equipment and tools for processing food by drying and dehydration 1.2 Preparation of equipment and tools 1.3 Inspection and checking procedures of various equipment, tools and utensils 1.4 Calibration of quality control tools 1.5 Calibration of weighing scales 1.6 Procedures on reporting of conditions and defects/ breakdown of equipment, tools and utensils to immediate head/supervisor 1.7 Methods of accomplishing inspection forms and checklists for preparation of equipment, tools and kitchen utensils 1.8 Basic components of a report 1.9 Preparation of processing materials 1.10 Proper waste disposal 1.11 Occupational Safety and Health Standards (OSHS)	1.1 Preparing equipment and tools 1.2 Inspecting and checking skills 1.3 Calibrating of weighing scales and quality control tools such as thermometer, pH meter refractometer and salinometer 1.4 Recording and reporting skills on the condition and defects of tools, utensils and equipment. 1.5 Preparing processing materials 1.6 Practicing communication skills <ul style="list-style-type: none"> <li>• Interpersonal skills</li> <li>• Oral communication</li> <li>• Writing skills, accomplishing forms and checklist in line with preparation activities</li> </ul> 1.7 Following environment rules and regulations in segregating and disposing wastes



		<p>1.12 Current Good Manufacturing Practices</p> <p>1.13 Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and kitchen utensils</p> <p>1.14 7S (sort, systematize, sweep, standardize, self- discipline, safety and security) of Good Housekeeping</p> <p>1.15 Halal guidelines</p> <p>1.16 Usage of instructional manuals</p> <p>1.17 Parts and functions of equipment, quality control tools/ instruments and utensils</p> <p>1.18 Sources good quality supplies and materials in line with preparation activities.</p> <p>1.19 Regular upkeep of various equipment, tools and utensils</p> <p>1.20 Preventive maintenance of various equipment and tools</p> <p><b>Values:</b></p> <ul style="list-style-type: none"> <li>• Self- esteem</li> <li>• Time conscious/punctual</li> <li>• Flexible/adaptable</li> <li>• Honest</li> <li>• Dependable</li> <li>• Self-starter</li> <li>• Alert</li> <li>• Systematic and organized</li> <li>• Committed</li> <li>• Good team worker</li> <li>• Good listener and fast learner</li> <li>• Creative</li> <li>• Nationalistic and patriotic</li> </ul>	<p>1.8 Practicing OSHS such as wearing Personal Protective Equipment (PPE)</p> <p>1.9 Practicing cGMP, SSOP and 7S</p> <p>1.10 Practicing sanitation in preparing various equipment, tools and utensils</p> <p>1.11 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>1.12 Sourcing quality supplies and materials according to specifications.</p>
2. Prepare the raw materials	2.1 <b>Raw materials</b> are sorted and graded in accordance with	2.1 Different raw materials used in drying and dehydration	2.1 Segregating reject raw materials 2.2 Preparing raw materials

	<p>product specifications.</p> <p>2.2 Raw materials are <b>prepared</b> based on specified procedures and methods of processing.</p> <p>2.3 Cleaned raw materials are weighed in accordance with approved specifications.</p> <p>2.4 Tools and utensils for raw materials are used based on work requirements and manuals.</p> <p>2.5 Equipment are operated following manufacturer's manual.</p> <p>2.6 Raw materials are <b>pre-treated</b> prior to drying.</p>	<p>2.2 Sorting and grading methods for raw materials</p> <p>2.3 Accepts and rejects</p> <p>2.4 Preparation of raw materials</p> <p>2.5 Steps in using tools and utensils and operating equipment (weighing scales, food processor and cutter)</p> <p>2.6 Functions and uses of tools and utensils for raw material preparation</p> <p>2.7 Trimmings of raw materials</p> <p>2.8 Pre-treatment methods of raw materials prior to drying</p> <p>Blanching/ syruling</p> <p>2.9 Methods of accomplishing forms and checklists of raw materials as received and rejects</p> <p>2.10 Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</p> <p>2.11 Recording and reporting of inputs</p> <p>2.12 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>2.13 Conversions (metric and English system) for weights and measures</p> <p>2.14 Ratio and proportions for formulation of</p> <p>2.15 Percentages</p> <p>2.16 Food safety principles and practices on raw materials preparations</p> <p>2.17 Food handling practices on raw</p>	<p>2.3 Sorting and grading of raw materials</p> <p>2.4 Using tools and utensils</p> <p>2.5 Operating equipment such as weighing scales, food processor, cutter</p> <p>2.6 Practicing sanitation in preparation of raw materials</p> <p>2.7 Utilizing raw material trimmings</p> <p>2.8 Pre-treating raw materials</p> <p>2.9 Reading process flow charts for raw materials preparation</p> <p>2.10 Recording through accomplishing forms and checklist of raw materials as received and rejects including other inputs</p> <p>2.11 Recording and reporting skills on the condition and defects of tools, utensils and equipment.</p> <p>2.12 Interpersonal skills</p> <p>2.13 Oral communication skills</p> <p>2.14 Performing basic mathematical skills</p> <p>2.15 Performing conversions</p> <p>2.16 Practicing of sanitary food handling for raw materials preparations</p> <p>2.17 Following environment rules and regulations in segregating and disposing wastes</p>
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		<p>materials preparations</p> <p>2.18 Proper waste disposal</p> <p>2.19 Occupational Safety and Health Standards (OSHS) for raw materials preparations</p> <p>2.20 Current Good Manufacturing Practices</p> <p>2.21 Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</p> <p>2.22 SSOP Guidelines</p> <p>2.23 7S of Good Housekeeping</p> <p>2.24 Halal guidelines</p> <p>2.25 Kosher and organic food processing guidelines</p> <p>2.26 Usage of instructional manuals</p> <p>2.27 Parts and functions of equipment, quality control tools/ instruments and utensils</p> <p>2.28 Sourcing of quality raw materials, spices and ingredients</p> <p>2.29 Regular upkeep of various equipment, tools and utensils</p> <p>2.30 Preventive maintenance of various equipment and tools use for preparing raw materials</p> <p><b>Values:</b> Same as element # 1</p>	<p>2.18 Practicing OSHS such as wearing of PPE</p> <p>2.19 Practicing cGMP, 7S HACCP and SSOP on preparing raw materials</p> <p>2.20 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>2.21 Sourcing quality raw materials, spices and ingredients</p>
<p>3. Dry pre-treated raw materials</p>	<p>3.1 Fruits and vegetables subjected to syruling are washed and drained in accordance with standard operating procedures.</p> <p>3.2 Pre-treated raw materials are</p>	<p>3.1 Washing and draining procedures and techniques</p> <p>3.2 Different additives and preservatives to be used</p> <p>3.3 Alternative tools and equipment</p> <p>3.4 Different types of food dryer and dehydrators</p>	<p>3.1 Performing washing and draining procedures</p> <p>3.2 Performing drying and dehydration skills and techniques</p> <p>3.3 Using additives, preservatives and alternative tools and equipment</p>

	<p>dried in accordance with standard operating procedures</p> <p>3.3 Operate equipment according to manufacturer's manual</p> <p>3.4 Practice safety and good housekeeping in accordance to OHS, HACCP and cCGMP standards.</p>	<p>3.5 Drying and dehydration procedures and techniques</p> <p>3.6 Methods of accomplishing forms and checklists of drying pre-treated raw materials</p> <p>3.7 Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</p> <p>3.8 Recording and reporting of daily production input report (spoilage and rejects)</p> <p>3.9 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>3.10 Conversions (metric and English system) for weights and measures</p> <p>3.11 Ratio and proportions for formulation</p> <p>3.12 Percentages</p> <p>3.13 Food safety principles and practices on drying pre-treated raw materials</p> <p>3.14 Food handling practices on drying pre-treated raw materials</p> <p>3.15 Proper waste disposal</p> <p>3.16 Occupational Safety and Health Standards (OSHS) for raw materials preparations</p> <p>3.17 Current Good Manufacturing Practices</p> <p>3.18 Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</p>	<p>3.4 Operating dryer and dehydrators</p> <p>3.5 Reading process flow charts for drying pre-treated raw materials</p> <p>3.6 Recording through accomplishing forms and checklist of drying pre-treated raw materials</p> <p>3.7 Recording and reporting the time and temperature during drying</p> <p>3.8 Recording and reporting skills on the condition and defects of tools, utensils and equipment.</p> <p>3.9 Interpersonal skills</p> <p>3.10 Oral communication skills</p> <p>3.11 Performing basic mathematical skills for computing daily production inputs</p> <p>3.12 Performing conversions</p> <p>3.13 Practicing of sanitary food handling drying pre-treated raw materials</p> <p>3.14 Following environment rules and regulations in segregating and disposing wastes</p> <p>3.15 Practicing OSHS such as wearing of PPE</p> <p>3.16 Practicing cGMP, 7S HACCP and SSOP on preparing raw materials</p> <p>3.17 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p>
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<p>4. Cool and sweat dried products</p>	<p>4.1 Dried products are removed from the dryer                      4.2 Correct cooling and sweating procedures are done in accordance to standard operating procedures                      4.3 Products are checked according to required specifications.                      4.4 Extension of drying time is applied to under processed products.                      4.5 Grading of dried products is</p>	<p>4.1 Features of dried product prior to removal from dryer                      4.2 Cooling and sweating procedures and techniques                      4.3 Corrective measures for non-conforming products                      4.4 Methods of checking dried products                      4.5 Grading procedures of dried products                      4.6 Methods of accomplishing forms and checklists for cooling and sweating of dried products                      4.7 Procedures on reporting of defects, breakdown and other irregularities during the activities to</p>	<p>4.1 Performing cooling and sweating skills and techniques                      4.2 Applying corrective measures for non-conforming products                      4.3 Checking of dried products                      4.4 Grading of dried products                      4.5 Reading process flow charts for cooling and sweating of dried products                      4.6 Recording through accomplishing forms and checklist of cooling and sweating of dried products</p>

	<p>performed following product specifications.</p> <p>4.6 Current Good Manufacturing Practice (cCGMP) are followed.</p>	<p>4.8 immediate head/supervisor Recording and reporting of daily production input report (spoilage and rejects)</p> <p>4.9 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>4.10 Conversions (metric and English system) for weights and measures</p> <p>4.11 Food safety principles and practices on cooling and sweating of dried products</p> <p>4.12 Food handling practices on cooling and sweating of dried products</p> <p>4.13 Proper waste disposal</p> <p>4.14 Occupational Safety and Health Standards (OSHS) for raw materials preparations</p> <p>4.15 Current Good Manufacturing Practices</p> <p>4.16 Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</p> <p>4.17 SSOP Guidelines</p> <p>4.18 7S of Good Housekeeping</p> <p>4.19 Halal guidelines</p> <p>4.20 Kosher and organic food processing guidelines</p> <p>4.21 Usage of instructional manuals</p> <p>4.22 Parts and functions of equipment, tools/ instruments and utensils</p> <p>4.23 Sourcing of quality raw materials and ingredients for</p>	<p>4.7 Recording and reporting skills on the condition and defects of tools, utensils and equipment.</p> <p>4.8 Interpersonal skills</p> <p>4.9 Oral communication skills</p> <p>4.10 Performing basic mathematical skills for computing daily production inputs</p> <p>4.11 Performing conversions</p> <p>4.12 Practicing of sanitary food handling on cooling and sweating of dried products</p> <p>4.13 Following environment rules and regulations in segregating and disposing wastes</p> <p>4.14 Practicing OSHS such as wearing of PPE</p> <p>4.15 Practicing cGMP, 7S HACCP and SSOP on cooling and sweating of dried products</p> <p>4.16 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>4.17 Sourcing quality raw materials and ingredients</p>
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		<p>cooling and sweating dried products</p> <p>4.24 Regular upkeep of various equipment, tools and utensils</p> <p>4.25 Preventive maintenance of various equipment and tools use for cooling and sweating of dried products</p> <p><b>Values:</b> Same as element # 1</p>	
5. Pack dried products	<p>5.1 <b>Dried products</b> are packed and weighed in accordance with product specifications</p> <p>5.2 Dried products are sealed and labeled in accordance with product specifications</p> <p>5.3 Packing procedures are performed in accordance to cGMP</p> <p>5.4 Packing equipment is operated in accordance with manual instructions</p> <p>5.5 Work safety measures are applied in accordance with OSHS</p> <p>5.6 <b>Finished product inspection</b> is performed following established industry procedures.</p>	<p>5.1 Different packing materials for dried products</p> <p>5.2 Packing procedures and techniques</p> <p>5.3 Primary, secondary, and tertiary packaging</p> <p>5.4 Sealing method and techniques</p> <p>5.5 Sealing integrity/ standards</p> <p>5.6 Labeling information</p> <ul style="list-style-type: none"> <li>• Name of products</li> <li>• Net weight</li> <li>• Ingredients</li> <li>• Production/expiry date</li> <li>• Manufacturer's address</li> <li>• Allergen Program</li> </ul> <p>5.7 Operating procedures of various packing equipment,</p> <p>5.8 Different packing tools and utensils</p> <p>5.9 Checking techniques for finished products</p> <p>5.10 Segregation of non-conforming products</p> <p>5.11 Reporting of defects, irregularities and breakdown during packing operations to immediate head/supervisor</p> <p>5.12 Accomplishing enterprise forms for recording of products weights</p>	<p>5.1 Packing and weighing of processed dried products</p> <p>5.2 Labeling and sealing of processed dried products</p> <p>5.3 Operating packing equipment such as sealer</p> <p>5.4 Inspecting finished products for conformance to specifications</p> <p>5.5 Reading flow diagrams/flow charts</p> <p>5.6 Recording of finished products weights using enterprise forms/checklist</p> <p>5.7 Reporting of any equipment malfunction, product or process non-conformance during packing operations</p> <p>5.8 Practicing oral communication skills</p> <p>5.9 Performing interpersonal skills</p> <p>5.10 Performing basic mathematical skills for computing yield, including rejects and spoilage</p> <p>5.11 Performing conversions</p>

		<p>5.13 Recording of non-conformance packed products</p> <p>5.14 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>5.15 Conversions (metric and English system) for weights of packed products</p> <p>5.16 Food safety principles and practices for packing operations</p> <p>5.17 Food handling practices for packing operations</p> <p>5.18 Proper waste disposal</p> <p>5.19 Occupational Safety and Health standards for packing operations</p> <p>5.20 HACCP basic principles</p> <p>5.21 Current Good Manufacturing practices</p> <p>5.22 SSOP of packing operations Guidelines</p> <p>5.23 7S of Good Housekeeping</p> <p>5.24 Halal guidelines</p> <p>5.25 Can understand and follow instructional manuals</p> <p>5.26 Parts and functions of packing equipment</p> <p>5.27 Sourcing of packing materials for finished products</p> <p>5.28 Regular upkeep of various equipment, tools, utensils and packing facilities</p> <p>5.29 Preventive maintenance of packing equipment and tools</p> <p><b>Values:</b> Same as element # 1</p>	<p>5.12 Applying environmental rules and regulations such waste segregation and disposals</p> <p>5.13 Practicing sanitary food handling during packing operations</p> <p>5.14 Practicing OSHS such as wearing of PPE</p> <p>5.15 Practicing cGMP, 7S, SSOP, and HACCP</p> <p>5.16 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>5.17 Sourcing packing materials</p> <p>5.18 Maintaining packing areas and facilities</p>
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6. Perform post-production activities	<p>6.1 Packed finished food products are stored according to required storage condition</p> <p>6.2 Tools, materials and equipment are cleaned and stored based on workplace procedures and operation manuals</p> <p>6.3 Proper disposal of wastes are practiced according to environmental rules and regulations.</p> <p>6.4 <b>Production data</b> checklist is accomplished according to enterprise protocol.</p>	<p>6.1 Different storage conditions</p> <p>6.2 Operation of storage equipment (chiller/freezer)</p> <p>6.3 Storing procedures and techniques for packed products</p> <p>6.4 Cleaning and storing methods for equipment, tools and utensils</p> <p>6.5 Storing procedures for excess materials and ingredients</p> <p>6.6 Production data</p> <p>6.7 Recording of storage time and temperature.</p> <p>6.8 Preparation of daily production input report (spoilage and rejects)</p> <p>6.9 Recording procedures of production data using enterprise forms</p> <p>6.10 Reporting procedures on conditions of tools, equipment and utensils to immediate head/ supervisor.</p> <p>6.11 Inventory of excess materials and ingredients</p> <p>6.12 Basic arithmetical operations like multiplication, division, addition and subtraction</p> <p>6.13 Inventory of equipment, tools, utensils and materials</p> <p>6.14 Environmental protection and concern</p> <p>6.15 Food safety principles and practices for storage of finished products</p> <p>6.16 Proper waste disposal</p> <p>6.17 Occupational Safety and Health Standards on post production activities</p>	<p>6.1 Storing packaged food products</p> <p>6.2 Cleaning and storing of equipment, tools and utensils</p> <p>6.3 Storing excess materials and ingredients</p> <p>6.4 Recording of storage time and temperature for finished products</p> <p>6.5 Recording of spoilage and rejects</p> <p>6.6 Recording of yields and recoveries</p> <p>6.7 Recording of production data</p> <p>6.8 Accomplishing/ completing enterprise forms and checklist on packing activities</p> <p>6.9 Practicing interpersonal skills</p> <p>6.10 Demonstrating oral communication skills</p> <p>6.11 Accomplishing inventory forms</p> <p>6.12 Demonstrating basic mathematical skills for production data recording</p> <p>6.13 Computation of yields, recoveries and rejects</p> <p>6.14 Following environmental rules and regulations such as wastes segregating and disposals.</p> <p>6.15 Practicing sanitary food handling upon storing finished products</p> <p>6.16 Practicing OSHS such as wearing PPE during post activities</p>
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		<p>6.18 HACCP basic principles on storage of finished products</p> <p>6.19 Current Good Manufacturing practices</p> <p>6.20 SSOP of post-production activities</p> <p>6.21 7S of Good Housekeeping</p> <p>6.22 Halal guidelines</p> <p>6.23 Kosher and organic guidelines</p> <p>6.24 Usage of instructional manuals</p> <p>6.25 Parts and functions of all equipment, tools and utensils used in drying and dehydration operations, including storage equipment</p> <p>6.26 Sourcing of cleaning materials during shutting down operations</p> <p>6.27 Regular upkeep of various equipment, tools and utensils used in post-production activities</p> <p>6.28 Preventive maintenance of equipment, tools and utensils use in post-production activities</p> <p>6.29 Maintenance of storage facilities and room</p> <p><b>Values:</b> Same as element # 1</p>	<p>production activities</p> <p>6.17 Practicing cGMP, 7S, SSOP and HACCP</p> <p>6.18 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>6.19 Stowing of equipment, tools, utensils and materials</p> <p>6.20 Sourcing cleaning materials</p> <p>6.21 Maintaining working areas and storage facilities</p>
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**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>RANGE</b>
1. Equipment and tools	<p><b>Equipment and tools may include the following:</b></p> <p>1.1 Equipment:</p> <ul style="list-style-type: none"> <li>1.1.1 Cabinet drier</li> <li>1.1.2 Solar drier</li> <li>1.1.3 Vacuum sealer</li> <li>1.1.4 Polysealer</li> <li>1.1.5 Cabinet dryer with trays</li> <li>1.1.6 Solar Dryer</li> <li>1.1.7 Meat Slicer</li> <li>1.1.8 Vegetable Cutter (Food Processor)</li> <li>1.1.9 Moisture Analyzer</li> <li>1.1.10 Freezer Chest type</li> <li>1.1.11 Freezer Upright</li> <li>1.1.12 Refrigerator</li> <li>1.1.13 Cooler</li> <li>1.1.14 Styrophor Chest</li> <li>1.1.15 Weighing scale <ul style="list-style-type: none"> <li>• Weighing scale (10-50 kgs)</li> <li>• Weighing scale (1-6 kgs)</li> </ul> </li> </ul> <p>1.2 Tools</p> <ul style="list-style-type: none"> <li>1.2.1 Timer</li> <li>1.2.2 Probe thermometer</li> <li>1.2.3 Knife sets</li> <li>1.2.4 Sharpener</li> <li>1.2.5 Salinometer</li> <li>1.2.6 Refractometer</li> <li>1.2.7 Pressure gauge</li> <li>1.2.8 Temperature gauge</li> </ul>
2. Preparation of equipment and tools	<p><b>Preparation of equipment and tools includes:</b></p> <ul style="list-style-type: none"> <li>2.1 Sanitation</li> <li>2.2 Calibration/adjustments</li> <li>2.3 Checking/inspecting <ul style="list-style-type: none"> <li>2.3.1 Equipment performance</li> <li>2.3.2 Defective equipment and tools</li> </ul> </li> </ul>
3. Processing materials	<p><b>Processing materials include:</b></p> <ul style="list-style-type: none"> <li>3.1 PPE <ul style="list-style-type: none"> <li>3.1.1 Aprons</li> <li>3.1.2 Hair Nets</li> <li>3.1.3 Mouth Masks</li> <li>3.1.4 Rubber Boots</li> <li>3.1.5 Gloves</li> </ul> </li> <li>3.2 PEB/PP</li> <li>3.3 Laminated Foil</li> </ul>

