RQF LEVEL 5

TRADE: CULINARY ARTS

MODULE CODE: CUAFS501

Module name: Food safety procedures implementation.

Table of content

Acronyms and abbreviations

CCP: Critical control point

HACCP: Hazards Analysis Critical Control Point

FSMS: Food Safety Management System

SOP: Standards Operating Procedures

NASA: National Aeronautics and Space Administration

Introduction

Purpose statement

This general module describes the knowledge and attitude required to apply basic cooking. The learner will be able to evaluate organizational requirements for food safety, implement food safety procedures to control hazards and revise food safety procedures. This will allow the Chef de Partie to easily pursue further learning at higher level.

Food borne disease causes considerable mobility and mortality through the world, even though the principles for controlling most of these diseases are well established. The introduction of this module sets out the key terms in the food safety implementation as flow:

- Hazardous food: Food containing dangerous biological, chemical or physical agents, or food in a condition that has the potential to cause adverse health effects in humans.
- High-risk foods: Bacteria that has the potential to cause food-poisoning can grow and multiply on some foods more easily than others.
- High-risk foods include meat, seafood, poultry, eggs, dairy products, small goods, cooked rice/pasta and prepared salads (such as coleslaw, pasta salads, rice salads and fruit salads). Food that is contained in packages, cans or jars can become high-risk once opened, and should be handled and stored appropriately.
- Cleaning - the removal of soil, food residue, dirt, grease or other objectionable matter. Contaminant - any biological or chemical agent, foreign matter, or other substances not intentionally added to food which may compromise food safety or suitability.
- Contamination - the introduction or occurrence of a contaminant in food or food environment.
- Disinfection - the reduction, by means of chemical agents and/or physical methods, of the number of microorganisms in the environment, to a level that does not compromise food safety or suitability.
- Establishment - any building or area in which food is handled and the surroundings under the control of the same management.
- Food hygiene - all conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.
- Hazard - A biological, chemical or physical agent, in, or condition of, food with the potential to cause an adverse health effect.

- HACCP - A system which identifies, evaluates, and controls hazards which are significant for food safety.
- Food handler is any person who directly handles packaged or unpackaged food, food equipment and utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements.
- Food safety is assurance that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use. Food suitability is an assurance that food is acceptable for human consumption according to its intended use.
- Control (verb): To take all necessary actions to ensure and maintain compliance with criteria established in the HACCP plan.
- Control (noun): To state wherein correct procedures are being followed and criteria are being met.
- Control measure: Any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.
- Corrective action: Any action to be taken when the results of monitoring at the CCP indicate a loss of control.
- Critical Control Point (CCP): A step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.
- Critical limit: A criterion which separates acceptability from unacceptability.
- Deviation: Failure to meet a critical limit.
- Flow diagram: A systematic representation of the sequence of steps or operations used in the production or manufacture of a particular food item. HACCP: A system which identifies, evaluates, and controls hazards which are significant for food safety.
- HACCP plan: A document prepared in accordance with the principles of HACCP to ensure control of hazards which are significant for food safety in the segment of the food chain under consideration.
- Hazard analysis: The process of collecting and evaluating information on hazards and conditions loading to their presence to decide which are significant for food safety and therefore should be addressed in the HACCP plan.
- Monitor: The act of conducting a planned sequence of observations or measurements of control parameters to assess whether a CCP is under control.
- Step: A point, procedure, operation or stage in the food chain including raw materials, from primary production to final consumption.
- Validation: Obtaining evidence that the elements of the HACCP plan are effective.

- Verification: The application of methods, procedures, tests and other evaluations, in addition to monitoring to determine compliance with the HACCP plan.

Module Code and Title: CUAFS501

Food safety procedures implementation

Learning Units:

1. Evaluate Organizational Requirements for Food Safety
2. Implement food safety procedures to control hazards
3. Revised Food Safety Procedures Monitor Food Safety Program

1. Learning Unit 1: Evaluate Organizational Requirements for Food Safety

STRUCTURE OF LEARNING UNIT

Learning outcomes:

1.1 Identify potential environmental of food safety

1.2 Identify HACCP

1.3 Examine and Asses Food Safety.

1.4. Evaluate policies and procedures for HACCP

1.5. Monitor and assess practices including records keeping Learning

Learning outcome 1.1 Identify potential environmental of food safety

Duration: 3 hrs

Learning outcome1 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe hazard
2. Differentiate types of hazards
3. Classify different hazards according to their types
4. Control food safety at work

Resources

Equipment	Tools	Materials
Ironing machine **Scrubing machine** **Washing machine**	Reference books Boards Markers Pictures Chalks Projector Brochure Spray bottles	Internet Video aids Audio visual

Advance preparation:

. Prepare videos showing different types of hazards and their examples

. Assembling different types of hazards that will be shown to the student

. visiting hazardous areas

Indicative content 1.1. 1. Description of potential environmental of food safety

A food safety hazard is defined by the Codex Alimentations as "a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.

❖ Types of food hazards

1. **Biological hazards**: Examples of potential biological hazards include the following:

Bacteria (non-spore forming): Campylobacter spp. Pathogenic Escherichia coli (E. coli 0157:H7 and other enterohemorrhagic E. coli), Listeria monocytogenes Salmonella spp; (S. typhimurium, S. enteritidis); Shigella (S. dysenteriae), Staphylococcus aureus; Streptococcus pyogenes; Vibrio cholerae; Vibrio parahaemolyiticus, Vibrio vulnificus, Yersinia enterocolitica

Bacteria (spore forming): Clostridium botulinum, Clostridium perfringens, Bacillus cereus

Viruses: Hepatitis A Virus, Noroviruses, Rotavirus,Cornavirus,etc

Protozoa and Parasites: Cryptosporidium parvum, Diphyllobothrium latum, Entamoeba histolytica, Giardia lamblia, Ascaris lumbricoides, Taenia solium, Taenia saginata, Trichinella spirali.

2. **Chemical hazards** Examples of potential chemical hazards include the following:
   - **Naturally occurring chemicals**: Allergens Mycotoxins (e.g. aflatoxin), Scombrotoxin (histamine), Ciguatoxin, Pyrrolizidine alkaloids, Phytohemagglutinin, Mushroom toxins, Shellfish toxins (• Paralytic shellfish poisoning (• Diarrhoeic shellfish poisoning • Neurotoxic shellfish poisoning • Amnesic shellfish poisoning)
   - **Added Chemicals**: Polychlorinated biphenyls, Agricultural chemicals

(• Pesticides • Fertilizers • Antibiotics • Growth hormones Prohibited substances • Direct • Indirect), Toxic element and compound (• Lead • Zinc • Cadmium • Mercury • Arsenic • Cyanide),
Food additives, Vitamins and minerals, Contaminants (• Lubricants • Cleaners • Sanitizers • Coatings • Paints • Refrigerants • Water or steam treatment chemicals • Pest control chemical)

   - **Chemicals from Packaging Materials**: Plasticizers, Vinyl chloride, Printing/coding inks, Adhesives, Lead and Tin.

