



FOOD PROCESSING

TECHNICAL-PROFESSIONAL

Grade 12

Three-Term Budget Of Work (BOW)
for Learning Competencies

**TECHNICAL-PROFESSIONAL
AGRI-FISHERY BUSINESS AND FOOD INNOVATION
Grade 12**

**Three-Term Budget Of Work
For Learning Competencies**

Please note that each Tech-Pro elective is completed in one term if delivered at Grade 12.

Elective	Food Processing	
Prerequisite	None	
Performance Standard	The learners perform maintenance of food processing and fish product packaging tools, materials, and equipment in accordance with industry standards.	
Content Standard	The learners demonstrate an understanding of the principles in Agro-Entrepreneurship And potential market opportunities of farm products and services.	
Week	Learning Competency	Suggested Activities
1	Discuss the overview of food processing and fish product packaging	Introduction to Food Processing and Packaging Overview of Food Processing and Fish Product Packaging - Lecture: Definition, importance, and types of food processing in the fisheries sector - Discuss packaging purposes: preservation, marketing, labeling - Group activity: Identify fish products commonly processed and packaged in the local industry - Short quiz: Key terms and concepts

Week	Learning Competency	Suggested Activities
		Types of Fish Processing and Packaging - Discuss methods: smoking, drying, canning, freezing, vacuum packing - Demonstration (video or live if possible): Examples of packaging fish products - Activity: Match fish product with the appropriate packaging method - Reflection: Advantages of different processing and packaging methods
	Discuss halal principles and practices in food processing	Halal Principles in Food Processing Learning Activities: - Lecture: Halal standards and guidelines in food processing - Discuss prohibited substances and proper handling for halal certification - Group Activity: Identify halal-compliant practices in local food processing - Short quiz: Halal principles Halal Practices Applied to Fish Products Learning Activities: - Case study: Evaluate a sample fish processing workflow for halal compliance - Group discussion: Challenges in applying halal standards in fish processing - Activity: Create a checklist for halal compliance in a small enterprise

Week	Learning Competency	Suggested Activities
2	Determine the different tools, materials, and equipment in food processing, packaging, and labeling	Tools, Equipment, and Maintenance Tools, Materials, and Equipment in Food Processing Learning Activities: - Lecture and demonstration: Cutting boards, knives, grinders, packaging machines, labeling tools - Hands-on: Identify tools and their proper use in processing and packaging - Activity: Create a table listing tools, functions, and materials Equipment Operation Procedures Learning Activities: - Demonstration: Proper operation of processing and packaging equipment - Hands-on: Simulate basic operations (manual or small-scale) - Activity: Record step-by-step operation procedures
	Perform maintenance of tools and equipment according to enterprise protocols.	Tools, Equipment, and Maintenance Maintenance of Tools and Equipment Learning Activities: - Lecture: Importance of preventive maintenance for efficiency and safety - Demonstration: Cleaning, lubricating, and storing tools and equipment - Hands-on: Practice maintenance tasks - Group Activity: Develop a weekly maintenance schedule

Week	Learning Competency	Suggested Activities
		Troubleshooting and Problem Solving Learning Activities: - Discuss common equipment problems and how to solve them - Activity: Role-play problem-solving scenarios for equipment malfunction - Reflection: How maintenance reduces downtime and ensures product quality
3	Discuss Occupational Safety and Health (OSH) procedures in food processing and fish product packaging	Occupational Safety and Health (OSH) Introduction to OSH in Food Processing Learning Activities: - Lecture: Principles of occupational safety in food processing and packaging - Discuss hazards: cuts, burns, slips, electrical, chemical - Activity: Identify potential hazards in a sample fish processing workflow Safety Practices and PPE Learning Activities: - Demonstration: Proper use of personal protective equipment (PPE) – gloves, aprons, masks, hairnets - Hands-on: Practice correct PPE usage - Activity: Prepare a safety checklist for fish processing tasks