VARIABLE	RANGE
	3.4 Sticker labels
4. Kitchen utensils	<b>Kitchen utensils include:</b> 4.1 Measuring spoons 4.2 Spatula 4.3 Food trays 4.4 Colanders 4.5 Trays 4.6 Containers for salt, condiments, spices
5. Raw materials	<b>Raw materials include:</b> 5.1 Fish 5.2 Meat 5.3 Fruit 5.4 Vegetables 5.5 Herbs and spices 5.6 Rootcrops 5.7 Salt 5.8 Sugar 5.9 Condiments 5.10 Spices 5.11 Herbs 5.12 Food-grade colorants 5.13 Food additives for drying and dehydration
6. Preparation of raw materials	<b>Preparation of raw materials include:</b> 6.1. Washing 6.2. Cleaning 6.3. Peeling 6.4. Slicing 6.5. Cutting
7. Pre-Treatment of raw materials	<b>Pre-treatment of raw materials includes:</b> 7.1 Syruping 7.2 Plumping 7.3 Soaking 7.4 Salting 7.5 Acidifying (anti-browning) 7.6 Blanching 7.7 Application of food additives such as anti-browning, anti-oxidants and anti-molds
8. Dried products	<b>Dried products may include:</b> 8.1. Dried fish 8.2. Dried meat 8.3. Dried Fruits and Fruit leathers 8.4. Dried Vegetables 8.5. Dried Herbs and Spices 8.6. Dried root crop products

VARIABLE	RANGE
9. Finished product inspection	<b>Finished product inspection includes:</b> 9.1. Package integrity 9.2. Appropriateness of label 9.3. Conformance to product specifications
10. Production Data	<b>Production data include:</b> 10.1 Production schedule 10.2 Production target 10.3 Production input 10.3.1 Raw Materials 10.3.2 Ingredients 10.3.3 Processing materials 10.3.4 Packaging materials 10.4 Production output 10.4.1 Quantity of finished goods 10.4.2 Rejects 10.4.3 Yields

**EVIDENCE GUIDE**

1. Critical Aspects of Competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Prepared equipment, tools, materials and utensils</li> <li>1.2 Prepared the raw materials</li> <li>1.3 Dried pre-treated raw materials</li> <li>1.4 Cooled and sweat dried products</li> <li>1.5 Packed dried products</li> <li>1.6 Performed post- production activities</li> <li>1.7 Practiced safety and good housekeeping following OSHS, HACCP, and 7S of Good Housekeeping, SSOP and cGMP standards.</li> </ul>
2. Resource Implications	<p><b>The following resources should be provided:</b></p> <ul style="list-style-type: none"> <li>2.1 Specific work area/station</li> <li>2.2 Equipment, tools and utensils to be prepared for drying and dehydration activities</li> <li>2.3 Raw materials such as fruits, vegetables, herbs and spices and root crops.</li> <li>2.4 Materials relevant to the proposed activity</li> </ul>
3. Methods of Assessment	<p><b>Competency in this unit must be assessed using at least two (2) of the following methods:</b></p> <ul style="list-style-type: none"> <li>3.1 A combination of direct observation and questioning</li> <li>3.2 Demonstration</li> <li>3.3 Written test</li> <li>3.4 Portfolio</li> </ul>
4. Context of Assessment	<ul style="list-style-type: none"> <li>4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.</li> </ul>

**UNIT OF COMPETENCY : PROCESS FOODS BY THERMAL APPLICATION**

**UNIT CODE : PFB751334**

**UNIT DESCRIPTOR :** This unit deals with the knowledge, skills and attitudes required to process foods by thermal application thru pasteurization, canning and bottling.

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> <i>Italicized terms</i> are elaborated in the Range of Variables	<b>REQUIRED KNOWLEDGE</b>	<b>REQUIRED SKILLS</b>
1. Prepare equipment, tools, materials and utensils	1.1 <b>Equipment and tools</b> are prepared in accordance with manufacturer's specifications 1.2 Processing materials are sourced-out and made available according to work requirements. 1.3 <b>Kitchen utensils</b> are checked and sanitized in accordance with manufacturer's specifications and cGMP 1.4 Safety measures are applied in accordance with Occupational Safety and Health Standards (OSHS)	1.1 Types of equipment and tools for thermal application 1.2 Preparation of equipment and tools 1.3 Inspection and checking procedures of various equipment, tools and utensils 1.4 Calibration of quality control tools 1.5 Calibration of weighing scales 1.6 Quality processing materials 1.7 Preparation of processing materials 1.8 Sanitization of kitchen utensils 1.9 Procedures on reporting of conditions and defects/ breakdown of equipment, tools and utensils to immediate head/supervisor 1.10 Methods of accomplishing inspection forms and checklists for preparation of equipment, tools and kitchen utensils 1.11 Basic components of a report 1.12 Proper waste disposal	1.1 Preparing equipment and tools 1.2 Inspecting and checking skills 1.3 Calibrating of weighing scales and quality control tools such as thermometer 1.4 Selecting and preparing quality processing materials 1.5 Checking and sanitizing kitchen utensils 1.6 Recording and reporting skills on the condition and defects of tools, utensils and equipment. 1.7 Practicing communication skills 1.8 Following environment rules and regulations in segregating and disposing wastes 1.9 Practicing OSHS such as wearing PPE (Personal Protective Equipment) 1.10 Practicing cGMP, SSOP

		<p>1.13 Occupational Safety and Health Standards (OSHS)</p> <p>1.14 Current Good Manufacturing Practices</p> <p>1.15 Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and kitchen utensils</p> <p>1.16 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</p> <p>1.17 Halal guidelines</p> <p>1.18 Usage of instructional manuals</p> <p>1.19 Parts and functions of equipment, quality control tools/ instruments and utensils</p> <p>1.20 Where to source good quality supplies and materials in line with preparation activities.</p> <p>1.21 Regular upkeep of various equipment, tools and utensils</p> <p>1.22 Preventive maintenance of various equipment and tools</p> <p><b>Values:</b></p> <ul style="list-style-type: none"> <li>• Self-esteem</li> <li>• Punctual/Time conscious</li> <li>• Cost conscious</li> <li>• Environmental and pollution conscious</li> <li>• Flexible/adaptable</li> <li>• Honest</li> <li>• Socially responsible</li> <li>• Dependable</li> <li>• Innovative</li> <li>• Alert</li> <li>• Systematic and organized</li> </ul>	<p>and 7S of Good Housekeeping</p> <p>1.11 Practicing sanitation in preparing various equipment, tools and utensils</p> <p>1.12 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>1.13 Sourcing of quality supplies and materials according to specifications.</p>
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		<ul style="list-style-type: none"> <li>• Committed</li> <li>• Good listener and fast learner</li> <li>• Creative</li> <li>• Resourceful</li> <li>• Self-starter</li> <li>• Nationalistic and patriotic</li> </ul>	
2. Prepare the raw materials	<p>2.1. <b>Raw materials</b> are sorted and graded in accordance with product specifications and standards.</p> <p>2.2. Raw materials are washed and sanitized based on established enterprise procedures.</p> <p>2.3. Raw materials are subjected to <b>size reduction</b> according to required product specifications</p> <p>2.4. Thermal application are employed to raw materials based on processing requirements</p> <p>2.5. <b>Packing medium</b> is prepared according to product type and its requirements</p> <p>2.6. Raw materials and ingredients are weighed in accordance with approved specifications.</p> <p>2.7. Equipment, tools and utensils are used based on work requirements and manufacturer's manuals.</p>	<p>2.1 Types of raw materials for thermal processing</p> <p>2.2 Sorting and grading methods for raw materials</p> <p>2.3 Accepts and rejects</p> <p>2.4 Washing and sanitizing procedures of raw materials</p> <p>2.5 Cut-out procedures and techniques</p> <p>2.6 Thermal application</p> <p>2.7 Different packing media</p> <p>2.8 Steps in using tools and operating equipment (weighing scales, food processor and cutter)</p> <p>2.9 Raw materials and ingredients for weighing</p> <p>2.10 Functions and uses of tools and utensils for raw material preparation</p> <p>2.11 Trimmings of raw materials</p> <p>2.12 Methods of accomplishing forms and checklists of raw materials as received and rejects</p> <p>2.13 Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</p> <p>2.14 Recording and reporting of inputs</p> <p>2.15 Four fundamental operations (addition,</p>	<p>2.1 Segregating reject raw materials</p> <p>2.2 Preparing raw materials</p> <p>2.3 Sorting and grading of raw materials</p> <p>2.4 Practicing sanitation in preparation of raw materials</p> <p>2.5 Demonstrating cutting skills</p> <p>2.6 Employing thermal application</p> <p>2.7 Preparing packing medium</p> <p>2.8 Using tools and utensils</p> <p>2.9 Operating equipment such as weighing scales, food processor, cutter</p> <p>2.10 Utilizing raw material trimmings</p> <p>2.11 Reading process flow charts for raw materials preparation</p> <p>2.12 Recording through accomplishing forms and checklist of raw materials as received and rejects including other inputs</p> <p>2.13 Recording and reporting skills on the condition and defects of</p>

		subtraction, multiplication and division)	tools, utensils and equipment.
	2.16	Conversions (metric and English system) for weights and measures	2.14 Interpersonal skills
	2.17	Ratio and proportions for raw materials preparations	2.15 Oral communication skills
	2.18	Percentages	2.16 Performing basic mathematical skills
	2.19	Food safety principles and practices on raw materials preparations	2.17 Performing conversions
	2.20	Food handling practices on raw materials preparations	2.18 Practicing of sanitary food handling for raw materials preparations
	2.21	Proper waste disposal	2.19 Following environment rules and regulations in segregating and disposing wastes
	2.22	Occupational Safety and Health Standards (OSHS) for raw materials preparations	2.20 Practicing OSHS such as wearing of PPE
	2.23	Current Good Manufacturing Practices	2.21 Practicing cGMP, 7S HACCP and SSOP on preparing raw materials
	2.24	Hazard Analysis & Critical Control Points (HACCP) basic principles	2.22 Maintaining various equipment, tools and utensils such as cleaning and sanitizing
	2.25	SSOP Guidelines	2.23 Sourcing quality raw materials and ingredients
	2.26	7S of Good Housekeeping	
	2.27	Halal guidelines	
	2.28	Kosher and organic food processing guidelines	
	2.29	Usage of instructional manuals	
	2.30	Parts and functions of equipment, quality control tools/ instruments and utensils	
	2.31	Sourcing of quality raw materials and ingredients	
	2.32	Regular upkeep of various equipment, tools and utensils	

		<p>2.33 Preventive maintenance of various equipment and tools use for preparing raw materials</p> <p><b>Values:</b> Same as element #</p>	
<p>3. Pasteurize the product</p>	<p>3.1 Pre-prepared ingredients are mixed based on standard procedure</p> <p>3.2 Products are pasteurized in a double boiler according to required temperature</p> <p>3.3 Temperature and time are maintained according to product requirement</p>	<p>3.1 Principles of pasteurization (fruit juices)</p> <p>3.2 Mixing procedures of prepared ingredients.</p> <p>3.3 Temperature and time requirements for pasteurization</p> <p>3.4 Steps in operating double broiler</p> <p>3.5 Uses and functions tools and utensils for pasteurization process</p> <p>3.6 Methods of accomplishing enterprise forms and checklists during pasteurization</p> <p>3.7 Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</p> <p>3.8 Recording and reporting process of inputs</p> <p>3.9 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>3.10 Conversions (metric and English system) for weights and measures</p> <p>3.11 Ratio and proportions of pre-prepared ingredients</p> <p>3.12 Percentages</p> <p>3.13 Food safety principles and practices on pasteurization process</p>	<p>3.1 Mixing of pre-prepared ingredients</p> <p>3.2 Pasteurizing fruit juices</p> <p>3.3 Operating double broiler</p> <p>3.4 Using thermometer and timer</p> <p>3.5 Reading process flow charts for pasteurization of fruit juices</p> <p>3.6 Recording through accomplishing enterprise forms and checklist for required time and temperature</p> <p>3.7 Recording and reporting the condition and defects of tools, utensils and equipment.</p> <p>3.8 Recording and reporting of inputs</p> <p>3.9 Interpersonal skills</p> <p>3.10 Oral communication skills</p> <p>3.11 Performing basic mathematical skills for computing inputs during the activities</p> <p>3.12 Performing conversions</p> <p>3.13 Practicing of sanitary food handling for pasteurization process</p>

		<p>3.14 Food handling practices on pasteurization process</p> <p>3.15 Proper waste disposal</p> <p>3.16 Occupational Safety and Health Standards (OSHS) for pasteurization process</p> <p>3.17 Current Good Manufacturing Practices</p> <p>3.18 Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</p> <p>3.19 SSOP Guidelines</p> <p>3.20 7S of Good Housekeeping</p> <p>3.21 Halal guidelines</p> <p>3.22 Kosher and organic pasteurization of fruit juices</p> <p>3.23 Usage of instructional manuals</p> <p>3.24 Parts and functions of equipment, quality control tools/ instruments and utensils</p> <p>3.25 Sourcing of quality raw materials and ingredients for pasteurization of juices</p> <p>3.26 Regular upkeep of various equipment, tools and utensils</p> <p>3.27 Preventive maintenance of various equipment and tools use for pasteurization of fruit juices</p> <p><b>Values:</b> Same as element #</p>	<p>3.14 Following environment rules and regulations in segregating and disposing wastes</p> <p>3.15 Practicing OSHS such as wearing of PPE</p> <p>3.16 Practicing cGMP, 7S of Good Housekeeping, HACCP and SSOP on pasteurization of fruit juices</p> <p>3.17 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>3.18 Sourcing quality raw materials and ingredients for pasteurization of fruit juices</p>
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<p>4. Pack food products</p>	<p>4.1. Food materials are packed in identified <b>packing materials</b> and weighed in accordance with product specifications</p> <p>4.2. <b>Packing medium</b> is filled to food materials in the container according to specifications</p> <p>4.3. Headspace and filling temperature are checked according to company requirements</p> <p>4.4. Packing equipment are operated based on manufacturer's manual.</p> <p>4.5. Packing are employed following cGMP.</p> <p>4.6. Work safety measures are applied according to OSHS</p>	<p>4.1 Different packing materials</p> <p>4.2 Headspace and packing techniques and methods</p> <p>4.3 Packing procedures and techniques</p> <p>4.4 Filling temperature</p> <p>4.5 Operation of packing equipment</p> <p>4.6 Reporting of defects, irregularities and breakdown during packing operations to immediate head/supervisor</p> <p>4.7 Accomplishing enterprise forms for recording of products weights</p> <p>4.8 Recording of non-conformance packed products</p> <p>4.9 Four fundamental operations (addition, subtraction, multiplication and division)</p> <p>4.10 Conversions (metric and English system) for weights of packed products</p> <p>4.11 Food safety principles and practices for packing operations</p> <p>4.12 Food handling practices for packing operations</p> <p>4.13 Proper waste disposal</p> <p>4.14 Occupational Safety and Health standards for packing operations</p> <p>4.15 HACCP basic principles</p> <p>4.16 Current Good Manufacturing practices</p> <p>4.17 SSOP of packing operations Guidelines</p> <p>4.18 7S of Good Housekeeping</p> <p>4.19 Halal guidelines</p>	<p>4.1 Packing skills for thermally processed food</p> <p>4.2 Filling packing medium</p> <p>4.3 Operating packing equipment</p> <p>4.4 Using thermometer</p> <p>4.5 Reading temperature</p> <p>4.6 Checking headspace and filling temperature</p> <p>4.7 Reading flow diagrams/flow charts</p> <p>4.8 Recording of finished products weights using enterprise forms/checklist</p> <p>4.9 Reporting of any equipment malfunction, product or process nonconformance during packing operations</p> <p>4.10 Practicing oral communication skills</p> <p>4.11 Performing interpersonal skills</p> <p>4.12 Performing basic mathematical skills</p> <p>4.13 Performing conversions</p> <p>4.14 Applying environmental rules and regulations such waste segregation and disposals</p> <p>4.15 Practicing sanitary food handling during packing operations</p>
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		<p>4.20 Can understand and follow instructional manuals</p> <p>4.21 Parts and functions of packing equipment</p> <p>4.22 Sourcing of packing materials for finished products</p> <p>4.23 Maintenance</p> <p>4.24 Regular upkeep of various equipment, tools, utensils and packing facilities</p> <p>4.25 Preventive maintenance of packing equipment and tools</p> <p><b>Values:</b> Same as element # 1</p>	<p>4.16 Practicing OSHS such as wearing of PPE</p> <p>4.17 Practicing cGMP, 7S of Good Housekeeping, SSOP, PNS and HACCP</p> <p>4.18 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>4.19 Sourcing packing materials</p> <p>4.20 Maintaining packing areas and facilities</p>
<p>5. Exhaust and seal food products</p>	<p>5.1 Exhausting procedure is applied to food product</p> <p>5.2 Exhausting temperature is checked according to requirement.</p> <p>5.3 Can and bottle is sealed according to procedures manual</p> <p>5.4 Can sealer is operated following manufacturer's manuals.</p> <p>5.5 Seal integrity is checked following standard enterprise procedures</p>	<p>5.1 Exhausting techniques for food products</p> <p>5.2 Exhausting temperature</p> <p>5.3 Sealing procedures and techniques</p> <p>5.4 Operation of can sealer</p> <p>5.5 Sealing integrity/ standards</p> <p>5.6 Steps in checking headspace</p> <p>5.7 Steps in checking leakage</p> <p>5.8 Reporting of defects, irregularities and breakdown during the operations to immediate head/supervisor</p> <p>5.9 Accomplishing enterprise forms for recording of temperature and products weights</p> <p>5.10 Recording of non-conformance sealed products</p> <p>5.11 Four fundamental operations (addition, subtraction,</p>	<p>5.1 Applying exhausting procedure</p> <p>5.2 Monitoring exhausting temperature</p> <p>5.3 Sealing food products</p> <p>5.4 Operating can sealer</p> <p>5.5 Testing and inspecting integrity of seal</p> <p>5.6 Reading flow diagrams/flow charts</p> <p>5.7 Recording of weights, ingredients and temperature using enterprise forms/checklist</p> <p>5.8 Reporting of any equipment malfunction, product or process nonconformance during the operation</p> <p>5.9 Practicing oral communication skills</p>

