Dairy Products Processing Level II

Based on *October, 2019*, Version 2 Occupational standards (OS)

Module Title: -Implement food safety programs and procedures

LG Code: LO (1-3) LG (28-30)

TTLM Code: IND DPP2 TTLM 0620v2

October 2020

United Nations
Educational, Scientific and
Cultural Organization

Project Financed by the UNESCO

Table of Contents

LO #1- Implement the food safety program 3
Instruction sheet 3
Learning Instructions: 4
Information Sheet 1- identifying Food handling requirements 5
Self-check 1 13
Information Sheet 2- Carrying out Food handling. 14
Self-check 1 21
Information Sheet 3- Controlling Food safety hazards 22
Self-check 1 30
Information Sheet 4 - Meeting food safety control requirements 31
Self-check 1 36
Information Sheet 5- Recording food safety information 37
Self-check 1 41
Information Sheet 6- Maintaining work place 42
Self-check 1 44

Operation sheet 1–. Implement food safety 45
Lap Test 46

LO #2- Participate in maintaining and improving food safety 49
Instruction sheet 49
Information Sheet 1- Monitoring Work area, materials, equipment and product . 51
Self-check 1 56
Information Sheet 2.Identifying and reporting food safety breach of Processes.57
Self-check 1 60
Information Sheet 3. Taking Corrective action. 61
Self-check 1 67

LO #3 - Comply with personal hygiene standards 70
Instruction sheet 70
Information Sheet 1. Maintaining Personal hygiene 72
Self-check 1 76
Information Sheet 2. Reporting Health conditions and/or illness 77
Self-check 1 79
Information Sheet 3. Wearing clothing and footwear 80
Self-check 1 83
Information Sheet 4. Organizing Movement around the workplace 84
Self-check 1 86

Reference Materials 88
WEB ADDRESSES 88
AKNOWLEDGEMENT 89

LG #28	LO #1- Implement the food safety program

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- identifying Food handling requirements
- Carrying out Food handling.
- Controlling Food safety hazards
- Meeting food safety control requirements
- Recording food safety information
- Maintaining work place
- Conducting work

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Food handling requirements are identified.
- Food handling is carried out according to the *food safety program*.
- Food safety hazards are controlled as required by the food safety program.
- Where food safety control requirements are not met, the incident is promptly reported and corrective action is taken.
- Food safety information *is recorded to meet requirements* of the food safety program.
- The workplace is maintained in a clean and tidy order to meet workplace standards.
- Work is conducted in accordance with workplace environmental guidelines.

Learning Instructions:
1. Read the specific objectives of this Learning Guide. **2.** Follow the instructions described below. **3.** Read the information written in the “Information Sheets” . Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them. **4.** Accomplish the “Self-checks” which are placed following all information sheets. **5.** Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks). **6.** If you earned a satisfactory evaluation proceed to “Operation sheets **7.** Perform “the Learning activity performance test” which is placed following “Operation sheets” , **8.** If your performance is satisfactory proceed to the next learning guide, **9.** If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.

Information Sheet 1- identifying Food handling requirements

1.1 Introduction

Food safety is the assurance that food will not cause harm to the consumer when it is prepared and eaten according to its intended use.

Food safety program is a written document that specifies how a business will control all food safety hazards that may be reasonably expected to occur in all food handling operations of the food business. The food safety program and related procedures must comply/fulfill with legal requirements of the food safety standards and must be communicated to all food handlers. Where no food safety program is in place, food safety requirements may be specified in general operating procedures.

Food handling is any activity that involves the handling of food (including preparing, cooking, thawing, serving, displaying food)

A food handler is anyone who handles packaged or unpackaged food directly as well as the equipment and utensils used to prepare or serve food and/or surfaces that come into contact with food.

Food handling, May include:

- food receipt and storage
- food preparation
- cooking, holding, cooling, chilling and reheating
- packaging, disposal

How to handle food safely?

Bacteria like Staphylococci are found on the hair, skin, mouth, and nose and in the throat of healthy people.

According to one estimate, nearly 50 percent of healthy food handlers carry disease agents that can be transmitted by food.

The most important tool you have to prevent food borne illness is good personal hygiene

Good personal hygiene includes

•Proper bathing	•Hand washing
•Clean hat/hair restraint	•Trim nails, avoid nail polish
•Clean clothes	•Proper glove use
•Remove jewelry	•Maintain good health
•Avoid unsanitary habits/actions	•Report wounds and illnesses

KEY SOURCES OF CONTAMINATION

Milk can be contaminated at any point in the milk production process. It is the responsibility of the food business operator (milk producer) to identify these points and implement control measures to protect milk from contamination. The key sources of contamination are:

TO REDUCE THE RISK OF CONTAMINATION

Animal health

- Milk must come from animals that are in a good general state of health.
- Milk from animals showing signs of udder disease must not be used for human consumption.
- Milk from animals undergoing medical treatment must not be used for human consumption before the end of the prescribed withdrawal period

Animal cleanliness

- All animals should be kept clean.
- All lying areas should be of sufficient size and should be kept clean and dry.
- Passageways and access routes should be free from accumulations of dung, slurry and mud.
- Fields tracks and gateways should be well maintained and kept free from accumulations of dung, slurry and mud.

milking practice

- Milk from each animal must be examined for physical/chemical/ organoleptic abnormalities and where abnormal milk is detected this milk must be rejected.
- Teats, udders and adjacent parts must be clean before milking.
- Hands, contact surfaces and milking equipment must be kept clean at all times

Milking Equipment

- Milk contact surfaces must be appropriately cleansed and disinfected immediately after each milking.
- All equipment must be kept clean and in good condition.

Storing Food Safely

Rotating Food Using FEFO:

Follow the first-expired, first-out (FEFO) method if the food has a use-by or expiration date.

- Check the use-by or expiration date.
- Store food that will expire first in front of items that will expire later.
- Use the food stored in front first

Preparing/Food preparation

- **Proper Thawing**
    - Refrigerate at 41° F or lower
    - Under running water at 70° F or lower
    - In a microwave if the food will be cooked immediately
- **Meat, Fish, Poultry**
    - Use clean and sanitized work areas and equipment
    - Wash hands properly
    - Remove from refrigerator only as much as you can prepare at one time
    - Return raw prepared meat to refrigerator, or cook it immediately
- **Eggs**
    - Handle pooled eggs with special care
    - Consider using pasteurized egg products
    - Promptly clean and sanitize all equipment and utensils

Produce

- Do not expose to raw meat and poultry
- Wash thoroughly under running water
- When soaking, do not mix with other items
- Refrigerate and hold cut melons at 41° F or lower

Ice

- Ice must be made from drinking water
- Ice used to chill should not be used as an ingredient
- Use a clean, sanitized container and ice scoop

- **Cooking**

165° F

- -Poultry
- -Stuffing/Casserole
- -Hazardous food cooked in microwave (eggs, poultry, meat, fish)

155° F

- -Ground meat
- -Ground, chopped, or minced fish

145° F

- Steaks/chops
- Roasts
- Fish
- Eggs

135° F

- -Fruit or Vegetables
- -Commercially processed, ready to-eat food
- *temperatures must be maintained for at least 15 seconds, excluding roasts which must be maintained for 4 minutes.

Holding

- Check the temperature of food at least every four hours
- Establish a policy to determine how long food will be held

- Cover food
- Prepare food in small batches

Cold food	Hot food
▪ Must be held at 41° F or lower OR ▪ Cannot exceed 70° F and is served or discarded within six hours	▪ Must be held at 135° F or higher OR ▪ It is served and discarded within four hours

Kitchen Staff

- Use clean and sanitized utensils for serving
- Use serving utensils with long handles
- Store serving utensils properly
- Use gloves when handling ready-to-eat foods
- Practice good personal hygiene

Self-Service

- Identify all food items
- Maintain proper food temperatures
- Replenish food on a timely basis
- Do not refill soiled plates or use soiled silverwar

- Packaging

The role of packaging is to protect the contained food product. Packaging is always corollary to the function of the food contained

Packaging is not just materials such as paper, metal, glass, or plastic, or structures such as cans, bottles, cartons, or pouches. Rather, packaging is the integration of product content protection requirements with process, and the selection of alternative material/structure combinations with equipment and distribution

Packaging is one system whose objective is to protect the contained product against an always-hostile environment of water, water vapor, air and its oxygen, microorganisms, insects, other intruders, dirt, pilferage, and so on—because a constant competition exists between humans and their surroundings. Packaging is designed to facilitate the movement of a product from its point of production to its ultimate consumption. If there is no product, there is no need for a package.

Cross-Contamination Being Prevented in the Photo? Ready-to-eat food is stored above raw food.

Packaging of frozen dairy product

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (5 point)

1. Good personal hygiene includes include

A. Proper bathing B. clean hat/hair restraint C. remove jewelry d) all of the above

2. From the given choose which one is personal protective equipment.

A. Safety goggles B. Safety shoes C. Clothes D. gloves

E. ear protection F. all

Test II: Short Answer Questions

1. What is food safety program _____(2 point)
2. What is food handling?_____(2 point)
3. What is food handler? _____(2 points)
4. Define packaging briefly _____ (5point)
5. Define food safety to _____ (4 point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 25** points **Unsatisfactory - below 25 points**

Information Sheet 2- Carrying out Food handling.

Safe food handling is based on two key principles. These principles are the basis of safe food handling practices that you are required to follow in your workplace. As a food handler you should understand these two basic principles:

1. Preventing food being contaminated; and
2. Controlling bacteria from growing in food.

Food Handler**:** Any person who directly handles packaged or unpackaged food, food equipment and utensils, or food contact surfaces.

These principles are the key to maintaining the hygiene of food and to preventing an outbreak of food poisoning.

A food safety program systematically identifies the food safety hazards that may reasonably be expected to occur in your workplace. It outlines the food safety procedures that must be followed to prevent, control and eliminate food safety hazards. It also documents how these procedures comply with food regulations and legislation.