Week	Learning Competency	Suggested Activities
		OSH Procedures During Processing and Packaging Learning Activities: • Lecture: Safe handling of tools, equipment, and materials • Activity: Conduct a mock hazard identification and risk assessment in a simulated processing environment • Group discussion: Best practices for accident prevention Practical Assessment and Reflection Learning Activities: • Performance Task: ◦ Demonstrate proper use and maintenance of processing tools and equipment ◦ Identify hazards and apply OSH procedures in simulated tasks ◦ Prepare a checklist combining halal compliance, tool maintenance, and safety procedures • Summative Assessment: Practical demonstration + written reflection
Suggested Performance Tasks	Individual Task: • Demonstration (video or live if possible): Examples of packaging fish products • Activity: Match fish product with the appropriate packaging method • Reflection: Advantages of different processing and packaging methods • Demonstrate proper use and maintenance of processing tools and equipment	

	Group Task: • Group Activity: Develop a weekly maintenance schedule • Hands-on: Identify tools and their proper use in processing and packaging • Activity: Create a table listing tools, functions, and materials • Group discussion: Best practices for accident prevention	
Performance Standard	The learners demonstrate an understanding of the principles in processing food through sugar concentration, packaging, labeling, and costing of food products	
Content Standard	The learners demonstrate an understanding of the principles in processing food through sugar concentration, packaging, labeling, and costing of food products.	
Week	Learning Competency	Suggested Activities
3	• Discuss types and classification of packaging in food processing	Packaging Types and Classification • Introduction to Food Packaging Learning Activities: • Lecture: Importance of packaging in food preservation and marketing • Discuss functions: protection, storage, transportation, and marketing • Group activity: Identify types of packaging materials used for sugar-concentrated products

Week	Learning Competency	Suggested Activities
		Classification of Packaging Learning Activities: • Lecture: Primary, secondary, and tertiary packaging • Activity: Classify sample packaging materials into primary, secondary, and tertiary • Discussion: Advantages and disadvantages of each packaging type Packaging Selection for Sugar-Concentrated Products Learning Activities: • Lecture: Packaging considerations for high-sugar products (e.g., jams, syrups, candied fruits) • Activity: Choose appropriate packaging for a given product • Reflection: How packaging affects shelf life and consumer acceptance Packaging Design and Labeling Learning Activities: • Lecture: Importance of labeling (ingredients, nutrition, brand, shelf life) • Activity: Design a label for a sample sugar-concentrated product

Week	Learning Competency	Suggested Activities
		Group discussion: Regulatory requirements for labeling
4	Perform the processing of food through sugar concentration	Processing Sugar-Concentrated Foods Introduction to Sugar Concentration Learning Activities: - Lecture: Principles of sugar concentration (syrup making, jam, candied fruits) - Discuss factors affecting quality: sugar ratio, heating, hygiene - Activity: Identify ingredients and tools used for sugar-concentration Preparation of Ingredients and Equipment Learning Activities: - Demonstration: Washing, peeling, cutting, and weighing fruits or other raw materials - Activity: Prepare ingredients for sugar concentration - Discussion: Importance of proper preparation for product quality Performing Sugar Concentration Learning Activities: - Demonstration: Cooking fruits with sugar to make jams, preserves, or syrup - Hands-on: Students perform sugar-concentration process in small batches - Activity: Record observations on consistency, taste, and color

Week	Learning Competency	Suggested Activities
		Quality Control and Safety Practices Learning Activities: • Lecture: Food safety and hygiene during sugar-concentration processing • Activity: Inspect batch quality for desired consistency and sugar content • Reflection: How safety and hygiene impact product acceptability
5	• Perform packaging and labeling of sugar-concentrated food products	Discuss the importance of proper packaging and labeling in food processing. • Identify the characteristics of good packaging materials for sugar-concentrated products. • Product Observation Activity • Examine different packaged jams, jellies, preserves, and candies. Identify the packaging materials and information found on product labels. • Matching Activity • Match packaging materials with appropriate sugar-concentrated food products. • Demonstration Activity Observe teacher demonstration on: • sterilizing containers • proper filling and sealing • labeling procedures

Week	Learning Competency	Suggested Activities
		- storage practices Packaging, Labeling, and Costing Packaging of Sugar-Concentrated Products Learning Activities: - Demonstration: Filling jars, bottles, or pouches - Hands-on: Students package their prepared sugar-concentrated products - Activity: Observe best practices to avoid contamination
6	Perform costing of sugar-concentrated products	Costing of Sugar-Concentrated Products - Discuss the importance of costing in food processing and entrepreneurship. - Share examples of sugar-concentrated products sold in the community. - Lecture-Discussion-Explain the basic components of product costing: - raw materials - labor - utilities - packaging - overhead expenses - profit margin Identification Activity - List all ingredients and materials used in preparing sugar-concentrated products such as jams, jellies, and preserves.