3. Physical hazards

Examples of potential physical hazards include the following: Metal, Glass, Wood, Stones, Bone (when not expected), Plastics.

3. Allergens hazards Food allergies

Some foods and food ingredients, or their components, can cause severe allergic reactions including anaphylaxis (refer to Anaphylaxis Policy). Example of 14 allergens food are:

- ✓ Cereals containing gluten, namely: wheat (such as spelt and Khorasan wheat), rye, barley, oats or their hybridized strains, Cereals and products thereof, except; wheat based glucose syrups including dextrose, wheat based maltodextrines glucose syrups based on barley, cereals used for making alcoholic distillates including ethyl alcohol of agricultural origin
- ✓ Crustaceans and products thereof
- ✓ Eggs and products thereof
- ✓ Fish and products thereof, except: fish gelatine used as carrier for vitamin or carotenoid preparations, fish gelatine or Isinglass used as fining agent in beer and wine
- ✓ Peanuts and products thereof Soybeans and products thereof, except: fully refined soybean oil and fat, natural mixed tocopherols (E306), natural D-alpha tocopherol, natural D-alpha tocopherol acetate, and natural D-alpha tocopherol succinate from soybean sources, vegetable oils derived phytosterols and phytosterol esters from soybean sources, plant stanol ester produced from vegetable oil sterols from soybean sources
- ✓ Milk and products thereof (including lactose), except: whey used for making alcoholic distillates including ethyl alcohol of agricultural origin and lactitol
- ✓ Nuts, namely: almonds (Amygdalus communis L.), hazelnuts (Corylus avellana), walnuts (Juglans regia), cashews (Anacardium occidentale), pecan nuts (Carya illinoinensis (Wangenh.) K. Koch), Brazil nuts (Bertholletia excelsa), pistachio nuts (Pistacia vera), macadamia or Queensland nuts (Macadamia ternifolia), and products thereof, except for nuts used for making alcoholic distillates including ethyl alcohol of agricultural origin.
- ✓ Celery and products thereof
- ✓ Mustard and products thereof
- ✓ Sesame seeds and products thereof
- ✓ Sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/litre in terms of the total SO2 which are to be calculated for products as proposed ready for consumption or as reconstituted according to the instructions of the manufacturers
- ✓ Lupin and products thereof
- ✓ Molluscs and products thereof

❖ Controlling food safety

- Clean, Hand washing, sanitizing and disinfect

Hand washing is one of the best ways to increase food safety. Hand washing reduces germs and decreases the chances of contaminating food or food-contact surfaces. Make sure that all food handlers know the importance of washing their hands thoroughly and frequently.

Follow these simple steps to wash hands properly:

- Remove rings and other jewellery (watches, bracelets, etc.);
- Wet hands thoroughly with warm water;
- Lather well using liquid soap or foam soap;
- Scrub hands with soap for a minimum of 20 seconds (long enough to sing the alphabet). Include wrists, forearms, nails, between fingers and around and under any jewellery that cannot be removed;
- Rinse thoroughly;
- Turn off tap with a paper towel; and
- Dry hands with a disposable paper towel.

Before:

- Preparing food
- Eating
- Starting or returning to work

Between:

- Handling raw foods (meat, fish, poultry and eggs) and touching any other food or kitchen utensils
- Changing work areas (e.g. moving from unfinished to finished product); and - Handling different allergens. 7-3 Developing

After:

- Preparing food, especially raw foods;
- Being away from the work station;
- Taking medicines;
- Touching body parts (including hair, nose, arms and eyes);
- Using the toilet;
- Changing clothing or gloves;
- Emptying garbage/waste bins; and
- Coughing or sneezing

Any time:

Hands may have been contaminated.

- Use foot baths and hand-dips to sanitize hands, gloves and footwear. Follow the directions that come with the sanitizing chemicals precisely. If necessary, get help and information about the sanitizing chemicals from the supplier.

- **Food spoilage and food preservatives**

Spoilage may occur at any stage along food chain. Spoilage may arise from insect damage, physical damage, indigenous enzyme activity in the animal or plant tissue or by microbial infections.

- Perishable foods such as fish, meat and bread have a short life span. but

the main single cause of food spoilage is invasion by microorganisms such as molds, yeast and bacteria.
- Fresh fruits and vegetables are perishable and highly prone to microbial spoilage caused by fungi, bacteria, yeast and molds - Fruits juices generally have relatively high levels of sugar and a low pH and this favors growth of yeasts, molds and some acid-tolerant bacteria.
Preservatives: are substances which are added to food just to retard, inhibit or arrest the activity of microorganisms such as fermentation, putrefaction and decomposition of the food. Commonly used preservatives include, common salt, sugar, dextrose, spices, vinegar, ascorbic acid, benzoic acid and its salt, SO2 and the salts of sulphuric acid, nitrates, sorbic acid and its salts,
Higher temperature: High temperature and relative humidity favour the development of post-harvest decay organisms. More acidic tissue is generally attacked by fungi, while fruits and vegetables having pH above 4.5 are more commonly attacked by bacteria,
example of bacterial soft rot of potato caused by Ceratocystis, fimbriata, water soft rot of carrot by Sclerotinia sclerotiorum etc.