		<p>multiplication and division)</p> <p>5.12 Conversions (metric and English system) for weights of sealed products</p> <p>5.13 Food safety principles and practices for exhausting and sealing activities</p> <p>5.14 Food handling practices for exhausting and sealing activities</p> <p>5.15 Proper waste disposal</p> <p>5.16 Occupational Safety and Health standards for exhausting and sealing activities</p> <p>5.17 HACCP basic principles</p> <p>5.18 Current Good Manufacturing practices</p> <p>5.19 SSOP of packing operations</p> <p>5.20 7S of Good Housekeeping</p> <p>5.21 Halal guidelines</p> <p>5.22 Kosher and organic food guidelines</p> <p>5.23 Usage of instructional manuals</p> <p>5.24 Parts and functions of equipment use for exhausting and sealing activities of food products</p> <p>Sourcing of materials for exhausting and sealing activities of food products</p> <p>5.25 Regular upkeep of various equipment, tools, utensils and facilities use for exhausting and sealing activities of food products</p>	<p>5.10 Performing interpersonal skills</p> <p>5.11 Performing basic mathematical skills for computing product weights of sealed products</p> <p>5.12 Performing conversions</p> <p>5.13 Applying environmental rules and regulations such waste segregation and disposals</p> <p>5.14 Practicing sanitary food handling during exhausting and sealing activities</p> <p>5.15 Practicing OSHS such as wearing of PPE</p> <p>5.16 Practicing cGMP, 7S of Good Housekeeping, SSOP and HACCP on exhausting and sealing activities of food products</p> <p>5.17 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>5.18 Sourcing materials used for exhausting and sealing activities of food products</p> <p>5.19 Maintaining areas and facilities use for exhausting and sealing activities of food products</p>
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		<p>5.26 Preventive maintenance of equipment and tools use for exhausting and sealing activities of food products</p> <p><b>Value:</b> Same as element # 1</p>	
6. Apply thermal processing	<p>6.1. Sealed products are loaded to the <b>thermal processing equipment</b> following industry procedures</p> <p>6.2. Processing temperature, pressure and time are monitored based on workplace procedures</p> <p>6.3. Processed products are unloaded from the processing equipment in accordance to procedures manual.</p>	<p>6.1. Loading techniques for sealed products</p> <p>6.2. Different thermal processing equipment</p> <p>6.3. Steps of operating thermal processing equipment</p> <p>6.4. Monitoring methods on processing temperature, pressure and time</p> <p>6.5. Unloading procedures of processed products</p> <p>6.6. Reporting of defects, irregularities and breakdown during the operations to immediate head/supervisor</p> <p>6.7. Methods of accomplishing enterprise forms for recording of temperature, pressure and time during the operation</p> <p>6.8. Recording of non-conformance products</p> <p>6.9. Food safety principles and practices for thermal processing</p> <p>6.10. Food handling practices for thermal processing</p> <p>6.11. Proper waste disposal</p> <p>6.12. Occupational Safety and Health Standards for thermal processing</p> <p>6.13. HACCP basic principles</p>	<p>6.1. Loading sealed products to thermal processing equipment</p> <p>6.2. Applying loading skills and techniques</p> <p>6.3. Operating thermal processing equipment</p> <p>6.4. Unloading processed products</p> <p>6.5. Applying unloading skills and techniques</p> <p>6.6. Monitoring of temperature, pressure and time</p> <p>6.7. Using thermometer pressure gauge and timer</p> <p>6.8. Reading flow diagrams/flow charts</p> <p>6.9. Recording of temperature, pressure and time using enterprise forms/checklist</p> <p>6.10. Reporting of any equipment malfunction, product or process nonconformance during the operation</p> <p>6.11. Practicing oral communication skills</p>



		<p>6.14. Current Good Manufacturing practices          6.15. SSOP of thermal processing Guidelines          6.16. 7S of Good Housekeeping          6.17. Halal guidelines          6.18. Kosher and organic food guidelines          6.19. Usage of instructional manuals          6.20. Parts and functions of equipment use for thermal processing          6.21. Sourcing of materials for thermal processing          6.22. Regular upkeep of various equipment, tools, utensils and facilities use for thermal processing          6.23. Preventive maintenance of equipment and tools use for thermal processing.</p> <p><b>Value:</b>          Same as element # 1</p>	<p>6.12. Performing interpersonal skills          6.13. Applying environmental rules and regulations such waste segregation and disposals          6.14. Practicing sanitary food handling during the employment of thermal processing          6.15. Practicing OSHS such as wearing of PPE          6.16. Practicing cGMP, 7S of Good Housekeeping, SSOP and HACCP on thermal processing          6.17. Maintaining various equipment, tools and utensils such as cleaning and sanitizing          6.18. Sourcing materials used for exhausting and sealing activities of food products          6.19. Maintaining areas and facilities use for thermal processing</p>
<p>7. Cool and wash packed products</p>	<p>7.1 Proper cooling procedures for bottled and canned products are applied in accordance to standard operating procedures.          7.2 Cooled finished products are washed and dried based on</p>	<p>7.1 Cooling procedures of bottled and canned products          7.2 Washing and drying methods for bottled and canned products          7.3 Steps in operating cooling equipment          7.4 Reporting of defects,</p>	<p>7.1 Cooling bottled and canned products          7.2 Washing and drying bottled and canned products          7.3 Operating cooling equipment</p>

	<p>standard operating procedures.</p> <p>7.3 Cooling equipment is operated based on instructional manual.</p>	<p>irregularities and breakdown during the operations to immediate head/supervisor</p> <p>7.5 Methods of accomplishing enterprise forms for recording purposes</p> <p>7.6 Recording of non-conformance products</p> <p>7.7 Food safety principles and practices for cooling of packed products</p> <p>7.8 Food handling practices for cooling of packed products</p> <p>7.9 Proper waste disposal</p> <p>7.10 Occupational Safety and Health Standards for cooling pack products</p> <p>7.11 HACCP basic principles</p> <p>7.12 Current Good Manufacturing practices</p> <p>7.13 SSOP of cooling packed products Guidelines</p> <p>7.14 7S of Good Housekeeping</p> <p>7.15 Halal guidelines</p> <p>7.16 Kosher and organic food guidelines</p> <p>7.17 Usage of instructional manuals</p> <p>7.18 Parts and functions of equipment use for cooling of packed products</p> <p>7.19 Sourcing of to be used for cooling packed products.</p> <p>7.20 Regular upkeep of various equipment, tools, utensils and facilities use for cooling packed products.</p>	<p>7.4 Reading flow diagrams/flow charts</p> <p>7.5 Recording and accomplishing enterprise forms/checklist</p> <p>7.6 Reporting of any equipment malfunction, product or process non-conformance during the operation</p> <p>7.7 Practicing oral communication skills</p> <p>7.8 Performing interpersonal skills</p> <p>7.9 Applying environmental rules and regulations such waste segregation and disposals</p> <p>7.10 Practicing sanitary food handling during cooling of packed products</p> <p>7.11 Practicing OSHS such as wearing of PPE</p> <p>7.12 Practicing cGMP, 7S of Good Housekeeping, SSOP and HACCP on cooling packed products</p> <p>7.13 Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>7.14 Sourcing materials used for exhausting and sealing activities of food products</p>
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		<p>7.21 Preventive maintenance of equipment and tools use for cooling packed products</p> <p><b>Values:</b> Same as element # 1</p>	<p>7.15 Maintaining areas and facilities use for cooling of packed products</p>
<p>8. Conduct post-production activities</p>	<p>8.1. Finished products are labeled based on product specifications</p> <p>8.2. Finished products are checked according to <b>quality control parameters</b></p> <p>8.3. Finished food products are incubated according to required storage period</p> <p>8.4. Tools, materials and equipment are cleaned and stored based on workplace procedures and operation manuals</p> <p>8.5. Proper disposal of wastes is practiced according to environmental rules and regulations.</p> <p>8.6. <b>Production data</b> recorded according to enterprise protocol.</p>	<p>8.1 Labeling techniques</p> <p>8.2 Labeling information</p> <ul style="list-style-type: none"> <li>• Name of products</li> <li>• Net weight</li> <li>• Ingredients</li> <li>• Production/expiry date</li> <li>• Manufacturer's address</li> <li>• Allergen Program</li> </ul> <p>8.3 Checking techniques for finished products</p> <ul style="list-style-type: none"> <li>• Quality control parameters</li> </ul> <p>8.4 Incubation of packed products</p> <p>8.5 Different storage conditions and period</p> <p>8.6 Operation of storage equipment (chiller/freezer)</p> <p>8.7 Storing procedures and techniques</p> <p>8.8 Cleaning and storing methods for equipment, tools and utensils</p> <p>8.9 Storing procedures for excess materials and ingredients</p> <p>8.10 Production data</p> <p>8.11 Recording of storage time and temperature.</p> <p>8.12 Preparation of daily production input report (spoilage and rejects)</p> <p>8.13 Recording procedures of</p>	<p>8.1. Labeling packed products</p> <p>8.2. Inspecting finished products for conformance to specifications</p> <p>8.3. Incubating and storing packaged food products</p> <p>8.4. Cleaning and storing of equipment, tools and utensils</p> <p>8.5. Storing excess materials and ingredients</p> <p>8.6. Operating storage equipment</p> <p>8.7. Recording of product weights finished products</p> <p>8.8. Recording of spoilage and rejects</p> <p>8.9. Recording of storage time and temperature</p> <p>8.10. Recording of production data</p> <p>8.11. Accomplishing/ completing enterprise forms and checklist on post-production activities</p> <p>8.12. Practicing interpersonal skills</p> <p>8.13. Demonstrating oral communication skills</p> <p>8.14. Accomplishing inventory forms</p>

		<p>production data using enterprise forms</p> <p>8.14 Reporting procedures on conditions of tools, equipment and utensils to immediate head/supervisor.</p> <p>8.15 Inventory of excess materials and ingredients</p> <p>8.16 Basic arithmetical operations like multiplication, division, addition and subtraction</p> <p>8.17 Inventory of equipment, tools, utensils and materials</p> <p>8.18 Environmental protection and concern</p> <p>8.19 Food safety principles and practices for storage of finished products</p> <p>8.20 Proper waste disposal</p> <p>8.21 Occupational Safety and Health Standards on post production activities</p> <p>8.22 HACCP basic principles on storage of finished products</p> <p>8.23 Current Good Manufacturing practices</p> <p>8.24 SSOP of post-production activities</p> <p>8.25 7S of Good Housekeeping</p> <p>8.26 Halal guidelines</p> <p>8.27 Kosher and organic guidelines</p> <p>8.28 Can understand and follow instructional manuals</p>	<p>8.15. Demonstrating basic mathematical skills for production data recording</p> <p>8.16. Computation of yields, recoveries and rejects</p> <p>8.17. Following environmental rules and regulations such as wastes segregating and disposals.</p> <p>8.18. Practicing sanitary food handling upon storing finished products</p> <p>8.19. Practicing OSHS such as wearing PPE during post production activities</p> <p>8.20. Practicing cGMP, 7S of Good Housekeeping, SSOP and HACCP</p> <p>8.21. Maintaining various equipment, tools and utensils such as cleaning and sanitizing</p> <p>8.22. Stowing equipment, tools, utensils and materials</p> <p>8.23. Sourcing cleaning materials</p> <p>8.24. Maintaining working areas and storage facilities</p>
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		<p>8.29 Parts and functions of all equipment, tools and utensils used in food thermal processing, including storage equipment</p> <p>8.30 Sourcing of cleaning materials during shutting down operations</p> <p>8.31 Regular upkeep of various equipment, tools, utensils and packing facilities</p> <p>8.32 Preventive maintenance of equipment, tools and utensils use in post-production activities</p> <p>8.33 Maintenance of storage facilities and room</p> <p><b>Values:</b> Same as element # 1</p>	
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**RANGE OF VARIABLES**

<b>VARIABLE</b>	<b>SCOPE</b>
1. Equipment and tools	<p><b>Equipment and tools may include but not limited to:</b></p> <ul style="list-style-type: none"> <li>1.1 Cold storage equipment like chiller, refrigerator, freezer</li> <li>1.2 Refractometer, pH meter, dial thermometer</li> <li>1.3 Weighing scale of various capacities and sensitivities</li> <li>1.4 Plastic rectangular perforated trays</li> <li>1.5 Jack lifts and trolleys</li> <li>1.6 Washing vats and crates</li> <li>1.7 Cutting implements such as knives, peelers, slicer, HDPE cutting board, and/or pulper finisher and extractor (for small scale)</li> <li>1.8 Cooking equipment like stove/burner</li> <li>1.9 Steamer, double boiler, wire baskets, can sealer, vegetable cutter, stainless steel blender, food processor</li> <li>1.10 Clock timer</li> <li>1.11 Personal Protective Equipment (PPE) include apron, mouth masks, gloves and rubber boots, headgears such as caps, hairnets and ear plugs</li> </ul>
2. Kitchen utensils	<p><b>Kitchen utensils may include:</b></p> <ul style="list-style-type: none"> <li>2.1 Cooking utensils like heavy duty stainless casserole and colanders, stainless steel bowls, food tongs, steamer, strainers, basting spoon paddle, exhauster, spatula, ladles, jar lifter</li> <li>2.2 HDPE Chopping boards</li> <li>2.3 Measuring cups (liquid and solid) and measuring spoons</li> </ul>
3. Raw materials	<p><b>Raw materials may include but not limited to:</b></p> <ul style="list-style-type: none"> <li>3.1 Fruits, vegetables, legumes, meat, fish, root crops</li> <li>3.2 Sugar, salt, oil and water</li> <li>3.3 Food additives including preservatives, colorants, flavors, acidulants</li> </ul>
4. Size reduction	<p>Size reduction includes:</p> <ul style="list-style-type: none"> <li>4.1 Cut</li> <li>4.2 Sliced</li> <li>4.3 Comminuted</li> <li>4.4 Extracted</li> </ul>
5. Packing materials	<p>Packing materials include:</p> <ul style="list-style-type: none"> <li>5.1 Preserving Bottles</li> <li>5.2 Cans</li> <li>5.3 Pet bottles (heat set)</li> </ul>
6. Packing medium	<p>Packing medium includes:</p> <ul style="list-style-type: none"> <li>6.1. Syrup</li> <li>6.2. Brine</li> <li>6.3. Water</li> </ul>

VARIABLE	SCOPE
	6.4. Oil 6.5. Sauces (e.g. tomato based)
7. Thermal processing equipment	Thermal processing equipment 7.1 Pressure cooker 7.2 Steamer
8. Quality control parameters	Quality control parameters include: 8.1. Raw material (TSS and condition of the raw material) 8.2. Inline processing (time, temperature and TSS) 8.3. Finish product (TSS, pH and Titrable Acidity) 8.4. Cut out tests (drained weight, net weight, vacuum test)
9. Production data	Production data include: 9.1. Production input 9.2. Spoilage 9.3. Rejects 9.4. Production output 9.5. Yields 9.6. Recoveries 9.7. Variances – include definition of variances 9.8. Production target 9.9. Production schedule

**EVIDENCE GUIDE**

1. Critical Aspects of Competency	<p><b>Assessment requires evidence that the candidate:</b></p> <ul style="list-style-type: none"> <li>1.1 Prepared the raw materials</li> <li>1.2 Pasteurized the product</li> <li>1.3 Packed food products</li> <li>1.4 Exhausted and sealed food products</li> <li>1.5 Applied thermal processing</li> <li>1.6 Cooled and washed packed products</li> <li>1.7 Conducted post-production activities</li> <li>1.8 Practiced safety and good housekeeping following OSHS, HACCP, and 7S of Good Housekeeping, SSOP and cGMP standards</li> </ul>
2. Resource Implications	<p><b>The following resources should be provided:</b></p> <ul style="list-style-type: none"> <li>2.1 Specific work area/station</li> <li>2.2 Equipment, tools and utensils to be prepared for thermal food processing</li> <li>2.3 Raw materials such as fruits, fish and meat.</li> <li>2.4 Materials relevant to the proposed activity</li> </ul>
3. Methods of Assessment	<p><b>Competency in this unit must be assessed using at least two (2) of the following methods:</b></p> <ul style="list-style-type: none"> <li>3.1 Direct observation and questioning</li> <li>3.2 Demonstration</li> <li>3.3 Written test</li> <li>3.4 Portfolio</li> </ul>
4. Context of Assessment	4.1 Competency maybe assessed in actual workplace or at the designated TESDA Accredited Assessment Center.