Week	Learning Competency	Suggested Activities
		Market Survey Activity - Conduct a survey of prices of ingredients and packaging materials from local stores or markets. Computation Exercise - Compute the total production cost of a sample sugar-concentrated product. Group Activity - Prepare a costing sheet showing: - quantity of materials - unit cost - total cost - selling price Hands-on Activity - Perform actual costing during laboratory preparation of sugar-concentrated products. Practical Assessment and Reflection Learning Activities: - Performance Task: - Perform sugar-concentration processing - Package and label products correctly - Compute product costing - Summative Assessment: Practical demonstration + written costing report + reflection on learning

Week	Learning Competency	Suggested Activities
Performance Standard	The learners demonstrate an understanding of the principles in processing food through salting, curing, and smoking, as well as fermentation and pickling, and packaging, labeling, and costing of food products.	
Content Standard	The learners perform food processing through salting, curing, and smoking; fermentation and pickling, packaging, labeling, and costing of food products in accordance with industry standards.	
7	Perform food processing through salting, curing, and smoking	Salting, Curing, and Smoking Introduction to Salting and Curing Learning Activities: - Lecture: Principles of salting and curing in food preservation - Discuss types of salt curing: dry, brine, injection curing - Group activity: Identify local examples of salted or cured fish products Preparation for Salting and Curing Learning Activities: - Demonstration: Cleaning, cutting, and preparing raw fish - Hands-on: Prepare fish for salting or curing - Activity: List materials, tools, and ingredients needed Performing Salting and Curing Learning Activities: - Demonstration: Apply dry and brine curing methods - Hands-on: Students perform salting/curing on sample fish batches - Record observations: salt ratio, duration, texture, and appearance

Week	Learning Competency	Suggested Activities
		Smoking of Fish Products Learning Activities: • Lecture: Smoking methods – hot smoking vs cold smoking • Demonstration: Proper setup and operation of a smoking device • Hands-on: Students perform smoking on cured fish samples • Reflection: How smoking preserves and adds flavor
Suggested Performance Tasks	Individual Task: • Demonstration: Cooking fruits with sugar to make jams, preserves, or syrup • Hands-on: Students perform sugar-concentration process in small batches • Demonstration: Apply labels with product information • Hands-on: Design and attach labels for packaged products • Compute product costing Group Task: • Group discussion: Importance of branding for marketing • Students package their prepared sugar-concentrated products • Hands-on: Students perform smoking on cured fish samples • Reflection: How smoking preserves and adds flavor	
Performance Standard	The learners perform food processing through drying and dehydration, and thermal application, costing of food products, packaging, labeling, and marketing of processed foods	
Content Standard	The learners demonstrate an understanding of the principles processing food through drying and dehydration and thermal application, packaging, labeling, costing of food products, and marketing processed foods.	

Week	Learning Competency	Suggested Activities
8	Perform food processing through fermentation and pickling	Fermentation and Pickling Introduction to Fermentation and Pickling Learning Activities: - Lecture: Principles of fermentation and pickling for preservation - Discuss common fermented/pickled fish products locally - Activity: Identify suitable raw materials and ingredients Preparation for Fermentation and Pickling Learning Activities: - Demonstration: Cleaning, slicing, and preparing fish/vegetables for fermentation or pickling - Hands-on: Prepare sample products for fermentation or pickling - Activity: Record ingredients, measurements, and preparation steps Performing Fermentation and Pickling Learning Activities: - Demonstration: Apply salt, sugar, or vinegar for fermentation/pickling - Hands-on: Students perform fermentation or pickling of sample batches - Record observations: taste, smell, texture, and appearance

Week	Learning Competency	Suggested Activities
		Quality Control and Assessment Learning Activities: • Lecture: Monitoring and evaluating fermented/pickled products • Hands-on: Check sample products for proper preservation, safety, and quality • Performance Task: Students demonstrate processing techniques for all methods • Reflection: Discuss challenges, safety practices, and best results
Performance Standard	The learners perform food processing through drying and dehydration, and thermal application, costing of food products, packaging, labeling, and marketing of processed foods.	
Content Standard	The learners demonstrate an understanding of the principles processing food through drying and dehydration and thermal application, as well as packaging, labeling, costing of food products, and marketing processed foods.	
9	• Perform food processing through drying and dehydration process	Drying and Dehydration Introduction to Drying and Dehydration Learning Activities: • Lecture: Principles of drying and dehydration for food preservation • Discuss types: sun drying, air drying, oven drying, freeze drying • Group Activity: Identify local dried foods and their preservation method • Short Quiz: Basic concepts and benefits of drying