Theoretical learning Activity

- ✓ Brainstorming on food safety hazards and controlling food safety
- ✓ Group discussion on food safety hazards and controlling food safety
- ✓ Individual exercise on food safety hazards and controlling food safety
- ✓ etc

Practical learning Activity

- ✓ **Scenario creation on hazards identification and their control**

Points to Remember (Take home message)

- Meaning of hazard
- Highlighting the number of types of hazards
- Outlining the ways of controlling different types of hazards

Learning outcome1 formative assessment

Written assessment

1. Define the term 'hazard'.
2. How many types of hazards do you know? Clearly explain them.
3. List 5 food preservation/ food additives

ANSWERS

1. Hazard is a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.
2. They 4 types of hazards include:
   - Biological hazards: Examples of potential biological hazards include the following: Virus, people, bacteria, etc
   - Chemical hazards: fertilizers, cleaning agents, chemical powders, acids solutions, etc
   - Physical hazards: stones, broken materials, wood, bones, etc
   - Allergen hazard: peanuts, milk products, crustaceans and their products, etc
3. salt, sugar, dextrose, spices, vinegar, ascorbic acid, benzoic acid and its salt, SO2 and the salts of sulphuric acid, nitrates, sorbic acid and its salts,…

Learning outcome 1.2 Identify HACCP

Duration: 3 hrs

Learning outcome2 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Understand HACCP System
2. Differentiate 7 principles of HACCP
3. Key points to monitor HACCP

Resources

Equipment	Tools	Materials
	Reference books Boards Markers Pictures Chalks Projector Brochure	Internet Video aids Audio visual

Advance preparation:

The indicative content 1.2.1. Description of HACCP Principles

HACCP (Hazard Analysis Critical Control Point) is described as a preventative management system that was developed by NASA in America in the 1960's. NASA developed HACCP as a means of guaranteeing that the food that was sent into space with the astronauts was safe and would not cause illness. In Australia, HACCP has been introduced as a model and means of increasing the standards of food hygiene and food quality and to reduce the incidence of food poisoning and food borne illnesses. HACCP is an internationally recognized system.
The HACCP system, which is science based and systematic, identifies specific hazards and measures for their control to ensure the safety of food. HACCP is a tool to assess hazards and establish control systems that focus on prevention rather than relying mainly on end-product testing and inspection. Any HACCP system is capable of accommodating change, such as advances in equipment design, processing procedures or technological developments.

1.2.1: Identify HACCP Principles

The HACCP system consists of the following seven principles:
Principle 1: Conduct a hazard analysis Identify the potential hazard(s) associated with food production at all stages, from primary production, processing, manufacture and distribution until the point of consumption. Assess the likelihood of occurrence of the hazard(s) and identify the measures for their control.
Principle 2: Determine the Critical Control Points (CCPs) Determine the points, procedures or operational steps that can be controlled to eliminate the hazard(s) or minimize its (their) likelihood of occurrence. A "step" means any stage in food production and/or manufacture including the receipt and/or production of raw materials, harvesting, transport, formulation, processing, storage, etc.
Principle 3: Establish critical limit(s). Establish critical limit(s) which must be met to ensure the CCP is under control.
Principle 4: Establish a system to monitor control of the CCP Establish a system to monitor control of the CCP by scheduled testing or observations.
Principle 5: Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.
Principle 6: Establish procedures for verification to confirm that the HACCP system is working effectively.
Principle 7: Establish documentation concerning all procedures and records appropriate to these principles and their application.

1.2.2: Key Points of Monitoring HACCP

- Identification of critical control point(ccp)

The Codex guidelines define a critical control point (CCP) as "a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level".
If a hazard has been identified at a step where control is necessary for safety/and if no control measure exists at that step or at any other, then the product or process should be modified at that step, or at an earlier or later stage, to include a control measures.

- Control measures

After the hazard analysis is completed, the team must then consider what control measures, if any, exist which can be applied for the control of each hazard. Control measures are any actions and activities that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level. More than one measure may be required to control a specific hazard and more than one hazard may be controlled by a specified measure. Risk analysis methods can help to determine the level of control that should be implemented to control a hazard.

- Corrective action to be taken if control measures are not met.

Each HACCP plan should include verification procedures for individual CCPs and for the overall plan. HACCP plans are expected to evolve and to improve with experience and new information. Periodic verification helps improve the plan by exposing and strengthening weaknesses in the system and eliminating unnecessary or ineffective control measures.
Verification activities include:
- HACCP plan validation
- HACCP system audits
- Equipment calibration
- Targeted sample collection and testing

- **Records that must be completed at each step**

A record shows the process history, the monitoring, the deviations and the corrective actions (including disposition of product) that occurred at the identified CCP.
The following records are completed at each step
- Identification of the deviant lot/product
- Amount of affected product in the deviant lot
- Nature of the deviation
- Information on the disposition of the lot
- Description

- Monitoring steps to control food safety hazards

Theoretical learning Activity

- ✓ Trainees brainstorming on HACCP System
- ✓ Student group discussion on HACCP Principles
- ✓ Individual exercise on key points of monitoring HACCP Sytem

Practical learning Activity

- ✓ Presentation on theoretical activities done above

Points to Remember (Take home message)

- HACCP System meaning
- Identification of HACCP principles
- Identifying keys points to monitor HACCP

Learning outcome2 formative assessment

Written assessment

1. Define HACCP System
2. Answer true and false
   a) HACCP stand for hazard analysis and critical control plan.
   b) CCP stand for critical control point.
   c) They are seven principles of HACCP.
3. Lists Seven HACCP principles

ANSWER

1. HACCP System is science based and systematic, identifies specific hazards and measures for their control to ensure the safety of food.
2. Answer true and false
   - **a)** HACCP stand for hazard analysis and critical control plan. **FALSE**
   - **b)** CCP stand for critical control point. **TRUE**
   - c) They are seven principles of HACCP. **TRUE**
3.

Principle 1: Conduct a hazard analysis Identify the potential hazard(s) associated

Principle 2: Determine the Critical Control Points (CCPs) Determine the points,

Principle 3: Establish critical limit(s).

Principle4: Establish critical limit(s)

Principle 4: Establish a system to monitor control of the CCP

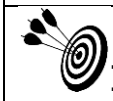
Principle 5: Establish the corrective action

Principle 6: Establish procedures for verification

Principle 7: Establish documentation concerning all procedures and records

Learning outcome 1.3: Examine and Asses Food Safety

 **Duration: 3 hrs**

 **Learning outcome3 objectives:**

By the end of the learning outcome, the trainees will be able to:

1. Describe the importance of food safety

2. explain food safety management system

Resources		
Equipment	**Tools**	**Materials**
	Reference books Boards Markers Pictures Chalks Projector Brochure	Internet Video aids Audio visual
Advance preparation:		

The indicative content 1.3.1. Examine and assess the importance of food safety.

Food service employees will examine and assess activities and any corrective action taken on the Food Contact Surfaces Cleaning and Sanitizing Log.

1. **Importance of food safety**;

- Temperature control

Depending on the nature of the food operations undertaken, adequate facilities should be available for heating, cooling, cooking, refrigerating and freezing food, for storing refrigerated or frozen foods, monitoring food temperatures, and when necessary, controlling ambient temperatures to ensure the safety and suitability of food.

- Avoiding food contamination

Pathogens can be transferred from one food to another, either by direct

contact or by food handlers, contact surfaces or the air. Raw, unprocessed food should be effectively separated, either physically or by time, from ready-to-eat foods, with effective intermediate cleaning and, where appropriate, disinfection.