How? Means

- By making personal hygiene practices
- By making food preparation/ processing practices
    - Temp control
    - The prevention of cross contamination

By storing foods properly and following cleaning procedures

Clean and Sanitize Surfaces Correctly:

- Clean and sanitize anything that touches food
- Keep everything clean

. .

Preventing Food Allergen Contamination

Prevent Cross-Contact:

- Store food with allergens separately from allergen-free products.
- DO NOT store food containing allergens above allergen-free food.
- Use dedicated pallets and bins for products containing allergens

❖ Sitting and strucrure

- Design features must minimise the risk of contamination from any source, including dust, flies, birds or other animals. Open parlours can be accepted in situations where hygiene risks are minimised and very high standards of management are maintained. They are not permitted if birds gain access or where there is excessive dust contamination from adjacent areas. A parlour that can be properly sealed off from other buildings is the best practice.
- Floors should be impervious to water and free draining. Sufficient fall from the area under the udder is important to ensure this area can be kept clean and free from pooling during milking.
- Doors and walls should be smooth, impervious and easy to clean. For walls, good quality, smooth cement rendering is adequate. Alternatives are available including sealed plastic cladding, smooth concrete panels or direct bonding fibreglass.
- Suitable facilities must be available near the place of milking to enable operators milking and handling milk to wash their hands and arms.

The milk storage room must be sited in a clean area, away from obvious sources of contamination. The structure of the milk storage room must protect the milk from contamination and be kept clean and free from vermin. Siting of compressors in the milk storage area is not recommended.

Processing and storage room

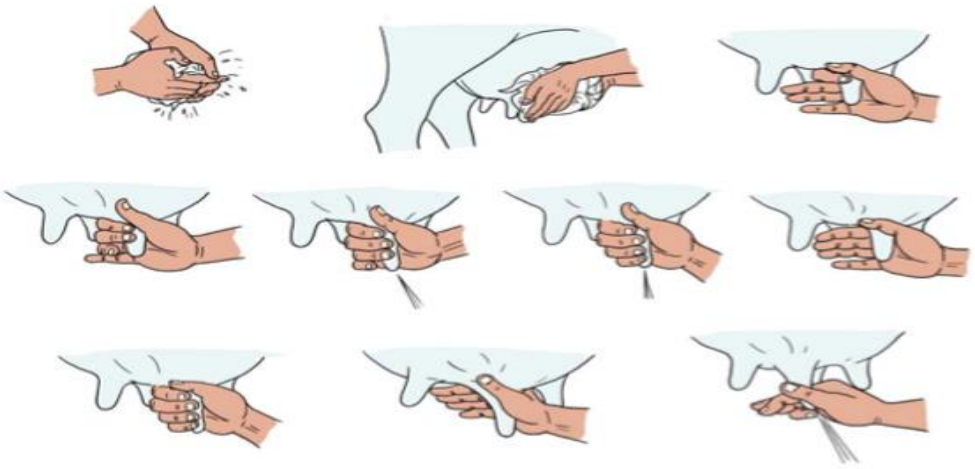
Handling Practices in dairy industry

Steps in hand milking

- Take hold of the base of the teat
- Squeeze with thumb and forefinger
- Close the other 3 fingers and squeeze them in turn
- Repeat this in a rhythmic way
- Milk quickly and evenly (remember 7 minutes of let-down)

- Sit at the right side of the cow preferably and use both hands alternating during milking.
- Start milking both front teats, turn milking the hind teats and crosscheck to finish in the same order.

Traditional handling practice



Benefits of food safety

- Science based and systematic
- It focuses on those critical points in food processing and handling required for safe food production
- Requires the implementation of measures to control hazards where significant
- Employs the principle of risk assessment allowing prevention to be based on the control program rather than inspection and testing
- Better use of resources
- Standardization of hazard management allowing for easier auditing and inspection by second and third parties
- Simplify inspections primarily because of record keeping and documentation
- Provide consistent quality product
- Demonstrates conformance to the product requirements and regulations

Basics for Handling Food Safety

- Shopping
- Storage
- Preparation
- Thawing
- Cooking
- Serving
- Leftovers

Food Handling Practices

Prevent Cross-Contamination:

- DON'T transfer pathogens from one food to another.
- DON'T transfer pathogens from one surface to another

Preventing Food Allergen Contamination

Prevent Cross-Contact:

- Clean and sanitize surfaces that have come in contact with an allergen.
- Inspect food packaging for leaks or spills that can cause cross-contact.
- Wash hands and change gloves after handling allergens and before handling allergen-free food.

- **specification**

The specification covers the properties necessary for thin film, unlined polymer gloves to be used in food preparation and food handling.

- This specification is intended to serve as a referee and a guide to permit obtaining gloves of a consistent performance. The safe and proper use of gloves is excluded from the scope of this specification.
- This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.
- This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Ethiopian standards on dairy products

A. Specification Standards:

1. Unprocessed whole milk – ES 548:2005
2. Pasteurized liquid milk – ES 3462:2009
3. Sweetened condensed milk – ES 3463:2009
4. Evaporated milk – ES 3464:2009
5. Milk fat products – ES 3465:2009

6. Butter – ES 3461:2009
7. Pesticide residue limit for milk & milk products – ES 578:2001
8. Yoghurt and sweetened yoghurt – ES 403:2001
9. Flavoured yoghurt – ES 411:2001
10. Whey cheese – ES 509:2001
11. Cream – ES 550:2001
12. Whole milk, partly skimmed milk and skimmed milk powder – ES 3459:2009

Why Safety Data Sheets Are Important for Safe Food Manufacturing Operations

Safety Data Sheets (SDSs), formerly known as Material Safety Data Sheets (MSDSs), are a critical component, required by law, of safe manufacturing operations as they contain basic information about a chemical or product which helps to ensure the safety and health of the user at all stages of its manufacture, storage, use, and disposal. But are they really needed in food production

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (5 point)

1. What are they benefits of preventing cross- contamination
   A) DON'T transfer pathogens from one food to another.
   B) DON'T transfer pathogens from one surface to another
   C) A & B D) all of the above
2. During Preventing Food Allergen Contamination which of the f/f is true
   A) Store food with allergens separately from allergen-free products.
   B) DO NOT store food containing allergens above allergen-free food
   C) Use dedicated pallets and bins for products containing allergens
   D) all of the above

Test II: Short Answer Questions

1) List down principles of food safety (5 point)
2) Write down food handling practice. (5 point)
3) Write down benefit of food safety? (5 points)

You can ask you teacher for the copy of the correct answers.

Note: Satisfactory rating - 25 points Unsatisfactory - below 25 points

Information Sheet 3- Controlling Food safety hazards

A food safety hazard is a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect.

Control of Food Safety Hazards

To control food safety hazards effectively, it is important to understand the nature of possible hazards. Not all substances or microorganisms are hazardous until they reach a certain level, so it is important to know and understand the significance of these levels.

Possible hazards are always going to pose a risk to your company, so it is essential to know how to control these hazards. By using different methods such as destroying, removing, preventing, or reducing hazards to an acceptable level, contamination issues will be greatly reduced.

To control food hazards, you must have a system in place that maintains control points within the process. You must have knowledge of how to develop this system so that any change can be taken into account and managed correct

The type of hazards is categorized in three groups:

A. Biological hazards
B. Chemicals hazards
C. Physical hazards

1. Physical hazard

Physical contamination is caused by foreign objects entering food during the food preparation and service process and generally results in an injury rather than an illness.

Annex 4, Table 3. Main Materials of Concern as Physical Hazards and Common Sources[a, b]		
Material	**Injury Potential**	**Sources**
Glass fixtures	Cuts, bleeding; may require surgery to find or remove	Bottles, jars, lights, utensils, gauge covers
Wood	Cuts, infection, choking; may require surgery to remove	Fields, pallets, boxes, buildings
Stones, metal fragments	Choking, broken teeth Cuts, infection; may require surgery to remove	Fields, buildings, machinery, wire, employees
Insulation	Choking; long-term if asbestos	Building materials
Bone	Choking, trauma	Fields, improper plant processing
Plastic	Choking, cuts, infection; may require surgery to remove	Fields, plant packaging materials, pallets, employees
Personal effects	Choking, cuts, broken teeth; may require surgery to remove	Employees

[a] Adapted from Corlett (1991).

[b] Used with permission, "HACCP Principles and Applications", Pierson and Corlett, Eds. 1992. Chapman & Hall, New York, NY.

2. Chemical hazard

Chemical food poisoning is caused by the presence of toxic chemicals in food. Examples of **chemicals** that may contaminate food include.

- pesticides,
- insecticides,
- rat poison,
- cleaning agents, or
- Chemicals resulting from a chemical reaction between food and inappropriate storage containers, eg galvanized cans.

Annex 4, Table 2. Common Chemical Hazards at Retail, Along with Their Associated Foods and Control Measures		
Chemical Hazards	**Associated Foods**	**Control measures**
Naturally Occurring:		
Scombrotoxin	Primarily associated with tuna fish, mahi-mahi, blue fish, anchovies bonito, mackerel; Also found in cheese	Check temperatures at receiving; store at proper cold holding temperatures; buyer specifications: obtain verification from supplier that product has not been temperature abused prior to arrival in facility.
Ciguatoxin	Reef fin fish from extreme SE US, Hawaii, and tropical areas; barracuda, jacks, king mackerel, large groupers, and snappers	Ensure fin fish have not been caught: • Purchase fish from approved sources. • Fish should not be harvested from an area that is subject to an adverse advisory.
Tetrodoxin	Puffer fish (Fugu; Blowfish)	Do not consume these fish.
Mycotoxins Aflatoxin	Corn and corn products, peanuts and peanut products, cottonseed, milk, and tree nuts such as Brazil nuts, pecans, pistachio nuts, and walnuts. Other grains and nuts are susceptible but less prone to contamination.	Check condition at receiving; do not use moldy or decomposed food.
Patulin	Apple juice products	Buyer Specification: obtain verification from supplier or avoid the use of rotten apples in juice manufacturing.
Toxic mushroom species	Numerous varieties of wild mushrooms	Do not eat unknown varieties or mushrooms from unapproved source.