## SECTION 3 TRAINING ARRANGEMENTS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for **FOOD PROCESSING NC II**.

They include information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and trainer's qualification.

### 3.1 CURRICULUM DESIGN

TESDA shall provide the training on the development of competency-based curricula to enable training providers develop their own curricula with the components mentioned below.

Delivery of knowledge requirements for the basic, common and core units of competency specifically in the areas of mathematics, science/technology, communication/language and other academic subjects shall be contextualized. To this end, TVET providers shall develop a Contextual Learning Matrix (CLM) to green technology, issues on health and drugs and cater person with disabilities (PWD's)

Course Title: **FOOD PROCESSING**                      NC Level: **NC II**

#### Nominal Training Duration:

<b>18 hrs</b>	Basic Competencies
<b>14 hrs</b>	Common Competencies
<b>520 hrs</b>	Core Competencies
<b>Total 552 Hrs</b>	

#### Course Description:

This course is designed to provide the students/learner with knowledge, desirable attitudes and skills required to perform the following competencies in accordance with industry standards: Process Food by Salting, Curing and Smoking, Process Food by Fermentation and Pickling, Process Food by Sugar Concentration, Process Food by Drying and Dehydration and; Process Food by Thermal Application.

To obtain this, all units prescribed for this qualification must be achieved.

**BASIC COMPETENCIES**  
18 hours

<b>Unit of Competency</b>	<b>Learning Outcomes</b>	<b>Learning Contents</b>	<b>Practical Activities</b>	<b>Methodologies</b>	<b>Assessment Methods</b>	<b>Nominal Duration</b>
1. Participate in workplace communication	1.1 Obtain and convey workplace information	<ul style="list-style-type: none"> <li>• Effective communication</li> <li>• Different modes of communication</li> <li>• Written communication</li> <li>• Organizational policies</li> <li>• Communication procedures and systems</li> <li>• Technology relevant to the enterprise and the individual's work responsibilities</li> <li>• Sources of information</li> <li>• Types of question</li> <li>• Medium of communication</li> <li>• Flow of communication</li> <li>• Storage system</li> <li>• Telephone courtesy</li> </ul>	<ul style="list-style-type: none"> <li>• Follow simple spoken language</li> <li>• Perform routine workplace duties following simple written notices</li> <li>• Participate in workplace meetings and discussions</li> <li>• Complete work related documents</li> <li>• Ability to relate to people of social range in the workplace</li> <li>• Gather and provide information in response to workplace requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Group discussion</li> <li>• Role Play</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Oral Interview</li> <li>• Written test</li> <li>• Demonstration</li> </ul>	4 hours
	1.2 Complete relevant work related documents	<ul style="list-style-type: none"> <li>• Communication procedures and systems</li> <li>• Meeting protocols</li> <li>• Nature of workplace meetings</li> <li>• Barriers of communication</li> <li>• Workplace interactions</li> <li>• Non-verbal communication</li> </ul>	<ul style="list-style-type: none"> <li>• Follow simple spoken language</li> <li>• Perform routine workplace duties following simple written notices</li> <li>• Participate in workplace meetings and discussions</li> <li>• Complete work related documents</li> </ul>	<ul style="list-style-type: none"> <li>• Role Play</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Oral Interview</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
			<ul style="list-style-type: none"> <li>• Estimate, calculate and record routine workplace measures</li> <li>• Basic mathematical processes of addition, subtraction, division and multiplication</li> <li>• Ability to relate to people of social range in the workplace</li> <li>• Gather and provide information in response to workplace requirements</li> </ul>			
	1.3 Participate in workplace meeting and discussion	<ul style="list-style-type: none"> <li>• Technology relevant to the enterprise and the individual's work responsibilities</li> <li>• Types of workplace documents and forms</li> <li>• Basic mathematical concepts</li> <li>• Kinds of workplace report</li> </ul>	<ul style="list-style-type: none"> <li>• Follow simple spoken language</li> <li>• Ability to relate to people of social range in the workplace</li> <li>• Gather and provide information in response to workplace requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Interaction</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Oral Interview</li> <li>• Written test</li> </ul>	
2. Work in a team environment	2.1 Describe and identify team role and responsibility in a team.	<ul style="list-style-type: none"> <li>• Definition of Team</li> <li>• Difference between team and group</li> <li>• Different sources of information</li> <li>• Objectives and goals of team</li> </ul>	<ul style="list-style-type: none"> <li>• Describing the team role and scope</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Observation</li> </ul>	4 hours
	2.2 Describe work as a team member	<ul style="list-style-type: none"> <li>• Team goals and objectives</li> <li>• Fundamental rights at work including gender sensitivity</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying individual role and responsibility</li> <li>• Identifying external relationship</li> </ul>	<ul style="list-style-type: none"> <li>• Interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Interviews/ questioning</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>Understanding individual competencies relative to teamwork</li> <li>Types of individuals</li> <li>Role of leaders</li> </ul>	<ul style="list-style-type: none"> <li>Interacting effectively with others</li> <li>Setting team goals and expectations</li> </ul>			
3. Practice career professionalism	3.1 Integrate personal objectives with organizational goals	<ul style="list-style-type: none"> <li>Work values and ethics (Code of Conduct, Code of Ethics, etc.)</li> <li>Understanding personal objectives</li> <li>Understanding organizational goals</li> <li>Difference between intra and interpersonal relationship</li> <li>Performance evaluation</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate Intra and Interpersonal skills at work</li> <li>Demonstrate personal commitment in work</li> </ul>	<ul style="list-style-type: none"> <li>Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Demonstration</li> </ul>	6 hours
	3.2 Set and meet work priorities	<ul style="list-style-type: none"> <li>Company policies</li> <li>Company operations, procedures and standards</li> <li>Time management</li> <li>Time Management</li> <li>Basic strategic planning concepts</li> <li>Resource utilization and management</li> </ul>	<ul style="list-style-type: none"> <li>Managing goals and time</li> <li>Practice economic use of resources and facilities</li> <li>Setting work priorities</li> <li>Practice time management</li> </ul>	<ul style="list-style-type: none"> <li>Interaction</li> </ul>	<ul style="list-style-type: none"> <li>Observation</li> </ul>	
	3.3 Maintain professional growth and development	<ul style="list-style-type: none"> <li>Career development opportunities</li> <li>Company recognition and incentives</li> <li>Information on relevant licenses and or certifications</li> </ul>	<ul style="list-style-type: none"> <li>Determining personal career development needs</li> <li>Identifying career opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Interaction</li> </ul>	<ul style="list-style-type: none"> <li>Interviews/ questioning</li> </ul>	

<b>Unit of Competency</b>	<b>Learning Outcomes</b>	<b>Learning Contents</b>	<b>Practical Activities</b>	<b>Methodologies</b>	<b>Assessment Methods</b>	<b>Nominal Duration</b>
4. Practice occupational health and safety	4.1 Identify hazard and risks	<ul style="list-style-type: none"> <li>• OHS procedures, practices and regulations</li> <li>• Hazards/risks identification and control</li> <li>• OHS indicators</li> <li>• Organizational contingency practices</li> </ul>	<ul style="list-style-type: none"> <li>• Hazards/risks identification and control skills</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Plant tour</li> <li>• Symposium</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Interview</li> </ul>	4 hours
	4.2 Evaluate hazard and risks	<ul style="list-style-type: none"> <li>• Threshold Limit Value – TLV</li> <li>• Effects of safety hazards</li> </ul>	<ul style="list-style-type: none"> <li>• Communication skills</li> <li>• Reporting safety hazards</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Plant tour</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Interview</li> </ul>	
	4.3 Control hazards and risks	<ul style="list-style-type: none"> <li>• Personal hygiene practices</li> <li>• Organization safety and health protocol</li> <li>• Company emergency procedure practices</li> </ul>	<ul style="list-style-type: none"> <li>• Respond to emergency</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Portfolio assessment</li> <li>• Interview</li> </ul>	
	4.4 Maintain occupational health and safety awareness	<ul style="list-style-type: none"> <li>• Workplace OHS personal records</li> <li>• Information on emergency-related drills</li> </ul>	<ul style="list-style-type: none"> <li>• Practice emergency-related drill skills in the workplace</li> </ul>	<ul style="list-style-type: none"> <li>• Role-play</li> <li>• Simulation</li> </ul>	<ul style="list-style-type: none"> <li>• Portfolio assessment</li> <li>• Interview</li> </ul>	

**COMMON COMPETENCIES  
14 HOURS**

<b>Unit of Competency</b>	<b>Learning Outcomes</b>	<b>Learning Contents</b>	<b>Practical Activities</b>	<b>Methodologies</b>	<b>Assessment Methods</b>	<b>Nominal Duration</b>
1. Apply food safety and sanitation	1.1 Wear personal protective equipment 1.2 Observe personal hygiene and good grooming 1.3 Implement food safety practices 1.4 Render safety measures and first aid procedures	<ul style="list-style-type: none"> <li>• Knowledge, Theory, Practices and Systems Operations</li> <li>• Safety Practices</li> <li>• Good grooming and personal hygiene</li> <li>• Proper waste disposal</li> <li>• Environmental protection and concerns</li> <li>• Food safety principles and practices</li> <li>• Housekeeping / 5's</li> <li>• Codes and Regulations</li> <li>• Good Food Manufacturing Practices</li> <li>• Materials, Tools, Equipment: Uses, Specifications and Maintenance</li> <li>• Parts and functions of personal protective equipment</li> <li>• First Aid Kit</li> <li>• Sanitizing equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Good grooming and personal hygiene practices</li> <li>• Practicing Food safety</li> <li>• Practicing GMP</li> <li>• Practicing PPE</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group Discussion</li> <li>• Role Play</li> <li>• Self-paced</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Observation</li> <li>• Interviews / questioning</li> </ul>	2 hours

<b>Unit of Competency</b>	<b>Learning Outcomes</b>	<b>Learning Contents</b>	<b>Practical Activities</b>	<b>Methodologies</b>	<b>Assessment Methods</b>	<b>Nominal Duration</b>
2. Use standard measuring devices / instruments	2.1 Identify standard measuring devices and instruments. 2.2 Review the procedures in using standard measuring devices and instruments. 2.3 Follow procedures in using measuring devices and instruments	<ul style="list-style-type: none"> <li>• Knowledge, Theory, Practices and Systems Operations</li> <li>• Safe handling of measuring devices and instruments</li> <li>• Specifications and functions of measuring devices and instruments</li> <li>• Defects and breakages of measuring devices and instruments</li> <li>• Procedures in sanitizing and calibrating and stowing equipment and instruments</li> </ul>	<ul style="list-style-type: none"> <li>• Sanitary handling of devices and instruments</li> <li>• Measuring devices and instruments</li> <li>• Calibrating skills</li> <li>• Sanitizing, calibrating and stowing measuring equipment and instruments</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group Discussion</li> <li>• Role Play</li> <li>• Self-paced</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Observation</li> <li>• Interviews / questioning</li> </ul>	3 hours
3. Use food processing tools, equipment and utensils	3.1 Perform pre-operation activities 3.2 Operate, monitor and maintain food processing equipment 3.3 Perform post-operation activities	<ul style="list-style-type: none"> <li>• Communication</li> <li>• Written and oral communication</li> <li>• Interpreting manufacturer's specifications</li> <li>• Following manufacturer's manual</li> <li>• Materials, Tools and Equipment: uses, Specifications and Maintenance</li> <li>• Sanitizing agents: Uses and Specification</li> </ul>	<ul style="list-style-type: none"> <li>• Inspecting and checking condition of equipment/ machines</li> <li>• Reporting equipment/ machine, tools, instruments breakdown and recording same in standard forms</li> <li>• Sanitizing, cleaning and stowing measuring devices and instruments</li> <li>• Equipment/ machine parts tear down and assembly</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group Discussion</li> <li>• Role Play</li> <li>• Self-paced</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Observation</li> <li>• Interviews / questioning</li> </ul>	3 hours

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Proper cleaning and stowing of tools and equipment/ instruments</li> <li>• Equipment/ machine wear and tear process</li> <li>• Minor preventive maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Performing minor troubleshooting</li> <li>• Performing regular maintenance</li> </ul>			
4. Perform mathematical computation	4.1 Gather and tabulate the recorded data 4.2 Review the various formulations 4.3 Calculate production input and output 4.4 Compute production cost	<ul style="list-style-type: none"> <li>• Data gathering</li> <li>• Record keeping</li> <li>• Data summary and analysis</li> <li>• Basic mathematical operations</li> <li>• Percentages and formulations of raw materials and ingredient and finished products</li> <li>• Procedures in checking raw materials and finished products formulation and percentages</li> <li>• Mensuration</li> <li>• Fraction, ratios and proportions</li> <li>• Conversion factors</li> <li>• Percentage formulation</li> <li>• Cost of production</li> </ul>	<ul style="list-style-type: none"> <li>• Applying percentages formulations of raw materials and ingredient on finished products</li> <li>• Checking percentages and formulations on finished products</li> <li>• Applying numeracy skills on processed products</li> <li>• Applying record keeping on processed products</li> <li>• Applying mensuration on processed products</li> <li>• Perform basic mathematical skills</li> <li>- Perform percentage and formulation</li> <li>• Perform conversion</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group discussion</li> <li>• Demonstration</li> <li>• Role Play</li> <li>• Self-paced</li> </ul>	<ul style="list-style-type: none"> <li>• Oral Interview</li> <li>• Written test</li> <li>• Demonstration</li> </ul>	2 hours



Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>Validation procedures for computer costs</li> <li>Basic Mathematical Operations</li> </ul>	<ul style="list-style-type: none"> <li>Perform basic accounting and mathematical skills on processed products</li> <li>Reviewing and validating computed costs</li> </ul>			
5. Implement good manufacturing practice procedure	<p>5.1 Identify requirements of GMP related to own work</p> <p>5.2 Observe personal hygiene and conduct to meet GMP requirements</p> <p>5.3 Implement GMP requirements when carrying out work activities</p> <p>5.4 Participate in improving GMP</p> <p>5.5 Participate in validation processes</p> <p>5.6 Complete workplace documentation to support GMP</p>	<ul style="list-style-type: none"> <li>Knowledge, Theory, Practices and Techniques</li> <li>GMP Requirements</li> <li>GMP Codes of practice, policies and procedures</li> <li>GMP Role of internal and external auditors</li> <li>Contamination events and performance improvement processes procedures</li> <li>PPE</li> <li>Personal clothing and footwear requirements at work areas</li> <li>Use of personal clothing, storage and disposal requirements</li> <li>Micro biological, physical and</li> </ul>	<ul style="list-style-type: none"> <li>Planning and organizing work (time management)</li> <li>Working with others and in teams</li> <li>Practicing GMP</li> <li>Following contamination investigation procedures</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Lecture</li> <li>Group Discussion</li> <li>Role Play</li> <li>Self-paced</li> </ul>	<ul style="list-style-type: none"> <li>Demonstration</li> <li>Observation</li> <li>Interviews/questioning</li> </ul>	2 hours

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		chemical contaminants <ul style="list-style-type: none"> <li>• Personal hygiene</li> <li>• Basic concepts of quality assurance</li> </ul>				
6. Implement environmental policies and procedures	6.1 Conduct work in accordance with environmental policies and procedures 6.2 Participate in improving environmental practices at work 6.3 Respond to an environmental emergency	<ul style="list-style-type: none"> <li>• Routine check-up               <ul style="list-style-type: none"> <li>○ Work area</li> </ul> </li> <li>• Environmental hazards and risks associated to work               <ul style="list-style-type: none"> <li>○ Identify hazard risks</li> <li>○ Responding hazards</li> </ul> </li> <li>• Procedures for responding to unplanned incidents such as spills and leaks               <ul style="list-style-type: none"> <li>○ Reporting incidents</li> <li>○ Corrective measures</li> </ul> </li> <li>• Preventing environmental risks</li> <li>• Workplace procedures and work instructions related to</li> </ul>	<ul style="list-style-type: none"> <li>• Accomplish checklist of work area check-up</li> <li>• Discuss different hazards and risks in work</li> <li>• Identify and respond to unplanned incidents, hazards and emergencies</li> <li>• Prepare and submit report of incidents, hazards and emergencies</li> <li>• Perform control measures on environmental risks</li> <li>• Discuss workplace procedures and work instructions related to environmental responsibilities</li> <li>• Segregate wastes</li> <li>• Dispose wastes</li> <li>• Drain trade waste and storm waste</li> <li>• Discuss consequences of</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Group Discussion</li> <li>• Role Play</li> <li>• Self-paced</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Observation</li> <li>• Interviews / questioning</li> </ul>	2 hours

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		environmental responsibilities <ul style="list-style-type: none"> <li>• Wastes disposal procedures</li> <li>• Trade waste and storm water drains</li> <li>• Consequences of inappropriate waste handling and disposal</li> <li>• Environmental data               <ul style="list-style-type: none"> <li>○ Recording</li> <li>○ Format of record</li> </ul> </li> <li>• Conditions affecting unacceptable environmental outcome</li> <li>• Environmental management and emergency response plans               <ul style="list-style-type: none"> <li>○ Corrective action</li> </ul> </li> <li>• Different emergency situations               <ul style="list-style-type: none"> <li>○ Reporting</li> </ul> </li> <li>• Emergency response system and procedures</li> </ul>	inappropriate handling and disposal of wastes <ul style="list-style-type: none"> <li>• Record, format and submit environmental data</li> <li>• Report and submit processes or conditions affecting unacceptable environmental outcome</li> <li>• Prepare corrective action on results of environmental management and emergency response plans</li> <li>• Discuss emergency response system and procedures</li> <li>• Identify and respond to emergency situations</li> </ul>			