- ✓ Temperature control
- ✓ Avoiding food contamination
- ✓ Increase food safety
- ✓ Avoid foodborne illness
- ✓ Maintain employees wellbeing

The indicative content 1.3.2: Examine and assess food safety programs

Food Safety Management System

A food safety management system (FSMS) is not only a legal requirement, but a helpful tool to ensure safe practices are followed within your business.

A FSMS is a systematic approach to controlling food safety hazards within a food business in order to ensure that food is safe to eat. All businesses are required to put in place, implement and maintain a FSMS based on the principles of Hazard Analysis Critical Control Point (HACCP).

Food safety program

A written plan that details what an individual business does to ensure that the food it sells or handles is safe for human consumption.

Some of the systems and programs that you will be responsible for implementing and monitoring include.

1. PREMISES AND ROOMS

- ➢ Establishments should normally be located away from:
  - ▪ Environmentally polluted areas and industrial activities which pose a serious threat of contaminating food;
  - ▪ Areas subject to flooding unless sufficient safeguards are provided;
  - ▪ Areas prone to infestations of pests;
  - ▪ Areas where wastes, either solid or liquid, cannot be removed effectively.
- ➢ Where appropriate, the internal design and layout of food

establishments should permit good food hygiene practices, including protection against cross-contamination between and during operations by foodstuffs.

- Activities should be adequately separated by physical or other effective means where cross- contamination may result.
- Buildings and facilities should be designed to facilitate hygienic operations by means of a regulated flow in the process from the arrival of the raw material at the premises to the finished product.
- Doors should have smooth, non-absorbent surfaces, and be easy to clean and, where necessary, disinfect
- Working surfaces that come into direct contact with food should be in sound condition, durable and easy to clean, maintain and disinfect. They should be made of smooth, non-absorbent materials, and inert to the food, to detergents and disinfectants under normal operating conditions.
- Drainage and sewage systems should be equipped with appropriate traps and vents.
- Establishments should be designed and constructed so that there is no cross-connection between the sewage system and any other waste effluent system in the establishment.
- - Effluent or sewage lines should not pass directly over or through production areas unless they are controlled to prevent contamination.

2. STORAGE AND STOCK CONTROL

Procedures should be in place to:
- Sort food and food ingredients to segregate material which is evidently unfit for human consumption;
- Dispose of any rejected material in a hygienic manner; and
- protect food and food ingredients from contamination by pests, or by chemical, physical or microbiological contaminants or other objectionable substances during handling, storage and transport.

3. STAFF HYGIENE

To ensure that those who come directly or indirectly into contact with food are not likely to contaminate food by:
-Maintaining an appropriate degree of personal cleanliness; -Behaving and operating in an appropriate manner.
- People who do not maintain an appropriate degree of personal cleanliness, who have certain illnesses or conditions or who behave inappropriately, can contaminate food and transmit illness to consumers.
- People known, or suspected, to be suffering from, or to be a carrier of a disease or illness likely to be transmitted through food, should not be

allowed to enter any food handling area.
-Medical examination of a food handler should be carried out if clinically or epidemiologically indicated.
-The manufacturer should require that employees advise management when they are suffering from a communicable disease likely to be transmitted through food.

4. CLEANING DISINFECTION/WASTE

Cleaning and disinfection programs should ensure that all parts of the establishment are appropriately clean, and should include the cleaning of cleaning equipment.

5. PEST CONTROL

- A pest control maintenance contract should be undertaken with a licensed, reputable pest control company. Regular pest inspections of both inside and outside the premises should be carried out and any reported pest infestations attended to immediately.
-The availability of food and water encourages pest harborages and infestation. Potential food sources should be stored in pest-proof containers and/or stacked above the ground and away from walls.

6. STAFF TRAINING

Food hygiene training is fundamentally important. All personnel should be aware of their role and responsibility in protecting food from contamination or deterioration.
Food handlers should have the necessary knowledge and skills to enable them to handle food hygienically.
- Training should be appropriate to the complexity of the manufacturing process and the tasks assigned.

Theoretical learning Activity

- ✓ Ask trainees to brainstorm about importance of food safety
- ✓ Student generate ideas about food safety management system
- ✓ **Trainees group discussion about food safety programs.**

Practical learning Activity

- ✓ **Oral exercises within the classroom**
- ✓ **Trainees should make sketch about the importance of food safety.**

Points to Remember (Take home message)

- Describing the different ways to examine and evaluate food safety programs.

Learning outcome3 formative assessment

Written assessment

1. **Differentiate FSMS from FSP (Food safety programs)**
2. **Give three ways you can use when controlling pests at workplace and those of storage and stock control.**
3. **List at least five food safety programs that can be maintained by any food business.**

ANSWERS

1. **FSMS** is a systematic approach to controlling food safety hazards within a food business in order to ensure that food is safe to eat.

Food Safety Programs A written plan that details what an individual business does to ensure that the food it sells or handles is safe for human consumption.

2. **Ways to control pest:**

- Regular pest inspections of both inside and outside the premises
- Potential food sources should be stored in pest-proof containers
- Remove water and food that attract pest
- Etc

Proper ways to control stock:

- Dispose of any rejected material in a hygienic manner; and
- Protect food and food ingredients from contamination by pests, or other hazards
- Separate food according to their types
- Avoid over stocking
- etc

3. Food safety programs

(i) Premises and rooms
(ii) Storage and stock control
(iii) Staff hygiene
(iv) Cleaning disinfection/waste
(v) Staff training
(vi) Pest control

Learning outcome 1.4: Evaluate policies and procedures for HACCP

Duration: 3 hrs

Learning outcome 4 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Identify food safety control measures
2. Evaluate food safety signs

Resources

Equipment	Tools	Materials
	Reference books Boards Markers Pictures Chalks Projector Brochure	Internet Video aids Audio visual
 **Advance preparation:**		

The indicative content 1.4.1. food safety control measures

Food safety control measures

After the hazard analysis is completed, the team must then consider what control measures, if any, exist which can be applied for the control of each hazard. Control measures are any actions and activities that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level. More than one measure may be required to control a specific hazard and more than one hazard may be controlled by a specified measure.

Time limits-restricting time food spends in danger zone

control measure systems should also specify tolerable limits for time and temperature variations.
-Biological hazards can be controlled by limiting the time that organisms

spend in danger zone and limiting removing or altering the growth kinetics microorganisms need to survive, grow and reproduce. They can be destroyed, eliminated or controlled by thermal processing (heating or cooking), freezing or drying
-Temperature/time control (proper control of refrigeration and storage time, for example, minimizes the proliferation of microorganisms)
-Heating and cooking (thermal processing) for an adequate time and at an adequate temperature to eliminate microorganisms or reduce them to acceptable levels.