Week	Learning Competency	Suggested Activities
		Preparation of Raw Materials Learning Activities: • Demonstration: Cleaning, slicing, and preparing fish, fruits, or vegetables • Hands-on: Prepare sample products for drying • Activity: Record materials, tools, and pre-processing steps Performing Drying and Dehydration (Part1) Learning Activities: • Demonstration: Sun drying and air drying techniques • Hands-on: Students process sample products • Record observations: moisture content, texture, appearance Performing Drying and Dehydration (Part 2) Learning Activities: • Demonstration: Oven drying and freeze drying techniques • Hands-on: Students process sample products using thermal dehydration • Reflection: Compare results of different drying methods
10	• Perform food processing through thermal application	Thermal Application Day 5 – Introduction to Thermal Application in Food Processing Learning Activities: • Lecture: Thermal processes – boiling, steaming, blanching, pasteurization

Week	Learning Competency	Suggested Activities
		• Discuss effects on product quality, safety, and shelf life • Activity: Identify which methods suit different products Preparation for Thermal Processing Learning Activities: • Demonstration: Preparing raw materials for thermal processing • Hands-on: Students prepare samples for boiling, steaming, or blanching • Activity: Record preparation steps and materials Performing Thermal Application (Part 1) Learning Activities: • Demonstration: Boiling, steaming, and blanching techniques • Hands-on: Students perform thermal processing on sample products • Record observations: texture, color, and taste Performing Thermal Application (Part 2) Learning Activities: • Demonstration: Pasteurization techniques for beverages or jams • Hands-on: Students apply pasteurization to sample products • Reflection: How thermal processing ensures safety and quality

Week	Learning Competency	Suggested Activities
	Perform selling of processed foods	Selling and Marketing Processed Foods Introduction to Selling Processed Foods Learning Activities: Class Discussion Discuss the importance of selling in food entrepreneurship. Identify effective selling techniques and customer service practices. Product Familiarization Activity Examine different processed food products and identify their unique selling points. Role-Playing Activity Simulate buyer and seller situations to practice: - greeting customers - answering inquiries - suggesting products - handling complaints politely Lecture-Demonstration Demonstrate proper product presentation, pricing display, and selling procedures. Marketing Strategy Activity Brainstorm ways to promote processed food products using: - posters - social media - product displays - free tasting Packaging and Display Activity Packaging and Presentation for Sale

Week	Learning Competency	Suggested Activities
		Learning Activities: • Lecture: Importance of packaging, labeling, and branding • Hands-on: Package sample products for sale • Activity: Design labels and simulate attractive product presentation Selling Simulation and Marketing Strategies Learning Activities: • Role-play: Selling to different customers or markets • Group activity: Plan promotional strategies for processed products • Reflection: Challenges in marketing and customer engagement Arrange processed food products attractively for selling. • Sales Talk Workshop Create and practice a short sales pitch for a processed food product. • Mock Selling Activity Conduct a simulated selling activity inside the classroom or school market day. • Recording Sales Activity Practice preparing simple sales records, receipts, and inventory monitoring. • Reflection and Evaluation Discuss challenges encountered during selling activities and suggest improvement

Suggested Performance Tasks	Individual Task: • Hands-on: Check sample products for proper preservation, safety, and quality • Performance Task: Students demonstrate processing techniques for all methods • Dry and dehydrate products • Apply thermal processing • Package and prepare for sale • Simulate selling with marketing plan • Reflection: Discuss challenges, safety practices, and best results • Hands-on: Students apply pasteurization to sample products • Reflection: How thermal processing ensures safety and quality Group Task • Hands-on: Students prepare samples for boiling, steaming, or blanching • Activity: Record preparation steps and materials • Hands-on: Students perform thermal processing on sample products • Record observations: texture, color, and taste • Sales Talk Workshop -Create and practice a short sales pitch for a processed food product. • Mock Selling Activity -Conduct a simulated selling activity inside the classroom or school market day. • Recording Sales Activity
------------------------------------	--