**CORE COMPETENCIES  
520 HRS**

<b>Unit of Competency</b>	<b>Learning Outcomes</b>	<b>Learning Contents</b>	<b>Practical Activities</b>	<b>Methodologies</b>	<b>Assessment Methods</b>	<b>Nominal Duration</b>
1. Process food by salting, curing and smoking	1.1 Prepare equipment, tools and utensils	<ul style="list-style-type: none"> <li>• Parts and functions of equipment, quality control tools/ instruments and utensils</li> <li>• Inspection and checking procedures of various equipment, tools and utensils</li> <li>• Quality control tools</li> <li>• Weighing scale</li> <li>• Thermometer</li> <li>• Salinometer</li> <li>• Quality processing materials</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Current Good Manufacturing Practices</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and check different equipment, apparatus, tools and utensils</li> <li>• Prepare inspection report</li> <li>• Calibrate quality control tools</li> <li>• Select quality processing materials</li> <li>• Segregate waste in designated containers</li> <li>• Use PPE</li> </ul>	<ul style="list-style-type: none"> <li>• Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> </ul>	100 HRS
		<ul style="list-style-type: none"> <li>• Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and kitchen utensils</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Clean and sanitize tools, equipment and kitchen utensils</li> <li>• Sharpen cutting tools using appropriate devices</li> <li>• Perform inventory control and storage of</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<p>Good Housekeeping</p> <ul style="list-style-type: none"> <li>○ Halal guidelines</li> <li>• Inventory control and storage of various equipment, tools and utensils</li> <li>• Sources of good and quality kitchen supplies and materials</li> <li>• Preventive maintenance of various equipment and tools</li> </ul>	<p>equipment, tools and utensils</p> <ul style="list-style-type: none"> <li>• Research sources of required kitchen supplies and materials</li> <li>• Maintain various equipment, tools and utensils and utensils</li> </ul>			
	1.2 Prepare raw materials	<ul style="list-style-type: none"> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/ supervisor</li> <li>• Recording and reporting of inputs</li> <li>• Four fundamental operations (addition, subtraction, multiplication and division)</li> <li>• Conversions (metric and English system) for weights and measures</li> <li>• Ratio and proportions for preparing raw materials</li> <li>• Percentages</li> <li>• Food safety principles and practices on raw materials preparations</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and sample deliveries</li> <li>• Sort and grade fish/other marine products, meat and eggs</li> <li>• Clean, wash and weigh raw materials</li> <li>• Weigh raw materials</li> <li>• Cut and size raw materials</li> <li>• Store raw material trimmings for other purposes</li> <li>• Accomplish forms and checklist of raw materials as received and</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/ supervisor</li> <li>• Recording and reporting of inputs</li> <li>• Four fundamental operations (addition, subtraction, multiplication and division)               <ul style="list-style-type: none"> <li>○ Conversions (metric and English system) for weights and measures</li> <li>○ Ratio and proportions for preparing raw materials</li> <li>○ Percentages</li> </ul> </li> <li>• Food safety principles and practices on raw materials preparations</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> </ul>	<p>rejects including other inputs</p> <ul style="list-style-type: none"> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Perform basic mathematical skills               <ul style="list-style-type: none"> <li>○ Perform conversions</li> </ul> </li> <li>• Practice sanitary preparations of raw materials</li> <li>• Applying cGMP, 7S, HACCP and SSOP on preparing raw materials</li> <li>• Segregate and dispose waste in designated containers</li> <li>• Use PPE</li> <li>• Maintain by cleaning and sanitizing various equipment, tools and utensils</li> <li>• Practice sourcing of quality raw materials and ingredients</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul> </li> </ul>				
		<ul style="list-style-type: none"> <li>• Salting Procedures and Techniques</li> <li>• Philippine National Standards on cured meats and smoked fish</li> <li>• Curing Procedures</li> <li>• recording time and temperature of curing / salting</li> <li>• Curing Techniques</li> <li>• Marinate</li> <li>• Inject               <ul style="list-style-type: none"> <li>○ Curing mix</li> <li>○ Curing solution</li> </ul> </li> <li>• Pumping pickle solution</li> <li>• Operation of various equipment               <ul style="list-style-type: none"> <li>○ weighing scales</li> <li>○ chiller</li> <li>○ salinometer</li> <li>○ meat thermometer</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Prepare curing mix/solution, pumping pickle solution</li> <li>• Cure (marinate and inject) raw materials:               <ul style="list-style-type: none"> <li>○ Poultry</li> <li>○ Meat</li> <li>○ Fish</li> </ul> </li> <li>• Salt raw materials:               <ul style="list-style-type: none"> <li>○ Egg</li> <li>○ Poultry</li> <li>○ Meat</li> <li>○ Fish</li> </ul> </li> <li>• Inspect the quality of cured raw materials</li> <li>• Segregate and dispose waste</li> <li>• Use PPE</li> </ul>	<ul style="list-style-type: none"> <li>• Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Procedures of washing and draining of cured materials</li> <li>• Post-curing methods and procedures:               <ul style="list-style-type: none"> <li>○ Sun Drying</li> <li>○ Smoking</li> <li>○ Cooking</li> <li>○ Cooling</li> <li>○ Air drying</li> </ul> </li> <li>• Philippine National Standards on cured meats and smoked fish</li> <li>• Different types and parts of smokehouse</li> <li>• Operation of smokehouse</li> <li>• Recording time and temperature of post-curing processes</li> <li>• Food safety principles and practices for post-curing activities</li> <li>• Food handling practices for post-curing activities</li> </ul>	<ul style="list-style-type: none"> <li>• Clean and sanitize various equipment, tools and utensils</li> </ul>			
	1.3 Process cured materials	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Occupational Safety and Health Standards for post-curing activities</li> <li>• HACCP basic principles</li> <li>• Current Good Manufacturing practices (cGMP)</li> <li>• SSOP for post-curing activities</li> <li>• Guidelines:</li> </ul>	<ul style="list-style-type: none"> <li>• Wash and drain cured methods</li> <li>• Apply post-curing methods and techniques               <ul style="list-style-type: none"> <li>○ Sun Drying</li> <li>○ Smoking</li> <li>○ Cooking</li> <li>○ Cooling</li> <li>○ Air drying</li> </ul> </li> <li>• Apply environmental</li> </ul>	<ul style="list-style-type: none"> <li>• Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration:</li> <li>• Questioning</li> </ul>	



Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing</li> </ul>	<p>rules and regulations on waste segregation and disposals</p> <ul style="list-style-type: none"> <li>● Segregate and dispose waste in designated containers</li> <li>● Use PPE</li> <li>● Clean and sanitize smokehouse and facilities</li> </ul>			
	1.4 Pack processed cured materials	<p>Different packaging materials</p> <ul style="list-style-type: none"> <li>● Packing procedures and techniques: <ul style="list-style-type: none"> <li>○ Primary Packaging</li> <li>○ Secondary Packaging</li> <li>○ Tertiary packaging</li> </ul> </li> <li>● PNS on cured meats and smoked fish</li> <li>● Labeling information <ul style="list-style-type: none"> <li>○ Name of products</li> <li>○ Net weight</li> <li>○ Ingredients</li> <li>○ Production/expiry date</li> <li>○ Manufacturer's address</li> <li>○ Allergen program</li> </ul> </li> <li>● Checking techniques for finished products</li> </ul>	<ul style="list-style-type: none"> <li>● Accomplishing enterprise forms for recording of products weights</li> <li>● Food safety principles and practices for packing operation</li> <li>● Food handling practices for packing operations</li> <li>● Waste management <ul style="list-style-type: none"> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> </ul> </li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Recording of non-conformance packed products</li> <li>• Reporting of defects, irregularities and breakdown during packing operations to immediate head/supervisor</li> </ul>				
	1.5 Perform post-production activities	<ul style="list-style-type: none"> <li>• Principles of storage</li> <li>• PNS on storage of finished products</li> <li>• Storing procedures and techniques for packed products, excess materials and ingredients</li> <li>• Parts and functions of storage equipment chiller/freezer</li> <li>• Operation of storage equipment (chiller/freezer)</li> <li>• Production data</li> <li>• Recording inputs, time and temperature, spoilage and rejects and using enterprise forms</li> <li>• Inventory of excess materials and ingredients</li> <li>• Food safety principles and practices for storage of finished products</li> </ul>	<ul style="list-style-type: none"> <li>• Store packaged food products</li> <li>• Package excess materials and ingredients</li> <li>• Record storage time and temperature, spoilage and rejects</li> <li>• Record and report the condition of tools, utensils and equipment</li> <li>• Filling up forms</li> <li>• Perform inventory control and storage of excess materials and ingredients</li> <li>• Practice sanitary food handling for storage of finished products</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture/ Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>		

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Occupational Safety and Health Standards on post-production activities</li> <li>• HACCP basic principles on storage of finished products</li> <li>• Current Good Manufacturing practices</li> <li>• SSOP of post-production activities</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> </ul> </li> <li>• Maintenance of storage facilities and room</li> </ul>	<ul style="list-style-type: none"> <li>• Segregate waste in designated containers</li> <li>• Use PPE</li> <li>• Sanitize packing tools and equipment</li> <li>• Maintaining working areas and storage facilities</li> </ul>			
2. Process foods by fermentation and pickling	2.1 Prepare equipment, tools, materials and utensils	<ul style="list-style-type: none"> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> </ul> </li> <li>• Inventory control and storage of various equipment, tools and utensils</li> <li>• Sources of good and quality kitchen supplies and materials</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and check different equipment, apparatus, tools and utensils</li> <li>• Prepare inspection report</li> <li>• Calibrate quality control tools</li> <li>• Select quality processing materials</li> <li>• Segregate waste in designated containers</li> <li>• Use PPE</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture/ Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> </ul>	120 hours

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Preventive maintenance of various equipment and tools</li> </ul>	<ul style="list-style-type: none"> <li>• Clean and sanitize tools, equipment and kitchen utensils</li> <li>• Sharpen cutting tools using appropriate devices</li> <li>• Perform inventory control and storage of equipment, tools and utensils</li> <li>• Research sources of required kitchen supplies and materials</li> <li>• Maintain various equipment, tools and utensils and utensils</li> </ul>			
	2.2 Prepare raw materials	<ul style="list-style-type: none"> <li>• Methods of inspecting /sampling deliveries</li> <li>• Sorting and grading raw materials</li> <li>• Procedures of preparing raw materials</li> <li>• Functions and uses of tools and utensils for raw material preparation</li> <li>• Steps in using tools and operating equipment <ul style="list-style-type: none"> <li>○ weighing scales</li> <li>○ food processor and</li> <li>○ cutter</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and sample deliveries</li> <li>• Sort and grade raw materials</li> <li>• Clean, wash and weigh raw materials</li> <li>• Weigh raw materials</li> <li>• Cut and size raw materials</li> <li>• Operate equipment such as food</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture/Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Trimmings of raw materials</li> <li>• Methods of accomplishing forms and checklists of raw materials as received and rejects</li> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/ supervisor</li> <li>• Recording and reporting of inputs</li> <li>• Four fundamental operations (addition, subtraction, multiplication and division)               <ul style="list-style-type: none"> <li>○ Conversions (metric and English system) for weights and measures</li> <li>○ Ratio and proportions for preparing raw materials</li> <li>○ Percentages</li> </ul> </li> <li>• Food safety principles and practices on alcoholic and acetic acid fermentation</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points</li> </ul>	<p>processor, cutter and weighing scales</p> <ul style="list-style-type: none"> <li>• Store raw material trimmings for fermentation and pickling</li> <li>• Accomplish forms and checklist of raw materials as received and rejects including other inputs</li> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Perform basic mathematical skills               <ul style="list-style-type: none"> <li>○ Perform percentage and formulation</li> <li>○ Perform conversions</li> </ul> </li> <li>• Practice sanitary food handling practices on fermentation operations</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		(HACCP) basic principles <ul style="list-style-type: none"> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Practice applying cGMP, 7S, HACCP and SSOP on preparing raw materials</li> <li>• Segregate and dispose waste in designated containers</li> <li>• Use PPE</li> <li>• Maintain by practice cleaning and sanitizing various equipment, tools and utensils</li> <li>• Practice sourcing of quality raw materials and ingredients</li> </ul>			
	2.3 Perform pickling activities	<ul style="list-style-type: none"> <li>• Pickling procedures and techniques including recording time and temperature of pickling</li> <li>• Philippine National Standards on pickling</li> <li>• Operate equipment for pickling</li> <li>• Trimmings of raw materials</li> <li>• Quality control tools</li> <li>• Weighing scale               <ul style="list-style-type: none"> <li>○ Refractometer</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Pickle raw materials               <ul style="list-style-type: none"> <li>○ Fruits</li> <li>○ Vegetables</li> </ul> </li> <li>• Practice operating               <ul style="list-style-type: none"> <li>○ Food Processor</li> <li>○ weighing scale</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Lecture/Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> <li>• Hands on</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ pH meter</li> <li>○ salinometer</li> <li>● Sensory testing of pickled product</li> <li>● Inspection of pickled raw materials               <ul style="list-style-type: none"> <li>○ texture</li> <li>○ smell</li> <li>○ color</li> </ul> </li> <li>● Production Data</li> <li>● Good quality of raw materials for pickling</li> <li>● Methods of accomplishing forms and checklists of raw materials as received and rejects</li> <li>● Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/ supervisor</li> <li>● Recording and reporting of inputs</li> <li>● Four fundamental operations (addition, subtraction, multiplication and division)               <ul style="list-style-type: none"> <li>○ Conversions (metric and English system) for weights and measures</li> <li>○ Ratio and proportions for</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Store raw material trimmings for fermentation and pickling</li> <li>● Calibrate quality control tools</li> <li>● Practice use of tools such as pH meter, refractometer and salinometer</li> <li>● Evaluate pickled products</li> <li>● Inspect the quality of pickled raw materials</li> <li>● Accomplish forms and checklist of raw materials as received and rejects including other inputs</li> <li>● Record and report the condition and defects of tools, utensils and equipment</li> <li>● Perform basic mathematical skills               <ul style="list-style-type: none"> <li>○ Perform percentage and formulation of</li> </ul> </li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>preparing raw materials</li> <li>○ Percentages</li> <li>● Inspection of fermented raw materials               <ul style="list-style-type: none"> <li>○ Sensory-visual</li> <li>○ Smell</li> <li>○ Taste</li> </ul> </li> <li>● Good qualities of fermented raw materials</li> <li>● Food safety principles and practices for fermented activities</li> <li>● HACCP basic principles</li> <li>● Current Good Manufacturing Practices for fermented raw materials</li> <li>● SSOP for fermented raw materials</li> <li>● Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul> </li> <li>● Waste management</li> <li>● Occupational Safety and Health Standards for curing activities</li> </ul>	<ul style="list-style-type: none"> <li>pickling mixtures</li> <li>○ Perform conversions of measures and weights</li> <li>● Practice sanitary food handling for pickling of raw materials/ ingredients</li> <li>● Maintain by practice cleaning and sanitizing various equipment, tools and utensils</li> <li>● Segregate and dispose waste</li> <li>● Use PPE</li> <li>● Clean and sanitize various equipment, tools and utensils</li> </ul>			



Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
	2.4 Conduct post- production activities	<ul style="list-style-type: none"> <li>• Inspection and checking procedures of various equipment, tools and utensils</li> <li>• Quality control tools</li> <li>• Quality processing materials</li> <li>• Methods of accomplishing forms and checklists of raw materials as received and rejects</li> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/ supervisor</li> <li>• Recording and reporting of inputs</li> <li>• Food safety principles and practices on raw materials preparations</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines:</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and check different equipment, apparatus, tools and utensils</li> <li>• Prepare inspection report</li> <li>• Calibrate quality control tools</li> <li>• Select quality processing materials</li> <li>• Accomplish forms and checklist of raw materials as received and rejects including other inputs</li> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Practice sanitary food handling for raw materials preparations</li> <li>• Practice applying cGMP, 7S, HACCP and SSOP on preparing raw materials</li> <li>• Segregate and dispose waste in</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul>	<ul style="list-style-type: none"> <li>designated containers</li> <li>• Use PPE</li> <li>• Maintain by practice cleaning and sanitizing various equipment, tools and utensils</li> <li>• Practice sourcing of quality raw materials and ingredients</li> </ul>			
3. Process food by sugar concentration	3.1 Prepare equipment, tools, materials and utensils	<ul style="list-style-type: none"> <li>• Parts and functions of equipment, quality control tools/ instruments and utensils</li> <li>• Inspection and checking procedures of various equipment, tools and utensils</li> <li>• Quality control tools: <ul style="list-style-type: none"> <li>○ Weighing scale</li> <li>○ Candy thermometer</li> <li>○ pH meter</li> <li>○ refractometer</li> </ul> </li> <li>• Quality processing materials</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Current Good Manufacturing Practices</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and check different equipment, apparatus, tools and utensils</li> <li>• Prepare inspection report</li> <li>• Calibrate quality control tools</li> <li>• Select quality processing materials</li> <li>• Segregate waste in designated containers</li> <li>• Use PPE</li> <li>• Clean and sanitize tools, equipment and kitchen utensils</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture/ Incomplete worksheet</li> <li>• Discussion</li> <li>• Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> </ul>	<b>120 Hrs</b>