Combination of Time and Temperature control

Inadequate food temperature control is one of the most common causes of foodborne illness or food spoilage. Such controls include time and temperature of cooking, cooling, processing and storage. Systems should be in place to ensure that temperature is controlled effectively where it is critical to the safety and suitability of food.
Temperature control systems should take into account:

- the nature of the food, e.g. its water activity, pH, and likely initial level arid types of microorganisms;
- the intended shelf-life of the product;
- the method of packaging and processing; and! -how the product is intended to be used, e.g. further cooking/processing or ready-to-eat.

SUPPORT PROGRAMS

Some of the systems and programs that you will be responsible for implementing and monitoring include:
Supplier standards, Pest control, Cleaning procedures, personal hygiene, etc.

Cleaning Procedures
- A cleaning plan will be followed for all items that are part of the premises and items used in the preparation of foods. The cleaning plan will detail WHAT is to be cleaned, WHO is responsible for cleaning it, WHEN it should be cleaned, and HOW it should be cleaned.
- All detergents, soaps, sanitizers and hand cleaners will be purchased from reputable cleaning suppliers who ensure that those cleaning materials are approved by regulatory bodies.
- All cleaning chemicals will be clearly labelled. All cleaning materials will be stored separately from food. The exception is detergent and spray sanitizer that will be readily available during food preparation. Staff will refer to
- Premises, appliances and vehicles will be kept clean to a standard that

prevents accumulation of any garbage, food residues, dirt, grease or other visible matter.
- All food contact surfaces will be made of materials that can be cleaned and sanitized.
- Food contact surfaces will be cleaned and sanitized after use.

Personal health and hygiene procedures

All food handlers must be informed of their health and hygiene obligations. Staff should be given written instructions for personal health and hygiene procedures.
Poor health and hygiene practices of staff could cause food to become contaminated. Clear health and hygiene procedures and regularly observing and giving feedback to staff on their hygiene practices are the best ways to ensure high standards are maintained.

Supplier standards

The quality of goods purchased is paramount to the production of safe food. All regular suppliers must be assessed according to the criteria listed on the Supplier Assessment Form and a register of Current Approved Suppliers should be established and maintained.
Files that relate to the performance of each supplier should be kept and should include any non- conformance reports and any records that relate to poor quality.

Pest control

This procedure sets out the steps you must follow to control animals and vermin at the business. It applies to all sections of the establishment that require vermin control to ensure the safety of food. The term 'vermin' applies to all insect pests (including flies, cockroaches, weevils, including their eggs and their larvae) and animal pests (including mice, rats and birds).

Food Law and Regulations

In preparing food regulations and standards, countries should take full advantage of Codex standards and food safety lessons learned in other countries.
Food legislation should include the following aspects:

- It must provide a high level of health protection;
- It should include clear definitions to increase consistency and legal security;
- It should be based on high quality, transparent, and independent

scientific advice following risk assessment, risk management and risk communication;
- It should include provision for the use of precaution and the adoption of provisional measures where an unacceptable level of risk to health has been identified and where full risk assessment could not be performed;
- It should include provisions for the right of consumers to have access to accurate and sufficient information;
- It should provide for tracing of food products and for their recall in case of problems; it should include clear provisions indicating that primary responsibility for food safety and quality rests with producers and processors;
- It should include obligation to ensure that only safe and fairly presented food is placed on the market; it should also recognize the country's international obligations particularly in relation to trade; and
- It should ensure transparency in the development of food law and access to information.

Theoretical learning Activity

- ✓ **A**sk trainees to make a research on food safety control measures and food safety signs within groups.
- ✓ **Individuals exercises on food safety control measures and food safety signs.**
- ✓ **Group discussion on food safety control measures.**

Practical learning Activity

- ✓ **Presentation on food safety control measures and food safety signs**

 Points to Remember (Take home message)

- Food safety control measures identification
- Food safety control measure supporting programs
- Identify food regulations

Learning outcome4 formative assessment

Written assessment

1. Explain the term food safety control measure
2. Highlight at least three elements of food regislation.
3. List any five food safety control measures that should be maintained in any institution.

ANSWERS

1. Food safety Control measures are any actions and activities that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

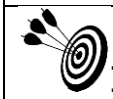
2. Elements of food regislation.
- It must provide a high level of health protection;
- It should include clear definitions to increase consistency and legal security;
- It should be based on high quality, transparent, and independent scientific advice following risk assessment, risk management and risk communication;
- It should include provision for the use of precaution and the adoption of provisional measures

3. Food
   - **Time limits-restricting time food spends in danger zone**
   - **Combination of Time and Temperature control**
   - **Personal health and hygiene procedures**
   - **Supplier standards**
   - **Pest control**

- **Food Law and Regulations**

Learning outcome 1.5: Monitor and assess practices including records keeping

 **Duration: 3 hrs**

 **Learning outcome5 objectives:**

By the end of the learning outcome, the trainees will be able to:

1. Identify types of records of activities for food safety monitoring
2. Monitor food safety procedures
3. Assess food safety training

 **Resources**

Equipment	Tools	Materials
	Reference books Boards Markers Pictures Chalks Projector Brochure	Internet Video aids Audio visual

 **Advance preparation:**

Indicative content 1.5: description of records of activities for food safety monitoring.

RECORDS
Records are essential for reviewing the adequacy of the HACCP plan and the adherence of the HACCP system to the HACCP plan.

1. Types of records of activities for food safety monitoring.

Four types of records should be kept as part of the HACCP program:

- Support documentation for developing the HACCP plan
- Records generated by the HACCP system
- Documentation of methods and procedures used
- Records of employee training program.

Staff training undertake (carry out)
This procedure outlines staff training requirements for all staff who are involved with food related products.

Procedures

- The business will ensure that persons undertaking or supervising food handling operations will have skills and knowledge in food safety and food hygiene matters with their work activities.
- The owner will assess Staff Training Monitoring Forms as a basis for further training.
- It will be the responsibility of the manager to ensure that persons undertaking or supervising food handling operations will have skills and knowledge in food safety and food hygiene matters with their work activities.
- It will be the responsibility of the owner to assess monitoring forms and other evidence as a basis for further training.

2. Food safety procedures:

Food growers or processors should have three objectives for their HACCP programs with regard to hazards:
- To eliminate or significantly reduce the hazard.