3. Biological contamination

Bacteria transferred to the food either through poor handling practices, poor cleaning practices, and poor personal hygiene practices or from another food source (cross-contamination)

Cross-contamination; is the transfer of microorganisms from raw foods(usually animal foods) to cooked foods or ready to serve foods.

Includes

- Poor personal hygiene such as food handlers coughing or sneezing over food or not washing hands after eating or using the toilet;
- Pest infestations;
- Poor storage practices resulting in food being Open to contamination

Food borne Illness Risk Factors

The Food and Drug Administration has identified five risk factors that contribute to most foodborne illnesses in the U.S.

Food from unsafe source

Inadequate cooking

Improper holding temperature

Contaminated equipment

Poor personal hygiene

What is HACCP?

- HACCP (Hazard Analysis Critical Control Point) is a systematic way to identify, evaluate, and control food safety hazards.
- Hazards are biological, chemical, or physical agents likely to cause illness or injury if they are not controlled.
- HACCP prevents food safety hazards rather than reacts to food safety hazards.
- To develop a HACCP plan, one follows the seven principles.

The HACCP system consists the following seven basic principles:

1: Conduct a hazard analysis Principle

2: Determine the critical control points (CCPs) Principle

3: Establish critical limits Principle

4: Establish monitoring procedures Principle

5: Establish corrective actions Principle

6: Establish verification procedures Principle

7: Establish record-keeping and documentation procedures

Coduct hazard analysis

Identify hazards associated with a specific menu item.

Prepare a flow diagram that outlines all handling/preparation steps from receiving to service.

List likely hazards associated with each step.

Identify how to prevent the hazards at each step.

Hazards can be biological, chemical, or physical.

List the hazards that are likely to occur *and* that will cause severe consequences if not controlled.

Hazards that are low risk and that are not likely do not need to be considered.

2: Determine CCPs (critical control point)

- A control point is any point, step, or procedure where biological, physical, or chemical factors can be controlled.
- A critical control point (CCP) is a point, step, or procedure where an identified hazard can be prevented, eliminated, or reduced to acceptable levels.
- Critical control points are monitored much more frequently than are control points.

3: Establish critical limits

- This step involves establishing criteria that must be met to prevent, eliminate, or the reduce the identified hazard at the CCP so that the food is safe to eat.
- Examples of critical limits are:
    - temperature, time, physical dimensions, water activity, pH, and available chlorine
- Critical limits can come from regulatory standards and guidelines, scientific literature, experimental studies, and consultation with experts.

4: Establish monitoring procedures

- Monitoring is a planned observation or measurement:

- to determine if a CCP is under control

- Examples of monitoring include:
  - Visual observations
  - Temperature measurements
  - Time assessment
  - pH measurements
  - Water activity measurements

5: Establish corrective actions

- Corrective actions focus on:
  - What to do when a food does not meet the critical limit.
- Example of a corrective action:
  - The temperature of a hamburger is 140 ^{o}F after cooking (a CCP).
  - The critical limit is cooking the hamburger to 155 ^{o}F or hotter.
  - Continue cooking the hamburger until it is 155 ^{o}F or hotter.
- Throwing out food might be a corrective action.

Maintain records of all corrective actions taken

6: Establish verification procedures

Four phases of verification needed for a HACCP plan:

1. Determine that the critical limits at all CCPS are sound.
2. Make sure that the establishment's HACCP plan is being properly implemented.

3. Have regulatory personnel review the plan to make sure that it is being properly implemented.

4. Check the accuracy of all monitoring equipme

7: Establish record keeping

the following make up the records of a HACCP Plan

- List of HACCP team and their assigned responsibilities
- Description of each menu item
- Flow diagram for each menu item indicating CCPs
- Hazards associated with each CCP and preventive measures
- Critical limits
- Monitoring procedures
- Corrective actions plans
- Record keeping procedure

Product	Hazard	Ccp	Critical limit	Monitoring	Corrective action	Verification
Cheese	Microbial	CCP B1 pasteurization of milk for cheese	76°C -80°C for 15 sec	Pasteurized milk & Pasteurization temperature	Sent for re-pasteurization, effective monitoring, study thermographs	Proper temperature of pasteurization by Lab testing & studying thermographs
	Physical (metal pieces)	CCP P1 Cutting of cheese (metal detector)	Fe material: 0.4mm Non Fe material: 0.5mm SS material: 0.7mm	Metal pieces by Metal detector x-ray scanning, Each time the product is cut into pieces	Check the sliced Cheese for metal contamination & use of certified cheese cutting machines	Proper working of Metal detector Each time the product is cut into pieces by production manager
	Microbial	CCP B2	Cold storage temperature for storing cheese	Cold storage temperature & hygiene Hourly by production manager	Effective temperature control, Cold storage structure to be modified to maintain proper temperature	Cold storage temperature Lab testing Every 4 hrs after corrective action by Production manager

Study of HACCP Implementation in Milk Processing Plant

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (2 point)

1._____Is caused by foreign objects entering food during the food preparation and service process and generally results in an injury rather than an illness.

A) Biological contamination B. physical hazard C. Chemical hazard D) all of

2._____Is caused by the presence of toxic chemicals in food

A) Physical hazard B) chemical hazard C) biological contamination D) all o

3._____Is the transfer of microorganisms from raw foods (usually animal foods) to cooked foods or ready to serve foods?

A) Physical hazard B) Chemical hazard C) cross-contamination D) all

4. _____Is a systematic way to identify, evaluate, and control food safety hazards?

A) Hazard B) HACCP C) CCP D) all of ht e above

5._____ Is a point, step, or procedure where an identified hazard can be prevented, eliminated, or reduced to acceptable levels.

A) HACCP B) CCP C) hazard D) all of the above

Test II: Short Answer Questions

1) Define hazard ? (5 point)
2) Write down food safety hazard. ? (2 point)
3) Types of hazard and explain it ? (2 points)
4) Define HACCP _____? (4point)
5) Write down HACCP Principles and explain it? (5point)
6) Define CCP (critical control point) (2 point)

You can ask you teacher for the copy of the correct answers.

: Note **satisfactory rating - 30 points** **Unsatisfactory - below 30 points**

Information Sheet 4 - Meeting food safety control requirements

Main steps in meeting food safety system requirements

1. Form a multidisciplinary team for food safety.

2. Train the team on food safety and system requirements.

3. Chart the processes and their flow:

4. Develop a food safety plan with responsibilities

5. Develop and document Standard Operating Procedures (SOPs) including stepwise actions for each task, its monitoring, corrective and preventives actions.

6. Train all personnel to implement the procedures

7. Implement and record:

Record keeping provides evidence that procedures are being followed. They are also a good means for improvement and control.

8. Verify/audit: The objective of verification is to make sure the system is working as designed and the food safety and quality objectives are being met. Internal audit should be done to ensure the following:

- Procedures are being followed
- Documentation is being done and documents are up to date
- Training/education/competencies have been done and are up to date
- Internal audit is carried out by people who are independent of the processes of the area being audited.

9. Review and update: Top management should review the food safety system at planned intervals to ensure its continuing suitability, adequacy and effectiveness. During

the review, opportunities for improvement are assessed and the food safety plan updated.

Food Contamination: The introduction or occurrence of any biological or chemical agent, foreign matter, or other substances not intentionally added to food which may compromise food safety or suitability.

What is "cross contamination?"

Cross-contamination is the transportation of harmful substances to food by:

What conditions encourage bacteria to grow?

Warm	Neutral-slightly acidic pH
Moist	Protein-rich
41°F (5°C) and 135°F (57°C)	

Food borne Illness/Poisoning:

An acute illness resulting from eating or drinking contaminated food or water. Typical symptoms include one or all of the following illnesses: abdominal pain, nausea and vomiting, diarrhea. Causes include the following factors:

- Bacteria (e.g. Salmonela, Campylobacter, Listeria monocytogeness, E.coli)
- Viruses (e.g. Hepatitis A, Norwalk)
- Toxins from bacteria, scrombrotoxic

FOOD

ACIDITY

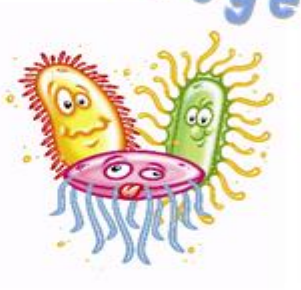
TIME

TEMPERATURE

OXYGEN

MOISTURE

Encouraging Foodborne Pathogens



FOOD

FATOM

Foodborne microorganisms need nutrients to grow. These are commonly found in potentially hazardous food, such as meat, poultry, dairy products, and eggs.

F

ACIDITY

TTOM

The pH Scale

pH is a measurement of how acidic or alkaline a food is.

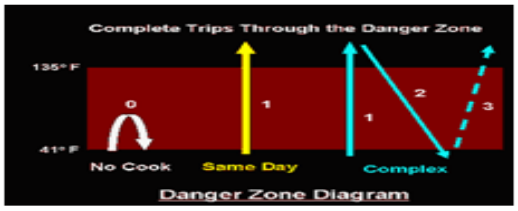
pH 0-6.9 = acidic foods (ex. lemons)

pH 7.1-14 = alkaline (ex. crackers)

pH 4.6-7.6=neutral to slightly acid (bacteria grows best)

F A T O M

TEMPERATURE



Temperature Danger Zone = 41-135° F

Food must be handled very carefully when it is:

*Thawed *Cooked

*Cooled *Reheated

F A T O M

TIME

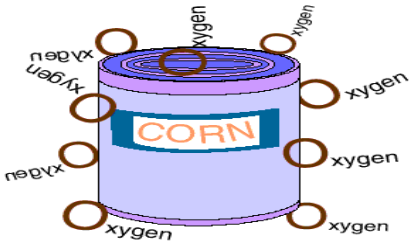
Food borne microorganisms need sufficient <u>time</u> to grow!