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and kitchen utensils</li> <li>• Guidelines: <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul> </li> <li>• Inventory control and storage of various equipment, tools and utensils</li> <li>• Sources of good and quality kitchen supplies and materials</li> <li>• Preventive maintenance of various equipment and tools</li> <li>• Methods of accomplishing forms and checklists of raw materials as received and rejects</li> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• Sharpen cutting tools using appropriate devices</li> <li>• Perform inventory control and storage of equipment, tools and utensils</li> <li>• Research sources of required kitchen supplies and materials</li> <li>• Maintain various equipment, tools and utensils and utensils</li> <li>• Accomplish forms and checklist of raw materials as received and rejects including other inputs</li> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Maintain by practice cleaning and sanitizing various equipment, tools and utensils</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>Recording and reporting of inputs</li> </ul>	<ul style="list-style-type: none"> <li>Practice sourcing of quality raw materials and ingredients</li> </ul>			
	3.2 Prepare raw materials	<ul style="list-style-type: none"> <li>Methods of inspecting /sampling deliveries</li> <li>Sorting and grading raw materials</li> <li>Procedures of preparing raw materials</li> <li>Functions and uses of tools and utensils for raw material preparation</li> <li>Using tools and operating equipment <ul style="list-style-type: none"> <li>weighing scales</li> <li>food processor</li> <li>pH meter and</li> <li>cutter</li> </ul> </li> <li>Trimming of raw materials</li> <li>Procedure in testing pectin content, total soluble solids (TSS) and pH</li> <li>Methods of accomplishing forms and checklists of raw materials as received and rejects</li> <li>Procedures on reporting of defects, breakdown and other irregularities during the</li> </ul>	<ul style="list-style-type: none"> <li>Inspect and sample deliveries</li> <li>Sort and grade raw materials</li> <li>Clean, wash and weigh raw materials</li> <li>Weigh raw materials</li> <li>Cut and size raw materials</li> <li>Operate equipment such as food processor, cutter and weighing scales</li> <li>Store raw material trimmings for fermentation and pickling</li> <li>Practice testing content, total soluble solids (TSS) and pH</li> <li>Accomplish forms and checklist of raw materials as received and</li> </ul>	<ul style="list-style-type: none"> <li>Discussion</li> <li>Demonstration</li> <li>Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>Demonstration</li> <li>Questioning</li> <li>Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		activities to immediate head/ supervisor <ul style="list-style-type: none"> <li>• Recording and reporting of inputs               <ul style="list-style-type: none"> <li>▪ Four fundamental operations (addition, subtraction, multiplication and division)</li> </ul> </li> <li>• Conversions (metric and English system) for weights and measures</li> <li>• Ratio and proportions for preparing raw materials</li> <li>• Percentages</li> <li>• Food safety principles and practices on alcoholic and acetic acid fermentation</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-</li> </ul> </li> </ul>	rejects including other inputs <ul style="list-style-type: none"> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Perform basic mathematical skills               <ul style="list-style-type: none"> <li>○ Perform percentage and formulation</li> <li>○ Perform conversions</li> </ul> </li> <li>• Practice sanitary food handling practices on fermentation operations</li> <li>• Practice applying cGMP, 7S, HACCP and SSOP on preparing raw materials</li> <li>• Segregate and dispose waste in designated containers</li> <li>• Use PPE</li> <li>• Maintain by practice cleaning and sanitizing various</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		discipline, safety and security) of Good Housekeeping <ul style="list-style-type: none"> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul>	equipment, tools and utensils <ul style="list-style-type: none"> <li>• Practice sourcing of quality raw materials and ingredients</li> </ul>			
	3.4 Cook sugar concentrates	<ul style="list-style-type: none"> <li>• Cooking and cooling procedures</li> <li>• Product standards for sugar preserves</li> <li>• Sugar concentrate procedures</li> <li>• Monitoring and recording of cooking time and temperature</li> <li>• Operate various equipment</li> <li>• Thermometer and Refractometer</li> <li>• Inspection of sugar concentrate products               <ul style="list-style-type: none"> <li>○ texture</li> <li>○ color</li> </ul> </li> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</li> <li>• Recording and reporting of inputs</li> <li>• Four fundamental operations (addition, subtraction,</li> </ul>	<ul style="list-style-type: none"> <li>• Process sugar concentrates such as:               <ul style="list-style-type: none"> <li>○ Jam</li> <li>○ Jellies</li> <li>○ Marmalade</li> <li>○ Fruit juice concentrate</li> <li>○ Candied fruits</li> </ul> </li> <li>• Test end point of sugar concentrate using thermometer and refractometer</li> <li>• Inspect the quality of sugar concentrated products</li> <li>• Accomplish forms and checklist of raw materials as received and rejects including other inputs</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		multiplication and division) <ul style="list-style-type: none"> <li>○ Conversions (metric and English system) for weights and measures</li> <li>○ Ratio and proportions for preparing raw materials</li> <li>○ Percentages</li> <li>• Food safety principles and practices on raw materials preparations</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Perform basic mathematical skills               <ul style="list-style-type: none"> <li>○ Perform conversions</li> </ul> </li> <li>• Practice sanitary food handling for raw materials preparations</li> <li>• Practice applying cGMP, 7S, HACCP and SSOP on preparing raw materials</li> <li>• Segregate and dispose waste in designated containers</li> <li>• Use PPE</li> <li>• Maintain by practice cleaning and sanitizing various equipment, tools and utensils</li> <li>• Practice sourcing of</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Kosher and organic food processing guidelines</li> </ul>	<p>quality raw materials and ingredients</p>			
	<p>3.5 Pack sugar concentrated products</p>	<ul style="list-style-type: none"> <li>• Different packaging materials, procedures and techniques</li> <li>• Total Soluble Solids (TSS)</li> <li>• Filling temperature</li> <li>• Sealing procedures and techniques               <ul style="list-style-type: none"> <li>○ Checking headspace</li> <li>○ Checking leakage</li> </ul> </li> <li>• Air cooling procedures</li> <li>• Procedures in operating packing equipment</li> <li>• PNS on sugar concentrated products</li> <li>• Labeling information               <ul style="list-style-type: none"> <li>○ Name of products</li> <li>○ Net weight</li> <li>○ Ingredients</li> <li>○ Production/ expiry date</li> <li>○ Manufacturer's address</li> <li>○ Allergen program</li> </ul> </li> <li>• Checking techniques for finished products</li> <li>• Recording of non-conformance packed products</li> <li>• Reporting of defects, irregularities and breakdown during packing operations to</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare packaging equipment, tools and materials</li> <li>• Measure TSS of finished products</li> <li>• Hot fill in containers</li> <li>• Operate packing equipment such as sealer</li> <li>• Seal filled containers</li> <li>• Inspect finished products for conformance to specifications</li> <li>• Use heat gun to put cap seal on cap</li> <li>• Apply labels to sealed containers</li> <li>• Check condition of packaged finished/ processed food products</li> <li>• Segregate and dispose waste in designated containers</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	



Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<p>immediate head/supervisor</p> <ul style="list-style-type: none"> <li>• Accomplishing enterprise forms for recording of products weights</li> <li>• Food safety principles and practices for packing operation</li> <li>• Food handling practices for packing operations</li> <li>• Waste management</li> <li>• Occupational Safety and Health standards for packing operations</li> <li>• HACCP basic principles</li> <li>• Current Good Manufacturing Practices</li> <li>• Sanitation Standard Operating Procedures (SSOP) of packing operations</li> <li>• Guidelines: <ul style="list-style-type: none"> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> </ul> </li> <li>• Parts and functions of storage equipment <ul style="list-style-type: none"> <li>○ chiller/freezer</li> </ul> </li> <li>• Operation of storage equipment (chiller/freezer)</li> <li>• Storing procedures and techniques for <ul style="list-style-type: none"> <li>○ packed products</li> <li>○ excess materials and ingredients</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Clean and sanitize equipment and facilities <ul style="list-style-type: none"> <li>○ Store packaged food products</li> <li>○ package excess materials and ingredients</li> </ul> </li> <li>• Record storage time and temperature, spoilage and rejects and</li> <li>• Record and report daily production data, spoilage and rejects</li> <li>• Compute required ingredients based on formula</li> <li>• Perform inventory control and storage of excess materials and ingredients</li> <li>• Practice sanitary food handling for storage of</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• PNS on storage of finished products</li> <li>• Production data</li> <li>• Recording of storage time and temperature</li> <li>• Preparation of daily production input report (spoilage and rejects)</li> <li>• Recording procedures of using enterprise forms</li> <li>• Conversions (metric and English)</li> <li>• Ratio and Proportion</li> <li>• Inventory of excess materials and ingredients</li> <li>• Food safety principles and practices for storage of finished products</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards on post-production activities</li> <li>• HACCP basic principles on storage of finished products</li> <li>• Current Good Manufacturing practices</li> <li>• SSOP of post-production activities</li> <li>• Guidelines: <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-</li> </ul> </li> </ul>	<p>finished products</p> <ul style="list-style-type: none"> <li>• Segregate waste in designated containers</li> <li>• Use PPE</li> <li>• Sanitize packing tools and equipment</li> <li>• Maintaining working areas and storage facilities</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		discipline, safety and security) of Good Housekeeping <ul style="list-style-type: none"> <li>○ Halal guidelines</li> <li>○ Kosher and organic guidelines</li> </ul> <ul style="list-style-type: none"> <li>● Maintenance of storage facilities and room</li> </ul>				
4. Process food by drying and dehydration	4.1 Prepare equipment, tools, materials and utensils	<ul style="list-style-type: none"> <li>● Parts and functions of equipment, quality control tools/ instruments and utensils</li> <li>● Inspection and checking procedures of various equipment, tools and utensils</li> <li>● Inspection Report</li> <li>● Quality control tools               <ul style="list-style-type: none"> <li>○ Weighing scale</li> <li>○ Thermometer</li> <li>○ pH meter</li> <li>○ Salinometer</li> <li>○ Refractometer</li> </ul> </li> <li>● Waste management</li> <li>● Occupational Safety and Health Standards (OSHS)</li> <li>● Current Good Manufacturing Practices</li> <li>● Sanitation Standard Operating Procedures (SSOP) for preparation of equipment, tools and kitchen utensils</li> <li>● 7S (sort, systematize, sweep, standardize,</li> </ul>	<ul style="list-style-type: none"> <li>● Inspect and check various equipment, tools and utensils</li> <li>● Prepare inspection report</li> <li>● Calibrate quality control tools</li> <li>● Segregate waste on designate containers</li> <li>● Use PPE</li> <li>● Clean and sanitize tools, equipment and kitchen utensils</li> <li>● Sharpen cutting tools using appropriate devices</li> <li>● Maintain various equipment, tools and utensils</li> <li>● Perform inventory control and storage of equipment, tools and utensils</li> </ul>	<ul style="list-style-type: none"> <li>● Discussion</li> <li>● Demonstration</li> <li>● Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>● Demonstration</li> <li>● Questioning</li> <li>● Written test</li> </ul>	80 HRS

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		self- discipline, safety and security) of Good Housekeeping <ul style="list-style-type: none"> <li>• Halal guidelines</li> <li>• Sources of good quality kitchen supplies and materials</li> <li>• Preventive maintenance of various equipment and tools</li> <li>• Inventory control and storage of various equipment, tools and utensils</li> <li>• Preventive maintenance of various equipment and tools</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain various equipment, tools and utensils and utensils</li> </ul>			
	4.2 Prepare the raw materials	<ul style="list-style-type: none"> <li>• Methods of inspecting/ sampling deliveries</li> <li>• Different raw materials used in drying and dehydration</li> <li>• Sorting and grading methods for raw materials</li> <li>• Procedures in preparing raw materials</li> <li>• Steps in using tools and operating equipment (weighing scales, food processor and cutter</li> <li>• Trimmings of raw materials</li> <li>• Pre-Treatment methods of raw materials prior to drying</li> <li>• Blanching and syruing</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and sample deliveries</li> <li>• Inspect and sample deliveries</li> <li>• Sort and grade fish/other marine products, meat and eggs</li> <li>• Clean, wash and weigh raw materials</li> <li>• Weigh raw materials</li> <li>• Following process flow charts for raw materials preparation</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Methods of accomplishing forms and checklists of raw materials as received and rejects</li> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</li> <li>• Recording and reporting of inputs</li> <li>• Conversions (metric and English system) for weights and measures</li> <li>• Ratio and proportions for preparing raw materials</li> <li>• Percentages</li> <li>• Food safety principles and practices on raw materials preparations</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines:</li> </ul>	<ul style="list-style-type: none"> <li>• Store raw material trimmings for other purposes</li> <li>• Pre-treat raw materials</li> <li>• Accomplish forms and checklist of raw materials as received and rejects including other inputs</li> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Compute ingredients based on formula</li> <li>• Practice sanitary preparations of raw materials</li> <li>• Applying cGMP, HACCP and SSOP on preparing raw materials</li> <li>• Segregate and dispose waste in designated containers</li> <li>• Use PPE</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Practice 7S of Good housekeeping</li> <li>• Maintain by cleaning and sanitizing various equipment, tools and utensils</li> <li>• Practice sourcing of quality raw materials and ingredients</li> </ul>			
	4.3 Dry pre-treated raw materials	<ul style="list-style-type: none"> <li>• Washing and draining procedures and techniques</li> <li>• Additives and preservatives used in drying foods</li> <li>• Drying and dehydration procedures and techniques</li> <li>• Different types of food dryer and dehydrators</li> <li>• Alternative tools and equipment</li> <li>• Methods of accomplishing forms and checklists of drying pre-treated raw materials</li> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to</li> </ul>	<ul style="list-style-type: none"> <li>• Wash and drain pre-treated raw materials</li> <li>• Use additives and preservatives to pre-treated raw materials</li> <li>• Dry and dehydrate pre-treated raw materials</li> <li>• Operate dryer and dehydrators</li> <li>• Following process flow charts for drying pre-treated raw materials</li> <li>• Using alternative tools and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		immediate head/supervisor <ul style="list-style-type: none"> <li>• Recording and reporting on time and temperature of drying</li> <li>• Conversions (metric and English system) for weights and measures</li> <li>• Ratio and proportions for pre-treated raw materials</li> <li>• Percentages</li> <li>• Food handling practices on drying pre-treated raw materials</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Accomplish forms and checklist of drying pre-treated raw materials</li> <li>• Record and report the condition and defects of tools, utensils and equipment</li> <li>• Interpersonal skills</li> <li>• Oral communication skills</li> <li>• Record and report the time and temperature during drying</li> <li>• Interpersonal skills</li> <li>• Oral communication skills</li> <li>• Compute ingredients based on formula</li> <li>• Practice sanitary preparations of pre-treated raw materials</li> <li>• Applying cGMP, HACCP and SSOP on</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
			preparing raw materials <ul style="list-style-type: none"> <li>• Segregate and dispose waste in designated containers</li> <li>• Practice 7S of Good Housekeeping</li> <li>• Maintain by cleaning and sanitizing various equipment, tools and utensils</li> <li>• Practice sourcing of quality raw materials and ingredients</li> </ul>			
	4.4 Cool and sweat dried products	<ul style="list-style-type: none"> <li>• Cooling and sweating procedures and techniques</li> <li>• Methods of checking dried products</li> <li>• Grading procedures of dried products</li> <li>• Corrective measures for non-conforming products</li> <li>• Methods of accomplishing forms and checklists for cooling and sweating of dried products</li> </ul>	<ul style="list-style-type: none"> <li>• Cool and sweat dried products</li> <li>• Following process flow charts for cooling and sweating of dried products</li> <li>• Check dried products</li> <li>• Grading of dried products</li> <li>• Applying corrective measures for</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	



Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Procedures on reporting of defects, breakdown and other irregularities during the activities to immediate head/supervisor</li> <li>• Recording and reporting of daily production input report (spoilage and rejects) of the products</li> <li>• Food safety principles and practices on cooling and sweating of dried products</li> <li>• Current Good Manufacturing Practices</li> <li>• Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines:               <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep, standardize, self-discipline, safety and security) of Good Housekeeping</li> <li>○ Halal guidelines</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>non-conforming products</li> <li>• Accomplish forms and checklist for the cooling and sweating of dried products</li> <li>• Recording and reporting skills on the condition and defects of tools, utensils and equipment.</li> <li>• Oral communication skills</li> <li>• Interpersonal skills</li> <li>• Record and report of daily production input report (spoilage and rejects) of the products</li> <li>• Practice of sanitary food handling on cooling and sweating of dried products</li> <li>• Applying cGMP, HACCP and SSOP on preparing raw materials</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Kosher and organic food processing guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Segregate and dispose waste in designated containers</li> <li>• Use PPE</li> <li>• Practice 7S of Good Housekeeping</li> <li>• Maintain by cleaning and sanitizing various equipment, tools and utensils</li> <li>• Practice sourcing of quality raw materials and ingredients</li> </ul>			
	4.5 Pack dried products	<ul style="list-style-type: none"> <li>• Different packaging materials for dried products</li> <li>• Different packaging tools and utensils</li> <li>• Sealing method and techniques</li> <li>• Labeling information               <ul style="list-style-type: none"> <li>○ Name of products</li> <li>○ Net weight</li> <li>○ Ingredients</li> <li>○ Production/expiry date</li> <li>○ Manufacturer's address</li> <li>○ Allergen Program</li> </ul> </li> <li>• Sealing integrity/ standards</li> </ul>	<ul style="list-style-type: none"> <li>• Accomplish enterprise forms/checklist for weight of finished products</li> <li>• Practice sanitary preparations for packing operations</li> <li>• Applying cGMP, HACCP and SSOP on preparing raw materials</li> <li>• Segregate and dispose waste in designated containers</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Checking techniques for finished products</li> <li>• Reporting of defects, irregularities and breakdown during packing operations to immediate head/supervisor</li> <li>• Recording of non-conformance packed products</li> <li>• Methods of accomplishing forms and checklists for recording of products weights</li> <li>• Food safety principles and practices for packing operations</li> <li>• Current Good Manufacturing Practices <ul style="list-style-type: none"> <li>▪ Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> </ul> </li> <li>• Sanitation Standard Operating Procedures (SSOP)</li> <li>• Waste management</li> <li>• Occupational Safety and Health Standards (OSHS)</li> <li>• Guidelines: <ul style="list-style-type: none"> <li>○ 7S (sort, systematize, sweep,</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Use PPE</li> <li>• Practice 7S of Good Housekeeping</li> <li>• Maintain by cleaning and sanitizing various packing equipment, tools and utensils</li> <li>• Practice sourcing of quality packing materials</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		standardize, self-discipline, safety and security) of Good Housekeeping <ul style="list-style-type: none"> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul>				
	4.6 Perform post-production activities	<ul style="list-style-type: none"> <li>• Storing procedures and techniques for packed products</li> <li>• Different storage conditions</li> <li>• Operation of storage equipment (chiller/freezer)</li> <li>• Storing procedures for excess materials and ingredients</li> <li>• Cleaning and storing methods for equipment, tools and utensils</li> <li>• Recording of storage time and temperature.</li> <li>• Preparation of daily production input report (spoilage and rejects)</li> <li>• Production data</li> <li>• Recording procedures of production data using enterprise forms</li> <li>• Reporting procedures on conditions of tools, equipment and utensils to immediate head/supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• Store packaged food products, excess materials and ingredients</li> <li>• Follow flow chart of the activities</li> <li>• Clean and store of equipment, tools and utensils</li> <li>• Record of storage time and temperature for finished products</li> <li>• Prepare record of spoilage and rejects and yields and recoveries</li> <li>• Prepare report on production data</li> <li>• Accomplish/complete enterprise forms and checklist on packing</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	100 Hrs