- To prevent or minimize microbial growth and toxin production
- To control contamination

Theoretical learning Activity

- ✓ Group discussion on types of records of activities and food safety procedures
- ✓ Individual exercises on types of records of activities and food safety procedures
- ✓ Group work on types of records of activities and food safety procedures
- ✓ Brainstorming on types of records of activities and food safety procedures
- ✓ **etc**

Practical learning Activity

- ✓ Demonstration and observation on activities and food safety procedures
- ✓ Presentation on types of records of activities and food safety procedures
- ✓ etc

Points to Remember (Take home message)

- Description of the main objectives for HACCP program in regards to the hazards.
- Explaining the main types of records of activities and food safety procedures.

Learning outcome5 formative assessment

Written assessment

1. Explain clearly three objectives for HACCP program in regards to the hazards.
2. Mention and explain types of records of activities for food safety monitoring
3. Answer true or false
   Staff training records:

- Helps the owner to assess monitoring forms and other evidence as a basis for further training
- Facilitates staff to have skills and knowledge in food safety and food hygiene matters with their work activities.
- The owner will assess Staff Training Monitoring Forms as a basis for further training.

ANSWERS

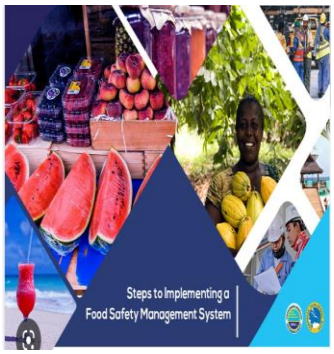
1. Objectives HACCP program
   - To eliminate or significantly reduce the hazard.
   - To prevent or minimize microbial growth and toxin production
   - To control contamination
2.

Four types of records should be kept as part of the HACCP program:

- Support documentation for developing the HACCP plan
- Records generated by the HACCP system
- Documentation of methods and procedures used
- Records of employee training program.

3. A. TRUE, B. FALSE, C. TRUE

Learning Unit2: Implement food safety procedures to control hazards

STRUCTURE OF LEARNING UNIT

Learning outcomes:

2.1 Improve food safety procedures
2.2 Combine policies, methods and procedures for controlling food safety
2.3 Establish and document HACCP records
2.4 Apply control methods for each point of HACCP

Learning outcome 2.1 Improve food safety procedures

Duration: 5hrs

Learning out come 1 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe HACCP based standard operating procedures:
2. Maintain Personal hygiene

Resources

Equipment	Tools	Materials
	Reference books Markers Flip chart Boards Chalks Projector Papers	Video aids Internet Video aids Internet

Advance preparation:

Indicative content 2.1.1: HACCP- Based standard operating procedures (SOPs)

SOPs are step-by-step written instructions for routine food services tasks
HACCP-based SOPs include the following principles:
Scope (what does the procedure cover)
Purpose (why do you have the procedure)
Hazards that you are trying to control (In some programs, all hazards are contained as part of the program and are not specific to each procedure)
Monitoring records that are required as part of the procedure
Who is responsible for the monitoring and the frequency of monitoring?
The control measures (what do you do to make sure the hazard will not occur)
Critical limits (i.e. at what point is the hazard under control/ not under control). In your business most of these will be temperature based
Corrective action (what do you do when you find a hazard that is not under control

1. **Cleaning and sanitizing food contact surfaces**

The Purpose of this sop is to prevent food borne illness by ensuring that all food contact surfaces are properly cleaned and sanitized. This procedure applies to food service employees involved in cleaning and sanitizing food contact surfaces.
Instruction:
Train food service employees on using the procedures in this SOP.
Follow State or local health department requirements.
Follow manufacturer's instructions regarding the use and maintenance of equipment and use of chemicals for cleaning and sanitizing food contact surfaces. Refer to Storing and Using Poisonous or Toxic Chemicals SOP.
Wash, rinse, and sanitize food contact surfaces of sinks, tables, equipment, utensils, thermometers, carts, and equipment using the following procedure:

- Wash surface with detergent solution.
- Rinse surface with clean water.
- Sanitize surface using a sanitizing solution mixed at a concentration specified on the manufacturer's label.
- Place wet items in a manner to allow air drying.

2. **Controlling time and temperature**

During Preparation the purpose of this sop is to prevent food borne illness by limiting the amount of time that potentially hazardous foods are held in the temperature danger zone during preparation. This procedure applies to foodservice employees who prepare food.

Instruction:

- ✓ Train foodservice employees on using the procedures in this SOP. Refer to the Using and Calibrating Thermometers SOP.
- ✓ Follow State or local health department requirements.
- ✓ Wash hands prior to preparing foods. Refer to the Washing Hands SOP.
- ✓ Use clean and sanitized equipment and utensils while preparing food.
- ✓ Separate raw foods from ready-to-eat foods by keeping them in separate containers until ready to use and by using separate dispensing utensils. Refer to the Preventing Cross-Contamination During Storage and Preparation SOP.
- ✓ Pre-chill ingredients for cold foods, such as sandwiches, salads, and cut melons, to 41 °F or below before combining with other ingredients.
- ✓ Prepare foods as close to serving times as the menu will allow.
- ✓ Prepare food in small batches.
- ✓ Limit the time for preparation of any batches of food so that ingredients are not at room temperature for more than 30 minutes before cooking, serving, or being returned to the refrigerator.
- ✓ If potentially hazardous foods are not cooked or served immediately after preparation, quickly chill

3. Cooking potentially hazardous foods

The Purpose is to prevent foodborne illness by ensuring that all foods are cooked to the appropriate internal temperature.

This procedure applies to food service employees who prepare Cooking or serving

Instructions:

- ✓ Train food service employees on using the procedures in this SOP. Refer to the Using and Calibrating Thermometers SOP.
- ✓ Follow State or local health department requirements.
- ✓ If a recipe contains a combination of meat products, cook the product to the highest required temperature.

4. Cooling potentially hazardous foods

The Purpose is to prevent food borne illness by ensuring that all

potentially hazardous foods are cooled properly.
This procedure applies to food service employees who prepare or serve food. Instructions

Instructions

- ✓ Train food service employees on using the procedures in this SOP. Refer to the Using and Calibrating Thermometers SOP.
- ✓ Follow State or local health department requirements.
- ✓ Modify menus, production schedules, and staff work hours to allow for implementation of proper cooling procedures
- ✓ Prepare and cool food in small batches.
- ✓ Chill food rapidly using an appropriate cooling method:

5. **Date marking and ready-to-eat, potentially hazardous food**

The purpose is to ensure appropriate rotation of ready-to-eat food to prevent or reduce food borne illness from Listeria monocytogenes.