They are capable of doubling their population every twenty minutes.

If potentially hazardous food remains in the temperature danger zone for four hours or longer, food borne microorganisms can grow to levels high enough to make someone ill.

FACTOM

OXYGEN



While most microorganisms need oxygen to grow, some do not!

Examples of foods that are associated with bacteria that do not need oxygen to grow are:

- **Cooked rice**
- **Untreated garlic-and-oil mixtures**
- **Baked potatoes**

FACTO

MOISTURE

Perishability

Water Activity	Food Examples
0.95	Fresh Fruit, Meat, Milk
0.95-0.9	Cheese
0.9-0.85	Margarine
0.85-0.8	Salted Meats
0.8-0.75	Jam
0.75-0.65	Nuts
0.65-0.6	Honey
0.5	Pasta
0.3	Dried Vegetables
0.2	Crackers

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (2 point)

1. Which one of the f/f conditions encourage bacteria to grow:

A) Warm
B) Moist
C) Neutral-slightly acidic pH
D) Protein-rich E) all of the above

2. Typical symptoms for Food borne Illness/Poisoning include one or all of the following illnesses

A) Abdominal pain B) nusea and vomiting, diarrhea. C) a $ b D) all

Test II: Short Answer Questions

1) Write down Main steps in meeting food safety system requirements (5 point)
2) _____Is to make sure the system is working as designed and the food safety and quality objectives are being met... (5 point)
3) The introduction or occurrence of any biological or chemical agent, foreign matter, or other substances is_____? (5points)
4) The transportation of harmful substances to food is _____ ? (5point)
5) Write down the conditions that encourage bacteria to grow _____ (2point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 25 points** **Unsatisfactory - below 25 points**

Information Sheet 5- Recording food safety information

Introduction

Food safety program is a written document that specifies how a business will control all food safety hazards that may be reasonably expected to occur in all food handling operations of the food business. The food safety program and related procedures must comply/fulfill with legal requirements of the food safety standards and must be communicated to all food handlers. Where no food safety program is in place, food safety requirements may be specified in general operating procedures.

A food safety program:

- Identifies where and how each hazard can be controlled;
- Describes how these controls are to be monitored;
- Describes the corrective action required if control conditions are not met; and
- Identifies records that must be kept.

Sanitation Standard Operating Procedures (SSOPs)

- Sanitation Standard Operating Procedures is the common name given to the sanitation procedures in food production plants which are required by the Food Safety and Inspection Service of the USDA.
- It is considered one of the prerequisite programs of HACCP

- Written Sanitation Standard Operating Procedures (SSOP) describe those procedures the establishment conducts daily to prevent direct contamination or adulteration of the product.
- Relate to specific tasks and should address the following:
    - the purpose and frequency of doing a task
    - who will do the task

- a description of the procedure to be performed that includes all the steps involved
- the corrective actions to be taken if the task is performed incorrectly

- (SSOP) Are prescribed methods specifically for cleaning and sanitizing.
- Cleaning and sanitation programs are keys to successful GMPs and SSOPs.
- Cleaning is the chemical or physical process of removing dirt or soil from surfaces. Cleaning removes 90-99% of the bacteria, but thousands of bacteria may still be present

- Sanitizing is the process that results in reduction/destruction of microbes.
- Different sanitizers will be used for different food products. Chlorine, iodophors, and quaternary ammonia compounds are the most common sanitizers used.

Sanitation Programs

- Buildings and grounds
- Raw material handling and storage
- Processing hygiene and handling finished goods
- Pest control
- Waste disposal
- Employee hygiene and facilities
- Finished product storage
- Transportation

Good Manufacturing Practices

- Good Manufacturing Practices GMPs are minimum sanitary and processing requirements necessary to ensure the production of wholesome food. Prescribed requirements for
- personnel
- building and facilities
- equipment and utensils
- production and process controls

Documentation and records keeping

- Appropriate documentation & records of processing, production and distributions shall be maintained in a legible manner, retained in good condition for a period of one year or the shelf life of the product, whichever is more.
- The important records that shall be maintained include:

A. Legal

- FSSAI License and Registration of Manufacturer/Supplier/Dealers/Retailers
- Pollution Control Board Certificate of plant/manufacturing unit
- Record of Discharge Effluent & its Compliance with statutory requirements - ETP Compliance

B. Procurement/Quality

1) Raw material receiving and traceability records (including records for milk being received from Milk Collection Centres, BMCs, Chilling Centres).
2) Receiving records for raw materials and additives (other than milk)
3) Quality Control / Lab test reports records/Compositional analysis/Microbial test records – raw milk, processed milk and milk products.
4) External testing reports - Microbiological / chemical test reports pertaining to milk and milk products, water, other food ingredients, additives etc
5) Certificates of Analysis/COA
6) Internal and external audit records/ Corrective action (CAPA).
7) Records for receipt of packaging materials and COA/Supplier certification. 8. Certificate for Virgin / food grade Packing material
8) Certificate of Ink approved for use for milk and milk products packet.
9) Testing record of Packaging materials. 11. Records of samples picked up FSSAI/State FDA authorities.

C. Production/Processing

1. Daily production records
2. Raw material consumption/utilization records
3. Process monitoring records – CCP's/OPRP's

4. Temperature records of cold room (s)/ storage tanks/silos (when in operation), pasteurizer, chillers, driers etc.

5. Consolidated daily production records.

6. Packing/Packaging records

7. Dispatch records

D. Cleaning, Sanitation and Pest Control

1. Cleaning, plant hygiene and sanitation records.

2. Pest Control and routine treatment records.

3. CIP Record - Processing Level

4. Record of Equipment Swabs for Monitoring Effectiveness of Cleaning

5. Record - Periodic Review of Residual Chemical after Cleaning

6. Records of Cleaning and Disinfection for Cold Stores/ Freezers

7. Cleaning and sanitation records – milk tankers

8. Vehicle inspection record – milk tankers, trucks – raw milk handling and material dispatch

E. HR/Manpower related

1. Training record of Food handlers.

2. Health record of the employees (involved in milk handling operations)

3. Record of system to prevent entry of Person from other Department suffering from diseases/Visitor entry records

4. Record of Hygiene monitoring of operators/ Workers

5. Training Records of Officer's (new Joinees/ OJT or Identified Trainings)

F. Marketing

1. Consumer complaint records

2. Product Traceability Record - Mock Recall Simulation

3. Product recall and Traceability records pertaining of milk and milk products supplied/distributed.

G. Common

1. Calibration records – Processing equipment's & accessories, Lab equipment's & accessories, Cold stores & Freezers, Engineering & Utilities – to be maintained by concerned departments.

H. Engineering/Utility 1. Maintenance records – Breakdown and Preventive

Self-check 1	Written test

Name…… ID……. Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (5 point**)**

1 A food safety program May include

A) Identifies where and how each hazard can be controlled;

B) Describes how these controls are to be monitored;

C) Describes the corrective action required if control conditions are not met; and

D) Identifies records that must be kept. E) all of the above

2. The common name given to the sanitation procedures in food production plants which are required by the Food Safety and Inspection Service of the USDA is.

A) GMP B) SSOP C) CCP D) HACCP E) all of the above

Test II: Short Answer Questions

1) _____ Is considered as one of the prerequisite programs of HACCP (5 point)

2) _____Describe those procedures the establishment conducts daily to prevent direct contamination or adulteration of the product. (5 point)

3) _____ Is the chemical or physical process of removing dirt or soil from surfaces? (3 points)

4) _____Is the process that results in reduction/destruction of microbes? (3 point)

5) The minimum sanitary and processing requirements necessary to ensure the production of wholesome food is _____ (4 point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 30 points** **Unsatisfactory - below 30 points**

Information Sheet 6- Maintaining work place

Here are 8 ways to maintain workplace discipline in your organization while maintaining the respect of your employees:

1. The art of leading. ...
2. Get rid of all the distractions. ...
3. The workplace should be a happy place. ...
4. Be considerate of the generation gap. ...
5. Come up with a set of guidelines. ...
6. Take corrective actions.
7. Allow enough room for your employees to work
8. Regularly communicate with your staff

The lack of proper sanitation procedures can cost plant operators a lot of money. Good housekeeping involves ensuring equipment, floors, benches and other areas are properly cleaned so that no liquid or food remains to serve as a food source for pests and rodents. Also involved here is the removal of rubbish and boxes that may provide shelter for them, correct storage of food in containers, and immediate repairs to cracked surfaces and tiles that can provide vermin-proof an inadvertent source of food.

Definitions

- **Cleaning** is the removal of dirt or debris/fragments/rubbish by physical and/or chemical means.
- **Sanitizing** is the process used to rid/free or reduce the number of microbes (microorganisms) on the surface by using chemicals.
- **Pest Control** is the reduction or eradication/ suppression of pests (macro-organisms). These include flies, cockroaches, mice and rats, as well as weevils and other insects that can infest food products.
-

5.1 Conducting work with workplace environmental guidelines

To manage these issues, your disciplinary process might cover two areas: employee performance and general **workplace conduct**. **Conduct** issues might include lateness, refusal to cooperate, misuse of IT or bullying. It might even include violent behavior and other crimes.

- Promoting good employee conduct
- Reducing the need for tribunals
- Managing discipline and grievances
- Disciplinary procedures
- Grievance procedures
- More on employee conduct

- Wash and sanitize all equipment including utensils, knives, chopping boards and work surfaces before and after use when preparing different foods,
- Avoid handling food with bare hands.
- Wash hands between preparation tasks,
- Change single-use gloves after handling raw foods;
- Remove gloves when handling money or nonfood objects
- Use a clean utensil each time you take sample for test food;
- Minimize contact with food wherever possible by using utensils or single-use gloves; and
- Don’t store raw foods above cooked foods.