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Inventory of equipment, tools, utensils and materials</li> <li>• Inventory of excess materials and ingredients</li> <li>• Waste management</li> <li>• Environmental protection and concern</li> <li>• Food safety principles and practices for storage of finished products</li> <li>• Occupational Safety and Health Standards on post production activities</li> <li>• HACCP basic principles on storage of finished products</li> <li>• Current Good Manufacturing practices</li> <li>• SSOP of post-production activities</li> <li>• 7S of Good Housekeeping</li> <li>• Guidelines               <ul style="list-style-type: none"> <li>○ Halal guidelines</li> <li>○ Kosher and organic guidelines</li> </ul> </li> <li>• Preventive maintenance of equipment, tools and utensils use in post-production activities</li> <li>• Maintenance of storage facilities and room</li> </ul>	<p>activities and inventory data</p> <ul style="list-style-type: none"> <li>• Follow environmental rules and regulations such as wastes segregation and disposals.</li> <li>• Practicing sanitary food handling upon storing finished products</li> <li>• Wear PPE during post production activities</li> <li>• Practice cGMP, SSOP and HACCP</li> <li>• Maintain various equipment, tools and utensils such as cleaning and sanitizing</li> <li>• Maintaining working areas and storage facilities</li> <li>• Sourcing of cleaning materials</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Sourcing of cleaning materials during shutting down operations</li> <li>• Different equipment, tools and utensils:</li> <li>• Different parts and functions</li> <li>• Procedures in inspecting, checking, calibrating and sanitizing quality control tools</li> <li>• Procedures in regular up keeping</li> <li>• Procedures in preventive maintenance</li> <li>• Procedures in reporting of conditions and defects/breakdown to immediate head/supervisor</li> <li>• Accomplishing inspection forms and checklists</li> <li>• Different quality processing materials</li> <li>• Proper waste disposal</li> <li>• Codes and Regulations               <ul style="list-style-type: none"> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Occupational Safety and Health Standards (OSHS)</li> <li>○ Current Good Manufacturing Practices</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Select equipment, tools and utensils</li> <li>• Inspect and check the conditions and defects of equipment, tools and utensils for possible defects/ breakdown</li> <li>• Prepare inspection report</li> <li>• Sanitize equipment, tools and utensils</li> <li>• Select quality processing materials</li> <li>• Use PPEs</li> <li>• Practice OSHS and 3Rs</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Sanitation Standard Operating Procedures (SSOP)</li> </ul>				
	4.7 Prepare the raw materials	<ul style="list-style-type: none"> <li>• Different types of raw materials for thermal processing</li> <li>• Procedures in sorting and grading</li> <li>• Procedures in reporting of received and reject raw materials and other inputs</li> <li>• Accomplishing forms and checklists</li> <li>• Procedures in washing and sanitizing</li> <li>• Procedures in size reduction</li> <li>• Proper waste disposal</li> <li>• Method of operating thermal processing equipment: <ul style="list-style-type: none"> <li>○ Pressure cooker</li> <li>○ Steamer</li> </ul> </li> <li>• Procedures in preparing different packing medium: <ul style="list-style-type: none"> <li>○ Syrup</li> <li>○ Brine</li> <li>○ Water</li> <li>○ Oil</li> <li>○ Sauces</li> </ul> </li> <li>• Recording and reporting of inputs</li> <li>• Codes and guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Select, sort and grade raw materials</li> <li>• Segregate and dispose reject raw materials</li> <li>• Prepare received and reject report and other inputs</li> <li>• Wash, sanitize and trim raw materials</li> <li>• Operate thermal processing equipment</li> <li>• Prepare packing medium according to the type of product</li> <li>• Use PPEs</li> <li>• Practice OSHS and 3Rs</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Occupational Safety and Health Standards (OSHS)</li> <li>○ Current Good Manufacturing Practices</li> <li>○ Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>○ SSOP</li> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food processing guidelines</li> </ul>				
	4.8 Pasteurize the product	<ul style="list-style-type: none"> <li>• Principles of pasteurization</li> <li>• Fruit juices</li> <li>• Procedures of mixing prepared ingredients</li> <li>• Ratio and proportions of pre-prepared ingredients</li> <li>• Uses and functions of equipment, tools and utensils for pasteurization process</li> <li>• Steps in operating double broiler</li> <li>• Temperature and time requirements for pasteurization</li> <li>• Procedures in recording and reporting: <ul style="list-style-type: none"> <li>○ Accomplishing forms and checklists</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Measure and mix pre-prepared ingredients</li> <li>• Pasteurize fruit juices using double boiler</li> <li>• Check temperature and time during pasteurization</li> <li>• Prepare report of pasteurization process</li> <li>• Defects, breakdown and other irregularities</li> <li>• Process inputs</li> <li>• Use of PPEs</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	



Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Defects, breakdown and other irregularities during the activities to immediate head/supervisor</li> <li>○ Process of inputs</li> <li>● Proper waste disposal</li> <li>● Codes and guidelines:               <ul style="list-style-type: none"> <li>○ Food safety principles and practices on pasteurization process</li> <li>○ Food handling practices on pasteurization process</li> <li>○ Occupational Safety and Health Standards (OSHS) for pasteurization process</li> <li>○ Current Good Manufacturing Practices</li> <li>○ Hazard Analysis &amp; Critical Control Points (HACCP) basic principles</li> <li>○ SSOP</li> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic pasteurization of fruit juices</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Practice 3Rs</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
	4.9 Pack food products	<ul style="list-style-type: none"> <li>• Different packing materials</li> <li>• Packing procedures and techniques               <ul style="list-style-type: none"> <li>○ Headspace</li> <li>○ Filling temperature</li> </ul> </li> <li>• Parts and functions of packing equipment               <ul style="list-style-type: none"> <li>○ Packing sealer</li> </ul> </li> <li>• Procedures in operating packing equipment</li> <li>• Preventive maintenance of packing equipment, tools, utensils and facilities</li> <li>• Procedures in recording and reporting:               <ul style="list-style-type: none"> <li>○ Accomplishing enterprise forms for recording of products weights</li> <li>○ - Defects, irregularities and breakdown during packing operations to immediate head/supervisor</li> <li>○ Non-conformance packed products</li> </ul> </li> <li>• Proper waste disposal</li> </ul>	<ul style="list-style-type: none"> <li>• Select packing materials</li> <li>• Pack food products following headspace and filling temperature</li> <li>• Check and inspect headspace</li> <li>• Seal packed food products using packing sealer</li> <li>• Prepare report of packing products:               <ul style="list-style-type: none"> <li>○ Defects, irregularities and breakdown during packing operations</li> <li>○ Non-conformance packed products</li> </ul> </li> <li>• Use of PPEs</li> <li>• Practice 3Rs</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	
	4.10 Exhaust and seal food products	<ul style="list-style-type: none"> <li>• Parts and functions of can and bottle sealer</li> <li>• Operating Procedures               <ul style="list-style-type: none"> <li>○ Can sealer</li> <li>○ Bottle sealer</li> </ul> </li> <li>• Exhausting techniques for food products</li> </ul>	<ul style="list-style-type: none"> <li>• Exhaust food products</li> <li>• Inspect and check temperature during exhausting</li> </ul>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Demonstration</li> <li>• Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstration</li> <li>• Questioning</li> <li>• Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Temperature</li> <li>● Sealing procedures and techniques</li> <li>● Sealing integrity/ standards:               <ul style="list-style-type: none"> <li>○ Steps in checking headspace and leakage</li> </ul> </li> <li>● Procedures in recording and reporting:               <ul style="list-style-type: none"> <li>○ Accomplishing enterprise forms for recording of temperature and products weights</li> <li>○ Defects, irregularities and breakdown during the operations to immediate head/supervisor</li> <li>○ Non-conformance sealed products</li> </ul> </li> <li>● Proper waste disposal</li> <li>● Codes and guidelines:               <ul style="list-style-type: none"> <li>○ Food safety principles and practices for exhausting and sealing activities</li> <li>○ Food handling practices for exhausting and sealing activities</li> <li>○ Occupational Safety and Health standards for</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Seal food products using:               <ul style="list-style-type: none"> <li>○ Can sealer</li> <li>○ Bottle sealer</li> </ul> </li> <li>● Inspect headspace and leakage after sealing food products</li> <li>● Prepare report of sealed products:               <ul style="list-style-type: none"> <li>○ Defects, irregularities and breakdown during operations</li> <li>○ Non-conformance of sealed products</li> </ul> </li> <li>● Use PPEs</li> <li>● Practice 3Rs</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		exhausting and sealing activities <ul style="list-style-type: none"> <li>○ HACCP basic principles</li> <li>○ Current Good Manufacturing practices</li> <li>○ SSOP of packing operations</li> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food guidelines</li> </ul> <ul style="list-style-type: none"> <li>● Regular upkeep of various equipment, tools, utensils and facilities use for exhausting and sealing activities of food products</li> <li>● Preventive maintenance of equipment and tools use for exhausting and sealing activities of food products</li> </ul>				
	4.11 Apply thermal processing	<ul style="list-style-type: none"> <li>● Loading techniques of sealed products</li> <li>● Unloading procedures of processed products</li> <li>● Different thermal processing equipment               <ul style="list-style-type: none"> <li>○ Parts and functions</li> <li>○ Steps in operating thermal processing equipment</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Load sealed products to thermal processing equipment</li> <li>● Operate thermal processing equipment:               <ul style="list-style-type: none"> <li>○ Pressure cooker</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Discussion</li> <li>● Demonstration</li> <li>● Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>● Demonstration</li> <li>● Questioning</li> <li>● Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Monitoring processing temperature, pressure and time</li> <li>● Procedures in recording and reporting:</li> <li>○ Accomplishing enterprise forms for recording of temperature, pressure and time during the operation</li> <li>○ Defects, irregularities and breakdown during the operations to immediate head/supervisor</li> <li>○ Non-conformance products</li> <li>● Proper waste disposal</li> <li>● Codes and guidelines <ul style="list-style-type: none"> <li>○ Food safety principles and practices for thermal processing</li> <li>○ Food handling practices for thermal processing</li> <li>○ Occupational Safety and Health Standards for thermal processing</li> <li>○ HACCP basic principles</li> <li>○ Current Good Manufacturing practices</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Steamer</li> <li>● Monitor processing temperature, pressure and time of thermal processing equipment</li> <li>● Unload processed products from thermal processing equipment</li> <li>● Prepare report of processed products:</li> <li>○ Defects, irregularities and breakdown during the operations</li> <li>○ Non-conformance of processed products</li> <li>● Use PPEs</li> <li>● Practice 3Rs</li> </ul>			

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ SSOP of thermal processing</li> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic food guidelines</li> <li>● Regular upkeep of various equipment, tools, utensils and facilities use for thermal processing</li> <li>● Preventive maintenance of equipment and tools use for thermal processing</li> </ul>				
	4.12 Cool and wash packed products	<ul style="list-style-type: none"> <li>● Cooling procedures of bottled and canned products</li> <li>● Parts and functions of cooling equipment: <ul style="list-style-type: none"> <li>○ Steps in operating cooling equipment</li> </ul> </li> <li>● Washing and drying methods for bottled and canned products</li> <li>● Procedure in recording and reporting: <ul style="list-style-type: none"> <li>○ Accomplishing enterprise forms for recording purposes</li> <li>○ Defects, irregularities and breakdown during the operations to immediate head/supervisor</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Operate cooling equipment for bottled and canned products</li> <li>● Wash and dry bottled and canned products after cooling</li> <li>● Prepare report of cooled products: <ul style="list-style-type: none"> <li>○ Defects, irregularities and breakdown during the operations</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Discussion</li> <li>● Demonstration</li> <li>● Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>● Demonstration</li> <li>● Questioning</li> <li>● Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ Non-conformance products</li> <li>● Proper waste disposal</li> <li>● Codes and guidelines:               <ul style="list-style-type: none"> <li>○ Food safety principles and practices for cooling of packed products</li> <li>○ Food handling practices for cooling of packed products</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Non-conformance products</li> <li>● Use PPEs</li> <li>● Practice 3Rs</li> </ul>			
	4.13 Conduct post-production activities	<ul style="list-style-type: none"> <li>● Different labeling techniques:</li> <li>● Labeling information               <ul style="list-style-type: none"> <li>○ Name of products</li> <li>○ Net weight</li> <li>○ Ingredients</li> <li>○ Production/expiry date</li> <li>○ Manufacturer's address</li> <li>○ Allergen Program</li> </ul> </li> <li>● Quality control parameters of finished products in operating of storage equipment (chiller/freezer):               <ul style="list-style-type: none"> <li>○ Different storage conditions and period</li> <li>○ Storing procedures and techniques</li> <li>○ Storing procedures for excess materials and ingredients</li> </ul> </li> <li>● Different production data</li> </ul>	<ul style="list-style-type: none"> <li>● Label finished products with label information</li> <li>● Check and inspect finished products according to quality control parameters</li> <li>● Perform incubation of finished products</li> <li>● Operate storage equipment</li> <li>● Store finished products, excess materials and ingredients</li> <li>● Monitor storage conditions and period</li> </ul>	<ul style="list-style-type: none"> <li>● Discussion</li> <li>● Demonstration</li> <li>● Lecture/ Incomplete worksheet</li> </ul>	<ul style="list-style-type: none"> <li>● Demonstration</li> <li>● Questioning</li> <li>● Written test</li> </ul>	

Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>• Procedure in cleaning and storing equipment, tools and utensils</li> <li>• Procedure in recording and reporting:               <ul style="list-style-type: none"> <li>○ Production data using enterprise forms</li> <li>○ Storage time and temperature</li> <li>○ Daily production input (spoilage and rejects)</li> <li>○ Inventory of excess materials and ingredients</li> <li>○ Inventory and conditions of tools, equipment and utensils to immediate head/supervisor</li> </ul> </li> <li>• Proper waste disposal</li> <li>• Codes and guidelines:               <ul style="list-style-type: none"> <li>○ Environmental protection and concern</li> <li>○ Food safety principles and practices for storage of finished products</li> <li>○ Occupational Safety and Health Standards on post production activities</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Prepare report of finished products:               <ul style="list-style-type: none"> <li>○ Production data</li> <li>○ Storage time and temperature</li> <li>○ Daily production input (spoilage and rejects)</li> <li>○ Inventory of excess materials and ingredients</li> </ul> </li> <li>• Clean and store equipment, tools and utensils</li> <li>• Prepare inventory of equipment, tools and utensils</li> <li>• Use PPEs</li> <li>• Practice 3Rs</li> </ul>			



Unit of Competency	Learning Outcomes	Learning Contents	Practical Activities	Methodologies	Assessment Methods	Nominal Duration
		<ul style="list-style-type: none"> <li>○ HACCP basic principles on storage of finished products</li> <li>○ Current Good Manufacturing practices</li> <li>○ SSOP of post-production activities</li> <li>○ 7S of Good Housekeeping</li> <li>○ Halal guidelines</li> <li>○ Kosher and organic guidelines</li> <li>● Regular upkeep of various equipment, tools, utensils and packing facilities</li> <li>● Preventive maintenance of equipment, tools and utensils use in post-production activities</li> <li>● Maintenance of storage facilities and room</li> </ul>				

## 3.2 TRAINING DELIVERY

1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.
  - a. Course design is based on competency standards set by the industry or recognized industry sector; **(Learning system is driven by competencies written to industry standards)**
  - b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;
  - c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology.
  - d. Assessment is based in the collection of evidence of the performance of work to the industry required standards;
  - e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence.
  - f. Training program allows for recognition of prior learning (RPL) or current competencies;
  - g. Training completion is based on satisfactory completion of all specified competencies not on the specified nominal duration of learning.
2. 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 and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:

### 2.1 Institution- Based:

- Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP;
- 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, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

- The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components.

## **2.2 Enterprise-Based:**

- Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation.
- Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson.
- Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

**2.3 Community-Based** – Community-Based – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).

### **3.3 TRAINEE ENTRY REQUIREMENTS**

Trainees or students wishing to enroll in this course should possess the following requirements:

- Able to communicate, both orally and in writing
- Able to perform simple computations

### **3.4 TOOLS AND EQUIPMENT**

#### **FOOD PROCESSING NC II**

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

#### **A. School equipment, tools and materials**

1 unit Digital light projection  
1 unit System unit (computer)  
1 White board  
1 set White board marker and eraser  
1 unit Audio system  
1 lot Internet connection

#### References

- Books
- Charts
- Slides
- Manuals
- Codes and regulations

#### **B. Farm tools, equipment and materials**

### **FULL QUALIFICATION**

TOOLS		EQUIPMENT		MATERIALS	
QTY	Description	QTY	Description	QTY	Description
15 pcs	• Paring knives	1 unit	• Smoke house	<b>Food Supplies</b>	
10 pcs	• Peelers	1 unit	• Refractometer	5 doz	• Fresh eggs
25 pcs	• Knife (stainless steel)	2 units	• Refractometer (0-70° brix)	40 kgs	• Fresh meat
10 pcs.	• Chef's knives	1 unit	• Brix refractometers (0-20° brix)	10 pcs.	• Dressed poultry
5 pcs.	• Whetstone	1 unit	• Hydrometer	20 kgs.	• Fresh fish (medium size)
5 pcs	• Sharpener	1 unit	• Salinometer	20 kgs.	• Fresh fish (small)
5 pcs	• Sets of measuring spoons	5 units	• pH meter	45 kgs	• Fish
5 sets	• Measuring cups (solid)	1 unit	• Probe thermometer	1 set	• Curing ingredients for ham (good for 10 kgs.)
5 sets	• Measuring cups (liquid)	1 set	• Salinometer with cylinder	1 set	• Curing ingredients for tocino/longanisa (good for 10 kgs.)
10 pcs.	• Heavy duty plastic chopping board (HDPE) chopping boards	5 units	• Vernier caliper	2 sacks	• Refined sugar
10 pcs.	• Hard plastic chopping boards	1 unit	• Freezer Upright	3 gals	• Vinegar
15 pcs.	• Mixing bowls, stainless steel	1 unit	• Refrigerator	2 gals	• All spice pickling solution
10 pcs.	• Mixing Containers/Vats	1 unit	• Freezer	1 kg	• Citric acid
5 pcs.	• Soaking container	1 unit	• Chiller	1 kg	• Sodium benzoate
50 pcs.	• Containers for salt, condiments, spices	5 units	• Stoves	2 gals	• Pineapple juice (unsweetened)
15 pcs.	• Colanders (stainless steel)	1 unit	• Oven	30 kgs	• Fruit
5 pcs	• Washing vat			30 kgs	• Fresh Vegetables