This procedure applies to food service employees who prepare, store, or serve food

Instructions:

1.
Train food service employees on using the procedures in this SOP. The best practice for a date marking system would be to include a label with the product name, the day or date, and time it is prepared or opened. Examples of how to indicate when the food is prepared or opened include: Labeling food with a calendar date, such as "cut cantaloupe, 5/26/05, 8:00 a.m.,"
Identifying the day of the week, such as "cut cantaloupe, Monday, 8:00 a.m.," or Using color-coded marks or tags, such as cut cantaloupe, blue dot, 8:00 a.m. means "cut on Monday at 8:00 a.m."

2. Follow State or local health department requirements.

3. Label ready-to-eat, potentially hazardous foods that are prepared on-site and held for more than 24 hours.4. Label any processed, ready-to-eat, potentially hazardous foods when opened, if they are to be held for more than 24 hours.

4. Refrigerate all ready-to-eat, potentially hazardous foods at 41 °F or below.
5. Serve or discard refrigerated, ready-to-eat, potentially hazardous foods within 7 days.

6. Indicate with a separate label the date prepared, the date frozen, and the date thawed of any refrigerated, ready-to-eat, potentially hazardous foods.

6. **Handling a Food Recall**

The purpose is to prevent food borne illness in the event of a product recall.

This procedure applies to food service employees who prepare or serve food.

Instructions:

1. Train food service employees on using the procedures in this SOP.
2. Follow State or local health department requirements.
3. Review the food recall notice and specific instructions that have been identified in the notice.
4. Communicate the food recall notice to feeding sites.
5. Hold the recalled product using the following steps:
Physically segregate the product, including any open containers, leftover product, and food items in current production that items contain the recalled product.
If an item is suspected to contain the recalled product, but label information is not available, follow the district's procedure for disposal.
6. Mark recalled product "Do Not Use" and "Do Not Discard." Inform the entire staff not to use the product.

7. Holding hot and cold potentially hazardous foods

The purpose is to prevent food borne illness by ensuring that all potentially hazardous foods are held under the proper temperature.

This procedure applies to food service employees who prepare or serve food

Instructions:

1. Train food service employees on using the procedures in this SOP. Refer to the Using and Calibrating thermometers SOP.
2. Follow State or local health department requirements.
3. If State or local health department requirements are based on the 2001 FDA
   - Hold hot foods at 135 °F or above
   - Hold cold foods at
4. Preheat steam tables and hot boxes

8. Personal hygiene

The purpose is to prevent contamination of food by food service employees.

This procedure applies to food service employees who handle, prepare, or serve food.

INSTRUCTIONS:

1. Train food service employees on using the procedures in this SOP.
2. Follow State or local health department requirements.
3. Follow the Employee Health Policy. (Employee health policy is not included in this resource.)
4. Report to work in good health, clean, and dressed in clean attire.
5. Change apron when it becomes soiled.
6. Wash hands properly, frequently, and at the appropriate times.
7. Keep fingernails trimmed, filed, and maintained so that the edges are cleanable and not rough.

Theoretical learning Activity

- ✓ Brainstorming on HACCP; based standard operating procedures
- ✓ Research on HACCP; based standard operating procedures
- ✓ Presentation on HACCP; based standard operating procedures

Practical learning Activity

Workshop application on HACCP based standard operating procedures

Points to Remember (Take home message)

HACCP based standard operating procedures

Learning outcome 2 formative assessment

Written assessment

Question1. Enumerate elements of cooking potential hazardous foods

Answer/

- ✓ Train food service employees on using the procedures in this SOP. Refer to the Using and Calibrating Thermometers SOP.
- ✓ Follow State or local health department requirements.
- ✓ If a recipe contains a combination of meat products, cook the product to the highest required temperature.

Question2. List HACCP based standard operating procedures

Answer/

- Cleaning and sanitizing food contact surfaces
- Controlling time and temperature during preparation
- Cooking potentially hazardous foods
- Cooling potentially hazardous food
- Date making and ready toeat, potentially hazardous food
- Handling a food recall
- Holding hot and cold potentially hazardous foods

Question3. Explain personal hygiene as HACCP based standard operating procedures

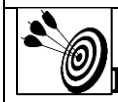
Answer/

The purpose is to prevent contamination of food by food service employees.

1. Train food service employees on using the procedures in this SOP.
2. Follow State or local health department requirements.
3. Follow the Employee Health Policy.
4. Report to work in good health, clean, and dressed in clean attire.
5. Change apron when it becomes soiled.
6. Wash hands properly, frequently, and at the appropriate times.
7. Keep fingernails trimmed, filed, and maintained so that the edges are cleanable and not rough.

Learning outcome 2.2. Combine policies, methods and procedures for controlling food safety

 **Duration: 5hrs**

 **Learning out come 2 objectives:**

By the end of the learning outcome, the trainees will be able to:

1. Explain policies of food safety
2. Identify methods and procedures for controlling food safety

 **Resources**

Equipment	Tools	Materials
	Reference books Markers Flip chart Boards	Video aids Internet Video aids Internet

	Chalks Projector Papers	
Advance preparation:		

Indicative content 2.2.1: Policies of food safety

A food safety policy is your organisation's commitment to providing safe and suitable food.

Food Regulations

The Food Quality Management System must establish the procedures that will manage food safety within their operation.
The Food Standards Code states that a food business must have a Food Safety Program that:

- Systematically examines all of its food handling operations in order to identify the potential hazards that may reasonably be expected to occur;
- If one or more hazards are identified in accordance with the statement above, develop and implement a food safety program to control the hazard or hazards;

- Set out the food safety program in a written document and retain that document at the food premises;
- Comply with the food safety program; and
- Conduct a review of the food safety program at least annually to ensure its adequacy

The food standard Code states that the food safety program developed by a food business must contain

- Systematically identify the potential hazards that may be reasonably expected to occur in all food handling operations of the food business
- Identify where, in a food handling operation, each hazard identified above can be controlled and the means of control
- Provide for the systematic monitoring of those controls;
- Provide for appropriate corrective action when that hazard, or each of those hazards, is found not to be under control;
- Provide for the regular review of the program by the food business to ensure its adequacy; and
- Provide for appropriate records to be made and kept by the food business demonstrating action taken in relation to, or in compliance with, the food safety program.

Food Safety Enforcement Policy

The policy must ensure that food and drink intended for sale for human consumption which is produced, stored, distributed, handled or consumed within the Government is without risk to the health or safety of the consumer.

This will be achieved through the provision of education, advice and the use of statutory powers of enforcement

The aim of the Policy is:

• To inform the public and food businesses of the principles by which enforcement action is taken.