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (5 point)

1, the ways to maintain workplace discipline in your organization include

A) The art of leading B) Take corrective actions. C) Regularly communicate with your staff D) all of the above

2. Conduct issues might include.

A) lateness, B) refusal to cooperate, C) misuse of IT or bullying. D) all of the above

Test II: Short Answer Questions

1) Write down Discipline to maintain work place in your organization operator (5 point)
2) _____Is the reduction or eradication/ suppression of pests (macro-organisms)...(3 point)
3) What are the two disciplinary processes to conducting work? (5 points)
4) Write down conduct issues of work drawing? (2point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 25 points** **Unsatisfactory - below 25 points**

Operation sheet 1–. Implement food safety

A food safety hazard is a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect.

To control food hazards, you must have a system in place that maintains control points within the process. You must have knowledge of how to develop this system so that any change can be taken into account and managed correct.

Techniques of Controlling Food safety hazards

Step 1--------- --------identify the nature of possible hazard

Step 2 ---------- -----identify physical, chemical and biological hazard

Step 3----------identify how to prevent hazard at each step,

Step 4 ----------lists the hazard that is likely to occur

Step 5----------identify sanitation standard operating procedures (SSOP)

Step 6----------Determine CCPs (critical control point)

Step 7---------- identify the level of risk caused by food safety hazard

Step 8 ----------Take Corrective Actions

Lap Test	Demonstration

Name……. ID……..

Date…….

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within **1** hour. The project is expected from each student to do it.

During your work: You can ask all the necessary tools and equipment

Lap Test Title: **control food safety hazard**

Task Objectives / Demands: in accomplishing activities required for this project the student will be able to: (**During your work follow these steps :**)

1. Apply safety first.
2. Apply 3S
3. Prepare tools and equipment
4. Conduct hazard analysis
5. Determine control point
6. Establish critical limit.
7. Apply PPE (personal protective equipment)
8. Establish monitoring procedures.
9. Establish corrective actions
10. Establish verification procedures
11. Establish record keeping

Answer key for LO 1 implement food safety program for (information sheet 1-6)

Information sheet 1

1. D 2. F

Part I I

1. Food safety program 2) Food handling 3) food handler 4) Packaging 5) Food safety

Information sheet 2

1. D 2. D

Part II

1. A) Preventing food being contaminated; and Controlling bacteria from growing in food
2. clean,separate,cook and chill
3. I) science based and systematic ii) better use of resource iii) provide constituent quality product

Information sheet 3

1) A 2) B 3) C 4) A 5) C

Information sheet 4

1) D 2) D

Part II

1.) Implement $ record ii) verify $ audit iii) chart-the process $ their flow
2. Verification 3) food contamination 4) cross-contamination 5) warm, moist $ protein

Information sheet 5

1) E 2)

Part II: - i) SSOP ii) SSOP iii) cleaning iv) sanitation v) GMP

Information sheet 6

1) D 2) D

Part II:-

1) The act of leading ii) Get rid of all the distraction iii) Take corrective action iv) Come up with a set of guidelines

2) Pest control 3) employees performance $ work place conduct

4) i) lateness, ii) refusal to co-operation iii) mis- use of IT

LG #29	LO #2- Participate in maintaining and improving food safety

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

2.1. Monitoring Work area, materials, equipment and product

2.2. Identifying and reporting food safety breach of Processes, practices or conditions

2.3. Taking Corrective action

2.4. Raising Food safety issues

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

2.1. Work area, *materials, equipment and product* are routinely *monitored* to ensure compliance with food safety requirements.

2.2. Processes, practices or conditions which could result in a *food safety breach* are identified and reported according to workplace reporting requirements.

2.3. Corrective action is taken in accordance with the food safety program.

2.4. Food safety issues are raised with designated personnel..

Learning Instructions:
1. Read the specific objectives of this Learning Guide. **2.** Follow the instructions described below. **3.** Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them. **4.** Accomplish the “Self-checks” which are placed following all information sheets. **5.** Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks). **6.** If you earned a satisfactory evaluation proceed to “Operation sheets **7.** Perform “the Learning activity performance test” which is placed following “Operation sheets” , **8.** If your performance is satisfactory proceed to the next learning guide, **9.** If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.

Information Sheet 1- Monitoring Work area, materials, equipment and product

- **Monitoring work area, materials, equipment and product**

The whole process of monitoring is to ensure that food safety hazards are reduced or eliminated before they become an issue. Regular checking and monitoring will ensure problems are highlighted early and effective controls can be implemented.

Work area, materials, equipment and product are routinely monitored to ensure compliance/ fulfillment with food safety requirements. Products or materials handled and stored need to be monitor can include

- Raw materials
  - Ingredients
  - consumables
  - Finished product…etc

Monitoring; may include

- taking temperatures
- collecting samples
- conducting visual inspections
- conducting other tests as required

Raw materials (ingredients, processing aids, and packaging materials) are the foundation of finished food products. As such, they must meet regulatory requirements (safe and legal for your intended use) and your specifications (contribute to the functionality and quality of your process and product).

(a) Raw materials and other ingredients.

1. **Raw materials and other ingredients** shall be inspected and segregated or otherwise handled as necessary to ascertain that they are clean and suitable for

processing into food and shall be stored under conditions that will protect against contamination and minimize deterioration.

Raw materials shall be washed or cleaned as necessary to remove soil or other contamination. Water used for washing, rinsing, or conveying food shall be safe and of adequate sanitary quality. Water may be reused for washing, rinsing, or conveying food if it does not increase the level of contamination of the food. Containers and carriers of raw materials should be inspected on receipt to ensure that their condition has not contributed to the contamination or deterioration of food.

2. Raw materials and other ingredients shall either not contain levels of microorganisms that may produce food poisoning or other disease in humans, or they shall be pasteurized or otherwise treated during manufacturing operations so that they no longer contain levels that would cause the product to be adulterated within the meaning of the act. Compliance with this requirement may be verified by any effective means, including purchasing raw materials and other ingredients under a supplier's guarantee or certification.
3. Raw materials, other ingredients, and rework susceptible to contamination with pests, undesirable microorganisms, or extraneous material shall comply with applicable Food and Drug Administration regulations and defect action levels for natural or unavoidable defects if a manufacturer wishes to use the materials in manufacturing food. Compliance with this requirement may be verified by any effective means, including purchasing the materials under a supplier's guarantee or certification, or examination of these materials for contamination.
4. Frozen raw materials and other ingredients shall be kept frozen. If thawing is required prior to use, it shall be done in a manner that prevents the raw materials and other ingredients from becoming adulterated within the meaning of the act.
5. Liquid or dry raw materials and other ingredients received and stored in bulk form shall be held in a manner that protects against contamination

B) Appropriate Tools and Equipment in Processing Product

The main section of any dairy processing plant is the dairy processing equipments. It helps to perform the various operations and working on milk production such as storing milk, clarification, homogenization, separations, pasteurization and some other operations. In modern days, the all milk-processing equipments have become more advanced with some latest and unique techniques. These advanced hi-tech machines are very useful for farmers for good quality milk production without more human efforts. The milk processing equipment is designed and developed to consider all farmers' needs. The milk processing machines have a great role to make dairy industry one of the major food industries all over the world. There are various milk-processing machines helpful in dairy plants to produce best products like cheese, milk, butter, yogurt, ice cream and much more similar product

Milk processing machines (**separators).** The separators are mainly used for milk clarification, pure milk fat, hot and cold milk separation.

Homogenizers

The homogenizer is the main equipment that plays the main role in achieving the different variety of product, improves the taste, texture and viscosity of juice-based drink or cream and prevents a sedimentation and cream line in the milk products.

Product Protection (part-processed/finished product)

- Effective measures shall be taken to protect finished food from contamination by raw materials, other ingredients, or refuse.
    - When raw materials, other ingredients, or refuse are unprotected, they shall not be handled simultaneously in a receiving, loading, or shipping area if that handling could result in contaminated food.
- All ingredients, packaging material and finished products shall be handled, stored or processed in such a manner as to assure a safe, wholesome and unadulterated product.
- All pesticides shall be stored in a locked area and separated from all ingredients, cleaning material, equipment/utensils and sanitizers.
- All sanitizers, cleaning compounds, and chemicals shall be stored separately from all ingredients, packaging material and finished product in such a manner as to prevent any contamination.

- There will be no flaking or peeling paint, static product, soil buildup, or rust on or above product zones.

- All product or product containers shall be adequately protected to preclude contamination.

Milking equipment

- Milk contact surfaces must be appropriately cleansed and disinfected immediately after each milking.
- All equipment must be kept clean and in good condition.

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (2 point)

1 Monitoring; may include

A) Taking temperatures B) collecting samples C) conducting visual inspections D) all.

Test II: Short Answer Questions

1. Write down at least two equipment used in dairy industry (5 point)
2. _____Mainly used for milk clarification, pure milk fat, hot and cold milk separation. (5 point)
3. The main equipment that plays the main role in achieving the different variety of product is _____? (5points)
4. _____Improves the taste, texture and viscosity of juice-based drink or cream and prevents a sedimentation and cream line in the milk products. (5points)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 20 points** **Unsatisfactory - below 20 points**

Information Sheet 2. Identifying and reporting food safety breach of Processes.