2 pcs.	• Big frying vat (kawa)	1 unit	• Pressure cooker	10 kgs	• Dried carrot
15 pcs.	• Casseroles stainless steel	1 unit	• Trolley	<b>Non-Food Supplies</b>	
10 pcs.	• Saucepan, stainless steel	1 unit	• Impulse sealer	2 gals	• Disinfectant/sanitizers
5 pcs.	• Heavy duty bottom pan (SS)	1 unit	• Cap sealer	5 pcs.	• Bar soap/detergent
2 pcs.	• Steamer	1 unit	• Vacuum pack machine	2 packs	• PE plastic packaging materials
1 pc.	• Stainless pitcher	1 unit	• Vacuum gauge	3 boxes	• 8 oz., 12 oz., round bottles w/ PVC caps
25 pcs.	• Utility trays	1 unit	• Vacuum sealer	1 btl.	• Glue
5 sets	• Food trays	5 units	• Polysealer	100	• Glass bottles
10 pcs.	• Plastic rectangular perforated trays	1 unit	• Headspace gauge	1 pack	• Tags/labels
5 pcs.	• Jar liter	1 unit	• Smoking trays	10	• Corrugated cartons
5 pcs.	• Dial thermometers	5 units	• Meat grinder	15 kgs	• Smoking materials (wood chips, etc)
10 pcs.	• Long handled ladles (SS)	1 unit	• Blender/Homogenizer	100 pcs	• NYPE pouch
15 pcs.	• Spoons (wooden)	5 units	• Food processor	100 pcs.	• Sticker labels
10 pcs.	• Spoon (basting)	1 unit	• Vegetable Cutter (Food Processor)	50 pcs.	• Aprons
4 pcs.	• Paddles (wooden)	2 units	• Titration set-up	50 pcs.	• Hair Nets
5 sets	• Spatula (SS)	2 units	• Electronic scales (0.1 gm sensitivity and 1kg capacity)	50 pcs.	• Mouth Masks
10 pcs.	• Food tongs	5 units	• Weighing scales (10 kgs. capacity)	100 pcs	• Polyethylene bottle (PEB)/ Polypropylene (PP)
5 pcs.	• Funnel (stainless steel)	1 unit	• Weighing scale (10-50 kgs. capacity)	100 pcs.	• Laminated Foil
5 pcs.	• Clocks/timer	5 units	• Weighing scales (1 kg. capacity)		
5 pcs.	• Calculator	5 units	• Weighing scale (1-6 kgs)		
25 pcs.	• Face mask	5 units	• Digital weighing scales 1 – 2 kg cap with 2		

			decimal graduation		
25 pairs	• Gloves	1 unit	• Laboratory scale cabinet drier or forced draft oven		
25 pcs.	• Lab gowns	1 unit	• Cabinet dryer with trays		
25 pcs.	• Hair net	1 unit	• Solar Dryer		
25 pairs	• Safety shoes	1 unit	• Dehydrator		
		5 units	• LPG/Gas tanks		
		2 units	• Jacketed kettle		

### COC 1 : PROCESS FOOD BY SALTING, CURING AND SMOKING

TOOLS		EQUIPMENT		MATERIALS	
QTY	Description	QTY	Description	QTY	Description
15 pcs.	• Paring knives	1 unit	• Smoke house	A. Food supplies	
10 pcs.	• Peelers			5 doz	• Fresh eggs
5 sets	• Sets of measuring spoons	1 unit	• Chiller	10 kgs	• Fresh meat
5 sets	• Measuring cups (solid)	1 unit	• Refrigerator	10 pcs.	• Dressed poultry
5 sets	• Measuring cups (liquid)	1 unit	• Freezer	20 kgs.	• Fresh fish (medium size)
2 pcs.	• Clocks/timer	5 units	• Stoves	20 kgs.	• Fresh fish (small)
15 pcs.	• Mixing bowls, stainless steel	1 unit	• Trolley	1 set	• Curing ingredients for ham (good for 10 kgs.)
10 pcs.	• Hard plastic chopping boards	1 unit	• Impulse sealer	1 set	• Curing ingredients for tocino/ longanisa (good for 10 kgs.)
5 pcs.	• Dial thermometers	1 unit	• Pressure cooker	1 sack	• Refined sugar
5 pcs.	• Jar liter	1 unit	• Oven	3 gal	• Vinegar
5 pcs.	• Wire baskets	5 units	• Smoking trays	2 gal	• All spice pickling solution
2 pcs.	• Whetstone	1 unit	• Meat grinder	1 kg	• Citric acid
15 pcs.	• Casseroles stainless steel	1 unit	• Stuffer/linker	1 kg	• Sodium benzoate
10 pcs.	• Saucepan, stainless steel	2 units	• Brix refractometers (0-20° brix)	2 gal	• Pineapple juice (unsweetened)
15 pcs.	• Spoons, wooden	1 unit	• Salinometer	<b>B. Non food</b>	
10 pcs.	• Spoon, basting	5 units	• Blender/Homogenizer	2 gals	• Disinfectant/ sanitizers
4 pcs.	• Paddles, wooden	1 unit	• Food processor	5 pcs.	• Bar soap/ detergent

TOOLS		EQUIPMENT		MATERIALS	
QTY	Description	QTY	Description	QTY	Description
10 pcs.	• Food tongs	2 units	• Electronic scales (0.1 gm sensitivity and 1kg capacity)	2 packs	• PE plastic packaging materials
2 pcs.	• Steamer •	5 units	• Weighing scales (10 kg. capacity)	3 boxes	• 8 oz., 12 oz., round bottles w/ PVC caps
5 pcs.	• Soaking container	5 units	• Weighing scales (1 kg. capacity)	1 btl.	• Glue
25 pairs	• Safety shoes	1 unit	• Vacuum pack machine	1 pack	• Tags/labels
25 pcs.	• Lab gowns	1 unit	• Laboratory scale cabinet drier or forced draft oven	10	• Corrugated cartons
25 pcs.	• Hair net	2 units	• Gas stoves with LPG tanks	15 kgs	• Smoking materials (wood chips, etc)
25 pcs.	• Face mask	<b>TRAINING MATERIALS</b>			
25 pairs	• Gloves	5 copies	• books/ reference		
20 pcs.	• Utility trays	5 copies	• manual		
15 pcs.	• Colanders, stainless steel	5 copies	• videos		
10 pcs.	• Chef's knives				
2 pcs.	• Big frying vat (kawa)				
5 pcs.	• Calculator				



## COC2: PROCESS FOOD BY FERMENTATION AND PICKLING

TOOLS		EQUIPMENT		MATERIALS	
QTY	Description	QTY	Description	QTY	Description
5 sets	Measuring spoons	1 unit	Weighing scale (10-50 kgs)	50 pcs.	Aprons
5 sets	Spatula	5 units	Weighing scale (1-6 kgs)	50 pcs.	Hair Nets
5 sets	Food trays	1 unit	Refractometer	50 pcs.	Mouth Masks
5 pcs.	Colanders	5 units	Polysealer	25 pairs	Rubber Boots
25 pcs.	Trays	1 unit	pH meter	100 pairs	Gloves
50 pcs.	Containers for salt, condiments, spices	1 unit	Vegetable Cutter (Food Processor)	100 pcs	Polyethylene bottle (PEB)/ Polypropylene (PP)
10 pcs.	Mixing Containers/Vats	1 unit	Probe thermometer	100 pcs	NYPE pouch
25 pcs	Knife	1 set	Salinometer with cylinder	100 pcs.	Sticker labels
5 pcs.	Whetstone	1 unit	Freezer Upright	15 kgs	Fish
10 pcs.	Chopping boards	1 unit	Refrigerator	10 kgs	Fruit
5 units	Calculator	1 unit	Cooler box	10 kgs	Fresh Vegetables
		5 units	Stove	100	Glass bottles
		1 set	Titration set-up	1 pcs.	White board,
		1 units	Whiteboard eraser	1 pcs.	White board pens
		<b>TRAINING MATERIALS</b>			
		5 copies	• books/ reference		
		5 copies	• manual		
		5 copies	• videos		

## COC3: PROCESS FOOD BY SUGAR CONCENTRATION

TOOLS		EQUIPMENT		MATERIALS	
QTY	Description	QTY	Description	QTY	Description
10 pcs.	• Plastic rectangular perforated trays	1 unit	• Smoke house	A. Food supplies	
10 pcs.	• Long handled ladles (SS)	1 unit	• Refrigerator	1 sack	• Refined sugar
5 pcs.	• Heavy duty buttom pan (SS)	1 unit	• Freezer		
15 pcs.	• Pairing knives	5 units	• Stoves		
10 pcs.	• Knives SS	1 unit	• Trolley		
10 pcs.	• Peelers	1 unit	• Cap sealer		
5 sets	• Measuring spoons, sets SS	1 unit	• Pressure cooker		
5 sets	• Measuring cups (solid) SS	2 units	• jacketed kettle		

5 sets	• Measuring cups for liquid (plastic)	2 units	• refractometer (0-70° brix)		
5 pcs.	• Clocks/timer	1 unit	• Headspace gauge		
15 pcs.	• Mixing bowls, stainless steel	5 units	• Vernier caliper		
10 pcs.	• Heavy duty plastic chopping board( HDPE) chopping boards	5 units	• Gas tank		
5 pcs.	• Dial thermometers	1 unit	• Vacuum gauge		
5 pcs.	• Jar lifter	5 units	• Weighing scales (10 kg. capacity)		
5 pcs.	• Wire baskets	1set	• Food processor, set		
15 pcs.	• Casseroles stainless steel	5 units	• Stainless steel blender		
10 pcs.	• Spoon, basting	5 units	• Digital weighing scales 1 – 2 kg cap with 2 decimal graduation		
4 pcs.	• Food tongs	<b>TRAINING MATERIALS</b>			
2 pcs.	• Steamer	5 copies	• books/reference		
5 pcs.	• SS spatula	5 copies	• manual		
20 pcs.	• Utility trays	5 copies	• videos		
15 pcs.	• Colanders, stainless steel				
5 pcs	• Washing vat				
5 pcs.	• Funnel SS				

#### COC4: PROCESS FOOD BY THERMAL APPLICATION

TOOLS		EQUIPMENT		MATERIALS	
QTY	Description	QTY	Description	QTY	Description
1 pc.	• Stainless pitcher	1unit	• Chiller	50 pcs.	Aprons
		1unit	• Pressure cooker	50 pcs.	Hair nets
		1 unit	• Stove	50 pcs.	Mouth masks
		<b>TRAINING MATERIALS</b>		25 pairs	Rubber boots
		5 copies	• books/reference	100 pcs.	Gloves
		5 copies	• manual	15 kgs	Meat
		5 copies	• videos	15 kgs	Fish
				10 kgs	Fruit
				10 kgs	Fresh vegetables

#### COC 5: PROCESS FOOD BY DRYING AND DEHYDRATION

TOOLS		EQUIPMENT		MATERIALS	
QTY	Description	QTY	Description	QTY	Description
5 pcs.	Timer	1unit	Freezer Upright	50 pcs.	Aprons
5 sets	Knife sets	1 unit	Refrigerator	50 pcs.	Hair nets
5 pcs	Sharpener	1 unit	Cabinet dryer with trays	50 pcs.	Mouth masks
5 sets	Measuring spoons	1 unit	Solar Dryer	25 pairs	Rubber boots
5 sets	Spatula	1 unit	Dehydrator	100 pcs	Gloves
5 sets	Food trays	1 unit	Vacuum sealer	100 pcs	Polyethylene bottle (PEB)/ Polypropylene (PP)
25 pcs.	Utility Trays	5 unit	Polysealer	100 pcs.	Laminated Foil
5 pcs.	Colanders	1 unit	Meat Slicer	100 pcs.	Sticker labels
50 pcs.	Containers for salt, condiments, spices	1 unit	Vegetable Cutter (Food Processor)	15 kgs	Meat
1 pc.	Cooler box	1 unit	Weighing scale (10-50 kgs)	15 kgs	Fish
<b>Instrument</b>	5 units	Weighin g scale (1-6 kgs)	10 kgs	Fruit	
1 unit	Refractometer	1 unit	White board eraser	10 kgs	Fresh vegetables
1 unit	Salinometer/ Hydrometer	1 unit	White board pens	10 kgs	Dried carrot
1 unit	Probe thermometer				
1 unit	Hydrometer				

### 3.5 TRAINING FACILITIES

#### FOOD PROCESSING NC II

Based on a class size of 25 students/trainees

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS
<b>A. Building (permanent)</b>			
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
Changing area			15
Lecture area/room			60
<b>Sub total</b>			195
Facilities/Equipment/Circulation (30% of teaching accommodation)			58.5
<b>Total workshop area</b>			<b>253.5</b>

### 3.6 TRAINER QUALIFICATIONS FOR PROCESSED FOOD AND BEVERAGES SECTOR

Trainers who will deliver the training on FOOD PROCESSING NC II should have the following:

- Must be a holder of National TVET Trainer Certificate I (TM I and Food Processing NC II)
- College level of relevant course or 1-year job/industry experience
- Good communication skills
- Good moral character

### 3.7 ASSESSMENT

Institutional Assessment is undertaken by trainees in a structured learning program to determine their achievement of units 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 evidence for the assessment for national certification.

As a matter of policy, graduates of programs registered with TESDA under these training regulations are required to undergo mandatory national competency assessment upon completion of the program.

## **SECTION 4 ASSESSMENT AND CERTIFICATION ARRANGEMENT**

Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards.

The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to an employable unit(s) of competency in partial fulfillment of the requirements of the national qualification.

### **4.1 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS**

4.1.1 A National Certificate (NC) is issued when a candidate has demonstrated competence through project-type full qualification assessment sequentially covering all the units of competency that comprise the Training Regulations for **FOOD PROCESSING NC II** as follows:

#### **BASIC COMPETENCIES**

- Participate in workplace communication
- Work in team environment
- Practice career professionalism
- Practice occupational health and safety procedures

#### **COMMON COMPETENCIES**

- Apply Food Safety and Sanitation
- Use Standard Measuring Devices / Instruments
- Use Food Processing Tools, Equipment and Utensils
- Perform Mathematical Computation
- Implement Good Manufacturing Practice Procedure
- Implement Environmental Policies and Procedures

#### **CORE COMPETENCIES**

- Process Food by Salting, Curing and Smoking
- Process Food by Fermentation and Pickling
- Process Food by Sugar Concentration
- Process Food by Drying and Dehydration
- Process Food by Thermal Application

Successful candidates shall be awarded a National Certificate signed by the TESDA Director General.

4.1.2 The qualification of **FOOD PROCESSING NC II** may be attained through -

4.1.2.1 Accumulation of Certificates of Competency (COCs) in the following areas:

- 4.1.2.2 Process Food by Salting, Curing and Smoking
- 4.1.2.3 Process Food by Fermentation and Pickling
- 4.1.2.4 Process Food by Sugar Concentration
- 4.1.2.5 Process Food by Drying and Dehydration
- 4.1.2.6 Process Food by Thermal Application

- 4.1.3 Assessment shall focus on the units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.
- 4.1.4 The following are qualified to apply for assessment and certification:
  - 4.1.4.1 Graduates of formal, non-formal and informal including enterprise-based training programs
  - 4.1.4.2 Experienced Workers (Wage employed or self-employed)
- 4.1.5 Reassessment is allowed only after one month from the date of assessment. Reassessment for a National Certificate shall be done only on the task/s that the candidate did not successfully achieve.
- 4.1.6 A candidate who fails the assessment for two (2) consecutive times will be required to go through a refresher course before taking another assessment.
- 4.1.7 Only certified individuals in this Qualification may be nominated by the industry sector for accreditation as competency assessor.

## **4.2 COMPETENCY ASSESSMENT REQUISITE**

- 4.2.1 Self-Assessment Guide. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment. This document can:
  - a) Identify the candidate's skills and knowledge
  - b) Highlight gaps in candidate's skills and knowledge
  - c) Provide critical guidance to the assessor and candidate on the evidence that need to be presented
  - d) Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior `
- 4.2.2 Accredited Assessment Center. Only Assessment Center accredited by TESDA is authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage the assessment for National Certification.
- 4.2.3 Accredited Competency Assessor. Only accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.

# COMPETENCY MAP FOR PROCESSED FOOD AND BEVERAGES SECTOR FOOD PROCESSING NC II

## CORE UNITS OF COMPETENCY

Implement sampling procedures	Load and unload raw materials, products and/or supplies	Process Food by Drying and Dehydration	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/packaging materials for processing	Process food by sugar concentration	Operate a boiler	Handle dangerous goods/hazardous substances	Participate in a HACCP team
Operate basic equipment	Process food by thermal application	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	

## 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

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** - 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. **Ebulliometer** - is a key piece of wine making equipment for commercial winemakers, as it determines the alcohol content of your wine. Ebulliometers measure alcohol content in wine based on the difference in boiling points between water and wine.
17. **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.

18. **Fermentation** – refers to the anaerobic oxidation of carbohydrates by microbial enzymes
19. **Food Additives**- refer to substances intentionally added to foods to achieve or retain desired characteristics
20. **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
21. **GRAS**- means generally regarded as safe
22. **Hermetic Sealing**- refers to the closure of tin cans or glass jars tightly to prevent the entrance of microorganisms
23. **Packing Medium** – refers to brine, syrup, broth, oil or other similar ingredients used as canning medium
24. **Packing** – refers to the preparation of product or commodity for proper storage and/or transportation.
25. **Pickling**- refers to the preservation of foods by brine and vinegar with or without bacterial fermentation
26. **pH meter** – refers to an instrument used to measure the acidity of a sample
27. **PNS** – Philippine National Standards (DA-BAPPS)
28. **PP** – Polypropylene
29. **PE** – Polyethylene
30. **Preservatives**- refer to food additives that retard spoilage and preserve the natural color & flavor of food products
31. **Pulverize** – to reduce by crushing or grinding to very small particles
32. **Raw Materials** – consist of the main food material to be processed including minor food ingredients
33. **Retort Specification** – refers to a steam pressure canner used in sterilizing low acid canned foods
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. **Salinometer**- refers to the instrument to measure strength of brine

36. **Standard Measurement** – refers to something set up as a rule for measuring or a model to be followed
37. **Sensory evaluation** – is a scientific discipline that analyses and measures human responses to the composition of food and drink, e.g. appearance, touch, odour, texture, temperature and taste.
38. **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
39. **Smoking** – refers to subjecting the product to the action of smoke from burning wood materials
40. **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.
41. **Sugar Concentrates** – refer to products cooked with sugar to attain a concentration of 40-65% or to saturated sucrose level
42. **Syrup** – refers to a sugar solution whether light, medium or heavy syrup
43. **Syruping** – practice of making syrup made through boiling down or otherwise concentrating plant sap, juice or grain extracts.
44. **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
45. **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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