Identifying and reporting processes, practices or conditions

identifying breaches/breaks in food safety procedures

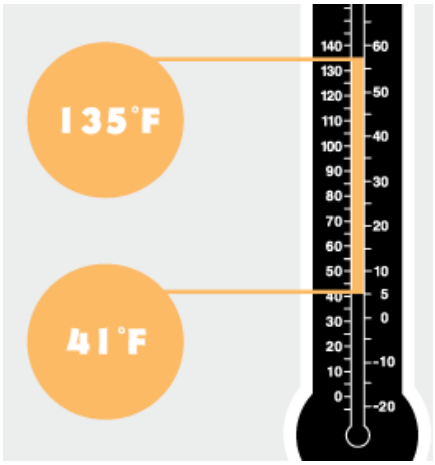
Food safety breach; - may include

- failure to check delivery temperatures of potentially hazardous chilled food
- failure to place temperature-sensitive food in temperature controlled storage conditions promptly
- failure to wash hands when required
- use of cloths for unsuitable purpose

Process control is a statistical and engineering discipline that deals with the design and mechanisms for maintaining the output of a specific process within a desired range. These activities are involved in ensuring a process is predictable, stable, and consistently operating at the target level of performance with only normal variation. Process control enables mass production of continuous process as well a level of automation by which a small staff may operate a complex process from a central control room.

Controlling Time and Temperature during Receiving

- This is the Temperature Danger Zone.
- Pathogens on food can grow in this range and cause a foodborne illness



TEMPERATURES OF RISK FOR FOOD

212°F	Boil Water	100°C
180°F	Poultry (whole, legs, thighs and wings)	83°C
170°F	Poultry Breast of	77°C
165°F	Milled poultry, stuffing, casseroles and reheating leftovers	74°C
160°F	Ground Meat (Beef, Lamb, Veal, Pork and egg dishes)	72°C
145°F	Beef, Lamb, Beef fillets and roasts.	63°C
140°F	Fully cooked ham Food Safety Zone Hot	60°C
	DANGER ZONE **Do not keep food between these temperatures**	
40°F	Refrigerator Temperature	4,5°C
32°F	Food Safety Zone Cold	0°C
0°F	Temperature Freezer	-18°C

Good Manufacturing Practices (GMPs) describe the methods, equipment, facilities, and controls for producing processed food. As the minimum sanitary and processing requirements for producing safe and wholesome food, they are an important part of regulatory control over the safety of the nation's food supply. The GMP has been in effect for over 30 years and is periodically revised. GMPs describe the general conditions or practices in a food processing facility, more specific sanitation procedures and standard operating procedures that are site specific should be developed for each plant. GMPs also apply to all parts of a food operation including receiving, storage, processing, handling, and shipping of the finished product..

The Importance of GMPs

- GMPs extend the shelf and storage life of products
- GMPs reduce the risk of a product or process suspension
- Proper GMPs reduce the risk of food borne illnesses
- Reduced product reprocessing
- Compliance with federal and commercial product specifications
- Reduced number of product rejections, returns, and/or complaints

Proper Hand washing Procedure

Wet your hands & Arms with running water as hot as you can comfortably stand

Apply Soap

- Vigorously scrub hands and arms for 20 seconds
- Rinse thoroughly under running water
- Dry hands and arms with a single-use paper towel or warm-air hand dryer

When to Wash Your Hands

Wash hands. .

- After using the restroom
- After touching your face, hair, body or clothing
- Before and after handling raw foods like meat or poultry
- After taking out garbage
- After sneezing, blowing your nose or using a tissue
- After handling chemicals
- After smoking, using cigarettes, chewing gum or using tobacco products
- After eating or drinking

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (4 point)

1. The Importance of GMPs may include

A) It extend the shelf and storage life of products

B) It reduce the risk of a product or process suspension

C) Proper GMPs reduce the risk of food borne illnesses

D) Reduced product reprocessing E) all

2 When to wash Your Hands

A) After using the restroom B) After touching your face, hair, body or clothing

C) Before and after handling raw foods like meat or poultry D) after taking out garbage E) all

Test II: Short Answer Questions

1. What is Process control (5 point)
2. List down Food safety breach. (5 point)
3. What is Good Manufacturing Practices (GMPs)? (5points)
4. Write down The importance o f GMP _____ ? (3point)
5. When to wash your hands write down _____ (3point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 10 points Unsatisfactory - below 10 points**

Information Sheet 3. Taking Corrective action.

Corrective actions are the actions that must be taken if a critical limit is exceeded at any step of food production in a food business (e.g. delivery, storage, preparation). Critical limits mark the minimum or maximum acceptable level of an identified food safety hazard at each critical control point (CCP)

Taking corrective action with the food safety program

Taking corrective action when the food safety hazards occurred is based on Food safety program. This is required

- if control conditions are not met; and
- Processes, practices or conditions which are not consistent with the food safety program

Corrective action is taken within the level of responsibility**.** Responsibility for monitoring food safety is identifying breaches/breaks in food safety procedures.

Taking corrective action relates to own tasks and responsibilities and occurs in the context of the food safety program in the workplace

Critical limits mark the minimum or maximum acceptable level of an identified food safety hazard at each critical control point (CCP). The 2 hour / 4 hour rule, for example, identifies the maximum acceptable amount of time that food can be in the Temperature Danger Zone (5°C–60°C) before it must be thrown out.

There are two types of corrective action: **immediate** and **preventative**.

Immediate corrective actions are ***reactive***, whereas preventative corrective actions are ***proactive***.

EXAMPLES OF IMMEDIATE CORRECTIVE ACTIONS

An immediate corrective action fixes an existing problem or deviation from a critical limit. It stops a food safety breach that is happening *now*.

Some examples of immediate corrective actions are:

- throwing out food items that show signs of spoilage (e.g. bad smell, slimy skin)
- rejecting a food delivery with bite marks on the packaging (or other signs of pest infestation)
- transferring unrefrigerated perishable food items into cold storage (5°C or below)
- disposing of food items that have been in the Temperature Danger Zone for more than four hours
- sending an employee home if they are experiencing symptoms of food-borne illness (e.g. fever, nausea, diarrhea)

EXAMPLES OF PREVENTATIVE CORRECTIVE ACTIONS

A preventative corrective action prevents a potential problem from happening. It stops a breach from occurring in *the* future*.*

Some examples of preventative corrective actions are:

- repairing broken, cracked or chipped equipment, dishware or glassware
- replacing food preparation surfaces (e.g. chopping boards, countertops) with cracks or deep scratches
- changing work procedures to improve food safety and / or quality
- appointing a Food Safety Supervisor to manage food safety risks in the business
- ensuring that all staff receive comprehensive food safety training

4 Raising food safety issues

What are some food safety issues?

The factors involved in the potential threat caused by foods are inappropriate agricultural practices, poor hygiene at any stage of the food chain, lack of preventive controls during processing and preparation of the food, incorrect use of the chemical materials, contaminated raw materials, food and water and ...

Bacteria and Viruses: Bacteria and viruses are the most common cause of food poisoning. The symptoms and severity of food poisoning vary, depending on which bacteria or virus has contaminated the food. Parasites: Parasites are organisms that derive nourishment and protection from other living organisms known as hosts.

IMPORTANT FOOD ISSUES

Food Safety, Quality and Consumer Protection

The terms food safety and food quality can sometimes be confusing. Food safety refers to all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer. It is not negotiable. Quality includes all other attributes that influence a product's value to the consumer. This includes negative attributes such as spoilage, contamination with filth, discoloration, off-odours and positive attributes such as the origin, color, flavor, texture and processing method of the food. This distinction between safety and quality has implications for public policy and influences the nature and content of the food control system most suited to meet predetermined national objectives.

Food control is defined as:

....a mandatory regulatory activity of enforcement by national or local authorities to provide consumer protection and ensure that all foods during production, handling, storage, processing, and distribution are safe, wholesome and fit for human consumption; conform to safety and quality requirements; and are honestly and accurately labeled as prescribed by law.

The foremost responsibility of food control is to enforce the food law(s) protecting the consumer against unsafe, impure and fraudulently presented food by prohibiting the sale of food not of the nature, substance or quality demanded by the purchaser.

Confidence in the safety and integrity of the food supply is an important requirement for consumers. Food borne disease outbreaks involving agents such as *Escherichia coli, Salmonella* and chemical contaminants highlight problems with food safety and increase

public anxiety that modern farming systems, food processing and marketing do not provide adequate safeguards for public health. Factors which contribute to potential hazards in foods include improper agricultural practices; poor hygiene at all stages of the food chain; lack of preventive controls in food processing and preparation operations; misuse of chemicals; contaminated raw materials, ingredients and water; inadequate or improper storage, etc.

Specific concerns about food hazards have usually focused on:

- Microbiological hazards;
- Pesticide residues;
- Misuse of food additives;
- Chemical contaminants, including biological toxins; and
- Adulteration.

Consumers expect protection from hazards occurring along the entire food chain, from primary producer through consumer (often described as the farm-to-table continuum). Protection will only occur if all sectors in the chain operate in an integrated way, and food control systems address all stages of this chain.

As no mandatory activity of this nature can achieve its objectives fully without the cooperation and active participation of all stakeholders *e.g.* farmers, industry, and consumers, the term ***Food Control System*** is used in these Guidelines to describe the integration of a mandatory regulatory approach with preventive and educational strategies that protect the whole food chain. Thus an ideal food control system should include effective enforcement of mandatory requirements, along with training and education, community outreach programmes and promotion of voluntary compliance. The introduction of preventive approaches such as the Hazard Analysis Critical Control Point System (HACCP), have resulted in industry taking greater responsibility for and control of food safety risks. Such an integrated approach facilitates improved consumer protection, effectively stimulates agriculture and the food processing industry, and promotes domestic and international food trade.

3.2 Global Considerations

(a) International Trade

With an expanding world economy, liberalization of food trade, growing consumer demand, developments in food science and technology, and improvements in transport and communication, international trade in fresh and processed food will continue to increase.

Access of countries to food export markets will continue to depend on their capacity to meet the regulatory requirements of importing countries. Creating and sustaining demand for their food products in world markets relies on building the trust and confidence of importers and consumers in the integrity of their food systems. With agricultural production the focal point of the economies of most developing countries, such food protection measures are essential.

(b) Codex Alimentarius Commission

The Codex Alimentarius Commission (CAC) is an intergovernmental body that coordinates food standards at the international level. Its main objectives are to protect the health of consumers and ensure fair practices in food trade. The CAC has proved to be most successful in achieving international harmonization in food quality and safety requirements. It has formulated international standards for a wide range of food products and specific requirements covering pesticide residues, food additives, veterinary drug residues, hygiene, food contaminants, labeling etc. These Codex recommendations are used by governments to determine and refine policies and programmers under their national food control system. More recently, Codex has embarked on a series of activities based on risk assessment to address microbiological hazards in foods, an area previously unattended. Codex work has created worldwide awareness of food safety, quality and consumer protection issues, and has achieved international consensus on how to deal with them scientifically, through a risk-based

approach. As a result, there has been a continuous appraisal of the principles of food safety and quality at the international level. There is increasing pressure for the adoption of these principles at the national level. See Annex 4 for further details.

c) SPS and TBT Agreements

The conclusion of the Uruguay Round of Multilateral Trade Negotiations in Marrakech led to the establishment of the WTO on 1 January 1995, and to the coming into force of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT). Both these Agreements are relevant in understanding the requirements for food protection measures at the national level, and the rules under which food is traded internationally.

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test II: Short Answer Questions

1) _____the actions that must be taken if a critical limit is exceeded at any step of food production in a food business (5 point)
2) _____ mark the minimum or maximum acceptable level of an identified food safety hazard at each critical control point (CCP) (5 point)
3) Write down two types of corrective action? (5 points)
4) _____Corrective actions are reactive ? (3 point)
5) _____Corrective actions are proactive (3 point)
6) What are the some food safety issues?? (4 point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 25 points** **Unsatisfactory - below 25 points**

Answer key for LO 2. Participate in maintaining and improving food safety (information sheet 1-4)

Information sheet 1

1. D 2. True 3. True 4. True

Part I I

1. Saparator and homogenizer 2) Saparator 3) homogenizer 4) homogenizer

Information sheet 2

1. E

Part II

1) **Process control** is a statistical and engineering discipline that deals with the design and mechanisms for maintaining the output of a specific process within a desired range.

2) Food safety breach; - may include

- failure to check delivery temperatures of potentially hazardous chilled food
- failure to place temperature-sensitive food in temperature controlled storage conditions promptly
- failure to wash hands when required
- use of cloths for unsuitable purpose

3) **Good Manufacturing Practices (GMPs**) describe the methods, equipment, facilities, and controls for producing processed food.

4) The importance of GMP

- GMPs extend the shelf and storage life of products
- GMPs reduce the risk of a product or process suspension
- Proper GMPs reduce the risk of food borne illnesses
- Reduced product reprocessing

5) When to Wash Your Hand Wash hands when

- After using the restroom
- After touching your face, hair, body or clothing
- Before and after handling raw foods like meat or poultry
- After taking out garbage

Information sheet 3

1) D

Part II: - 1) corrective action 2) critical limit 3) intermediate and preventive action

4) intermediate 5) preventive

6) Food safety issues:- inappropriate agricultural practices,

- Poor hygiene at any stage of the food chain,
- Lack of preventive controls during processing and preparation of the food,
- Incorrect use of the chemical materials, contaminated raw materials, food and water and...

LG #30	LO #3 - Comply with personal hygiene standards

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

3.1 Maintaining Personal hygiene

3.2 Reporting Health conditions and/or illness

3.3 Wearing clothing and footwear

3.4 Organizing Movement around the workplace

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

3.1. Personal hygiene is maintained to meet the requirements of the food safety program.

3.2. Health conditions and/or illness *are reported* as required by the food safety program.

3.3. Clothing and footwear appropriate for the food handling task is worn to comply with the requirements of the food safety program.

3.4. Movement around the workplace is organized in the manner it complies with the food safety program.

Learning Instructions:
1) Read the specific objectives of this Learning Guide. 2) Follow the instructions described below. 3) Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them. 4) Accomplish the “Self-checks” which are placed following all information sheets. 5) Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks). 6) If you earned a satisfactory evaluation proceed to “Operation sheets 7) Perform “the Learning activity performance test” which is placed following “Operation sheets” , 8) If your performance is satisfactory proceed to the next learning guide, **9)** If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.

Information Sheet 1. Maintaining Personal hygiene

Health and Safety is important because it protects the well being of employers, visitors and customers. Looking after Health and Safety makes good business sense. Workplaces which neglect health and safety risk prosecution, may lose staff, and may increase costs and reduce profitability.

Food hygiene: All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.

Hygiene: All employees working in

- direct contact with food,
- food contact surfaces
- And food packaging must conform to hygienic practices.

This protects against food contamination by microorganisms or unwanted material.

Without personal hygiene there is no food safety

Food handlers can contaminate food

Prevention must focus on personnel

- personal cleanliness
- illness
- behaviour

Health and safety concerns at work

1. Report to your supervisor. The first step you can take is to report to your supervisor. ...
2. Submit a written report. ...
3. Report to union or health and safety representative. ...

4. Report to the HSE. ...
5. Report to the business. ...
6. Report to the HSE.

At some point in our career we will all have heard that the three key reasons for managing health and safety in our organization are: legal, moral and financial.

Personal Cleanliness (Hygiene).

- Food handlers shall maintain a high degree of personal cleanliness and shall wear work clothing, head covering, and footwear that are fit for purpose, clean and in good condition. Work wear shall provide adequate coverage to ensure that hair, , moustaches, perspiration, etc. cannot contaminate the product.
- Where gloves are used for product contact, they shall be clean, food grade (like nitrile etc.) and in good condition.
- Food handlers must wear clean and washable or disposable overclothing (including headgear, nose mask, shoe cover and where appropriate, neck-covering and/or beard snood)
- The provision of clear information to all contractors of any hygiene requirements specific to the manufacturing area in which they will be working,
- The implementation of 'return to work' procedures following illness or foreign holidays, particularly in relation to diseases that may have been contracted while away.
- The implementation of a personal medication procedure to control personal medicines that could be a potential contamination risk to the product,
- Protective clothing mandated for use in manufacturing areas or hygiene purposes shall not be used for any other purposes.

All people entering food processing, storage, distribution and handling areas shall wash their hands with soap and potable water, followed by drying and sanitizing, where required such as:

- before starting work;

- after handling chemicals;
- after handling incompatible food products (for example, raw versus cooked or ready-to eat) or contaminated materials;
- after breaks;
- after coughing or sneezing or blowing their nose; and
- After using toilet facilities.
- after using telephone / cell phones,
- After smoking in designated areas etc.

- Hand washing notices shall be posted at appropriate places

Utensils

- Scrapers for molds and tabletops are not to be used on the floor.
- Production equipment/utensils must be thoroughly cleaned and sanitized with alcohol after use.

Premises

- Keep unscreened doors and windows closed.
- Report any pests or evidence of pests such as flies, insects, mice droppings

Equipment

- Return tools and attachments to their proper place after use.

- Check product surfaces before starting equipment. Remove any foreign objects or dirt.
- Replace brushes that lose bristles.

Personnel Practices

- Do not lean, sit or step on product surfaces.
- Do not handle ingredients or products with either cut or infected hands.
- Do not engage in horseplay.
- Keep hand contact with ingredients and product to a minimum

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Choose the best answer (3 point)

1. Which one of the f/f are concerns of Health and safety concerns at work

A) Report to your supervisor C) Submit a written report D) Report to the business E) all

2. Which one of the f/f are Personnel Practices

A) Do not lean, sit or step on product surfaces.

B) Do not handle ingredients or products with either cut or infected hands.

C) Do not engage in horseplay.

D) Keep hand contact with ingredients and product to a minimum

E) all

Test II: Short Answer Questions

1) _____ Protects the well being of employers, visitors and customers. (5 point)
2) All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain are_____. (5 point)
3) Write three examples Personnel Practices (5 points)
4) Write down Steps of hand washing _____ ? (4 point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 25 points** **Unsatisfactory - below 25 points**

Information Sheet 2. Reporting Health conditions and/or illness

1. **Reporting Health Status and Illness & Injury**

- Dairy and dairy product handlers of the manufacturing facility shall undergo a medical examination by a registered medical practitioner before joining for work and thereafter annually to ensure that they are free from any infectious or communicable diseases. A record of these examinations shall be maintained.
- The employees in manufacturing units shall be inoculated against the enteric group of diseases as per recommended schedule of the vaccine and records shall be maintained.
- Personnel known, or, suspected to be suffering from, or to be a carrier of a disease or illness likely to be transmitted through dairy and dairy product, shall be prevented from handling dairy and dairy product or materials which come in contact with dairy and dairy product till the time he /she get the fit to work certificate from the registered medical practitioner.
- Food handlers shall report the following conditions to the management for possible exclusion from dairy and dairy product handling areas – jaundice, diarrhea, vomiting, fever, sore throat with fever, visibly infected lesions, (boils, cuts or sores) and discharges from ear, eye or nose. Medical examination of a dairy and dairy product handler shall be carried out apart from the periodic medical examination, if clinically or epidemiologically indicated.
- In the manufacturing areas, personnel with open cuts, wounds or burns shall be required to cover them with suitable water-proof dressings before starting operations. Any lost dressing must be reported to supervision immediately. The dressings should preferably be brightly coloured and metal detectable

Illness

- Doctor's certificate on hiring
- Inform your supervisor or HR if you are ill with symptoms that could contaminate ingredients or products
- No medication allowed in factory
- Ensure that a clean bandage covers any open wounds

Food borne illness (also food borne disease and colloquially referred to as food poisoning)

- is any illness resulting from the spoilage of contaminated food, pathogenic bacteria, viruses, or parasites that contaminate food,
- As well as toxins such as poisonous mushrooms and various species of beans that have not been boiled for at least 10 minutes.

Symptoms vary depending on the cause, and are described below in this article. A few broad generalizations can be made. For contaminants requiring an incubation period, symptoms may not manifest for hours to days, depending on the cause and on quantity of consumption. Longer incubation periods tend to cause sufferers to not associate the symptoms with the item consumed, so they may misattribute the symptoms to gastroenteritis, for example. Symptoms often include

- vomiting,
- fever,
- And aches, and may include diarrhea. Bouts of vomiting can be repeated with an extended delay in between, because even if infected food was eliminated from the stomach in the first bout, microbes, like bacteria (if applicable), can pass through the stomach into the intestine and begin to multiply. Some types of microbes stay in the intestine

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: say true or false (5 point)

1 Food handlers shall report the following conditions to the management for possible exclusion from product handling areas – jaundice, diarrhoea, vomiting, fever, sore throat with fever, visibly infected lesions, From the given choose which one is personal protective equipment.

2 In the manufacturing areas, personnel with open cuts, wounds or burns shall be required to cover them with suitable water-proof dressings before starting operations.

3 Food borne illness (also food borne disease and colloquially is not referred to as food poisoning)

Test II: Short Answer Questions

1. Write down example of Symptoms related to food borne illness (5 point)
2. Write down at four foods borne disease caused by spoilage of contaminated food (5 point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information Sheet 3. Wearing clothing and footwear

Appropriate clothing and footwear

- **Wearing cloth, foot wear and Grooming**
  - Personnel who work in, or enter into, areas where exposed products and/or materials are g handled shall wear work clothing that is fit for purpose, clean and in good condition (e.. free from rips, tears or fraying material).
  - Clothing mandated for Milk and milk product protection or hygiene purposes shall not be used for any other purpose.
  - Work wear shall not have buttons and outside pockets above waist level. iv. Work wear shall be laundered at predefined intervals.
  - Work wear shall provide adequate coverage to ensure that hair, perspiration, etc. cannot contaminate the product.
  - Hair, beards, and moustaches shall be protected (i.e. completely enclosed) by restraints, vii. Personal protective equipment, where required, shall be designed to prevent product contamination and maintained in hygienic condition.

Clothing

- Everyone must wear pants and covered sleeves.
- Separate shoes (no open toes or high heels) are to be worn in the factory.
- Personal belongings and street clothing must be stored in locker rooms.

Headwear

Let's start at the top. A lot of work on modern dairy farms is inside and wearing baseball caps or stocking caps does provide some protection from the elements. Given that we are beginning the cold winter months stocking caps will probably be the head protection

of choice. Consider bright fluorescent yellow, orange or green stocking caps or hats to help with enhanced visibility of employees for safety considerations.

Eye Protection

Eye protection is also important and safety goggles or glasses should be requiring by all employees. Employees often deal with many different chemicals or hazardous objects that have the potential to "propel" and could possibly end up in the eye. Additionally there are objects such as feed particles and dirt that could be blown into the eyes. There are many different types available in the market. However, if they are not comfortable and affordable they will not be purchased or worm.

Clothing

Dressing in layers is important on the dairy farm. Employees and producers are often exposed to varied risks within their job. Clothing should be fairly tight fitting, free of tears or strings that can become entangled in PTO's or caught on equipment

Footwear

Foot wear on dairy farms is extremely important. Oftentimes, we talk about wearing leather boots and hard soles to protect our feet in case an animal steps on them or while operating equipment. However, leather may not provide the best protection if the primary job of the employee is dealing with a lot of moisture and chemicals, such as the milking parlor or the frees tall barn. Rubber boots with non-skid sole, and some arch support are good choices, as they protect the foot from excess moisture and can be easily cleaned.

Gloves

We often do not think about our hands, but on a dairy, employees working in the milking parlor should wear rubber gloves. The increased amount of moisture and chemical exposure in pre and post dipping of the udder and sanitation of the equipment will damage the skin. If employees are not working with chemicals, gloves that protect hands from the elements are ok. There are many styles, including cotton, leather, rubber, nylon, or a combination. Things to consider are fit, durability, protection from the hot or cold environment, and price

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test II: Short Answer Questions

1) Write down Examples of clothing designed to prevent contamination by the body (5 point)
2) Write down at least three Wearing cloths and foot wear. (5 point)
3) The important and safety goggles or glasses should be required by all employees are _____? (5points)
4) employees working in the milking parlor should wear_____ gloves (5 point)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 20 points** **Unsatisfactory -20 below points**

Information Sheet 4. Organizing Movement around the workplace

Success is a result of long-term planning and daily action. Good organization helps you gain control of your time so you can plan and complete the tasks needed to achieve your goals.

Here are eight organizational tips that will help you reach your long-term goals at work.

1) Focus on what's Important.

Remind yourself of your long-term goals and revise them when necessary. Set daily priorities to meet your goals. Keep photos of your family or inspirational pictures nearby.

2) Make lists.

Make daily, weekly and monthly to-do lists of important tasks. Review your daily priorities at the beginning of each day.

3) Manage your time well.

Schedule quiet time at work to accomplish tasks that need extra concentration. Do your most challenging work when your energy is at its highest; save less demanding work for other times. If you tend to procrastinate, focus on the sense of accomplishment you'll feel when the job is done. Use commute time to plan your day's activities.

4) Use calendars and planners.

Check your work calendar daily to review your activities and avoid conflicts. Write down all commitments in pencil rather than trusting your memory. Use planning and scheduling forms and software to help you map out long-term projects.

5) Delegate tasks.

Assign tasks to others when the task is not on your level of expertise. Provide adequate training and feedback on assigned projects.

6) Manage your mail and phone calls.

Sort incoming mail into categories by priority or action. Use voice mail to screen phone calls.

7) Reduce clutter.

Clear your workspace. Keep only the most critical items and information you need daily on the top of your desk. Archive resource materials you rarely use. Toss out duplicate information and materials that will soon be outdated. Leave blank space on bookshelves for growth.

8) Stay organized.

Organize files by priority and keep the most important ones within arm's reach. Spend 15 minutes at the end of each day clearing your desk and 15 minutes the next morning planning for your day's activities. Review items one through seven on this list.

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: SAY TRUE OR FALSE (5 point)

1) Good organization helps you gain control of your time so you can plan and complete the tasks needed to achieve your goals.

2) Remind yourself of your long-term goals and revise them when necessary called make list

Test II: Short Answer Questions

1) Write down at least four organizational tips that will help you reach your long-term goals at work. (5 point)
2) Make daily, weekly and monthly to-do lists of important tasks are_____ __. (5 point)
3) _____Is a result of long-term planning and daily action?? (5 points)

You can ask you teacher for the copy of the correct answers.

Note: **Satisfactory rating - 25 points** **Unsatisfactory - below 25 points**

Answer key for LO #3 - Comply with personal hygiene standards (information sheet 1-4)

Information sheet 1

1. E 2. E

Part I I

1) Hygiene and safety
2) Food hygiene
3) i) do not lean ii) sit or step on product surface iii) do not engage in horse play
   Iv) Keep hand contact with ingredient
4 I) before starting work; II) after handling chemicals III) after using toilet facilities

Information sheet 2

1. T 2. T 3. F

Part II

1) diarrhea, vomiting, fever, sore throat with fever
2) pathogenic bacteria, viruses, or parasites

Information sheet 3

1) T 2) T 3) F

Part II: - 1) purpose designed overalls or uniforms, 2) hair-nets, 3) beard snoods, 4) Gloves and overshoes

Headwear, eye protection and footwear

2) eye protection 4) rubber

Information sheet 4

2) T 2) T

Part II

1 i) Focus on what's important ii) make lists iii) manage your time well

2) Make lists 3) Success

Reference Materials

1. **http://www.milkfacts.info/Milk%20Composition/Milk%20Composition%20Page.htm**
2. **https://www.google.co.uk/search?q=buffalo+milk+composition+table&sa=X&biw=1366&bih=662&tbm=isch&source=iu&ictx=1&fir=gEi-_SwQU19A-M%253A%252CgQ0_Gv-N_Ii8EM%252C_&usg=__02aFlaJGtStantEHewAHzXbBrS0%3D&ved=2ahUKEwjzioXjuajcAhWPON8KHQQCDj0Q9QEwAHoECAYQBA#imgdii=RAdIrxnWud2toM:&imgrc=4thmFF668h0paM:**
3. **file:///C:/Users/Grace/Downloads/Noveltechnologiesformilkprocessing.pdf**
4. **http://dairyknowledge.in/article/sterilization**
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7. **https://dairyextension.foodscience.cornell.edu/resources/good-manufacturing-practices/**
8. **https://abltechnology.wordpress.com/category/milk-processing-equipment-2/**
9. **https://www.slideshare.net/AbhinavVivek1/packaging-materials-for-dairy-products**

WEB ADDRESSES

1. http://www.extension.iastate.edu/foodsafety/Lesson/homepage.html
2. **Institute of Food Technologist** http://www.iftsa.org/outreach/so/labs/wa/
3. **National Restaurant Association Education Foundation**. Serve Safe.4th ed.
4. http://www.iitb.ac.in/safety/sites/default/files/Machine%20Safety_0_0.pdf)
5. https://www.fda.gov/media/109408/download
6. https://www.flexiblemachining.com/pdf/quality_policy.pdf
7. **(http://www.iufost.org/reports_resources/bulletins/).**

AKNOWLEDGEMENT

We wish to extend thanks and appreciation to the many representatives of TVET instructors and respective industry experts who donated their time and expertise to the development of this curriculum.

We would like also to express our appreciation to the TVET instructors and respective industry experts of Regional TVET Bureaus, TVET College/ Institutes, BEAR II Project, Bishoftu Management Institute Center, UNESCO and Federal Technical and Vocational Education and Training Agency (FTVET) who made the development of this curriculum with required standards and quality possible.

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