• To provide guidance for officers to enable them to make effective decisions that are transparent, accountable, proportionate and consistent and that do not impose unnecessary burdens on businesses.

• To ensure food safety enforcement action is focused on situations where the public are put at risk and on food businesses who negligently or intentionally contravene the law.

The Policy must have written having regard to the Food Standards Agency's Framework Agreement.

The Enforcement Profile relates the number of written warnings, suspensions and revocations issued in relation to CFIA registrations held by production or processing establishments. Enforcement actions are issued based on information concerning noncompliance to regulations gathered by inspection staff during verification activities

Compliance Verification (CV) refers to the audit based approach that the CFIA uses to verify the effectiveness of industry QMP controls. CV frequencies, as indicated in CFIA policy, are determined for fish processing establishments based on whether the HACCP plan has identified significant hazards or not. CFIA managers plan the number of CVs per month based on the industry profile and operating season. The CV delivery rate is the number of CVs completed divided by the number of CVs planned and represented as a percentage.

Enforcement of the Food Act

Enforcement of the food act is essential for the effective management of food safety risks and the prevention of misleading conduct in connection with the sale of food. Accordingly, the Authority is committed to ensuring there is a high level of compliance with the Food Act and Regulations. This policy sets out the Authority policies on compliance and enforcement that will facilitate the effective achievement of the regulatory goals of the Food Act in a manner that is:
Authorised by the law;
Procedurally fair;
Accountable and transparent;
Consistent; and
Proportionate.

Methods and procedures for controlling food safety

1. Deliveries and storage

This work instruction outlines the steps you must follow for storing food items in order to minimize the risk of contamination and spoilage
Procedure
1. Goods once received will be transferred to the appropriate storeroom or cool room without delay.
2. All food received will be stored in the appropriate store (dry; chilled; frozen) in their original inner packaging where practical.
3. All outer packaging is to be removed before placing items in the storeroom to prevent possible contamination or infestation by pests.
4. All food items will be controlled and FIFO (first-in-first-out) used, especially for food items with a limited shelf life and explicit 'use-by' dates. These food items will be stored in a manner that ensures older stock is used first.
5. The manager will ensure that all food items are received, stored and handled in a manner that will prevent temperature variations and contamination.
6. All food items must be clearly identified or labelled with the date of

delivery/production, covered during storage if appropriate with either a lid or plastic film. Container lids must not be stored on the floor.
7. Raw and ready-to-eat food must be stored separately, ideally in separate cool rooms. If this is not possible, ready-to-eat food is to be stored on upper shelves above the raw foods.
8. Cool room doors are to be kept closed at all times (when not in use), and the temperature of food in cool rooms will be monitored and recorded twice a day. Any deviations in temperatures must be investigated to initiate correction. All refrigeration units will be properly cleaned and maintained at all times.
9. Checks of refrigerators will be made first thing in the morning and in the afternoon and recorded on the cold storage check sheet. Any food items with an expired use-by date will be discarded.
10. All cooked food items will have the date of cooking displayed

2. Food preparation

Food kept at room temperatures for longer than is necessary may allow any bacteria in the food to grow. Any food for preparation (especially high risk foods) should be brought out of the fridge in small batches that can be used quickly and then chilled September 2018 again until needed. This limits the length of time that bacteria have a chance to grow, keeping the food safe.

Cooking

Food which has been cooked, and is to be stored in the refrigerator or freezer for use later, must be cooled down as quickly as possible so that germs do not have a chance to grow. This means that, no matter how much food you have cooked, it must be ready to go into the refrigerator or freezer in about one and a half hours (90 minutes
Cooling food quickly can be difficult, especially in large quantities, but you must make sure you do this properly. Although you must not put hot food into a fridge, the food doesn't have to be completely cooled before you do so. You should ensure that your fridge temperature doesn't increase above your critical limit because you are cooling foods.

Re-heating

When re-heating food which you have previously cooked, it must reach a temperature of at least 82°C. The only exemption is if you can show that this is not necessary for food safety reasons, and that re- heating to such a high temperature would damage the food
Cooked food which you have bought in does not have to be reheated to 82°C, but must reach at least 75°C.

Transport

If you deliver chilled or frozen food to your customers, ideally you should have a refrigerated or freezer compartment van. If not, you might need to use cool boxes or cool bags. You must ensure that you take the food as quickly as possible to your customer, and that it is still at a safe temperature when it is delivered
You must be able to demonstrate that you are delivering food at the correct temperature.

Purchasing

This procedure outlines the steps you must follow to ensure that food purchased complies with food safety requirements. It applies to all current or potential suppliers of products and/or services that supply food to the business
Purchase orders will be raised in accordance with the business's purchasing requirements based on suppliers on the Approved Supplier

Purchase orders will be raised in accordance with the business's purchasing requirements based on suppliers on the Approved Suppliers listing.

- Transport and delivery: ideally you should have a refrigerated or freezer compartment van. If not, you might need to use cool boxes or cool bags. You must ensure that you take the food as quickly as possible to your customer, and that it is still at a safe temperature when it is delivered.
- Check delivery vehicles refer to model of goods transportation
- Date marks and temperatures: indicate date and temperatures

Theoretical learning Activity

- ✓ Research on policies, methods and procedures for controlling food safety
- ✓ Individual exercises on policies, methods and procedures for controlling food safety

 **Practical learning Activity**

- ✓ Workshop application on policies, methods and procedures for controlling food safety

 Points to Remember (Take home message)

Policies of food safety Methods and procedures for controlling food safety; Deliveries and storage

Learning outcome 2 formative assessment

Written assessment

Question1. Identify Policies of food safety

Answer/

- Food safety legislation
- Enforcement of officers Issue of notices and orders for non-compliance
- Industry guide (to good hygiene practice)
- Food standard agency

Question 2. Explain food safety enforcement policy

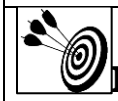
Answer/

The policy must ensure that food and drink intended for sale for human consumption which is produced, stored, distributed, handled or consumed within the Government is without risk to the health or safety of the consumer.

This will be achieved through the provision of education, advice and the use of statutory powers of enforcement.

Learning outcome 2.3. Establish and document HACCP records

 **Duration: 4hrs**

 **Learning out come 3 objectives:**

By the end of the learning outcome, the trainees will be able to:

1. Identify Seven stages of HACCP
2. Determine the critical control points (CCPs).
3. Establish critical limits.

 **Resources**

Equipment	Tools	Materials
	Reference books Markers Flip chart Boards Chalks	Video aids Internet Video aids Internet

	Projector Papers	
Advance preparation:		

Indicative content 2.3.1. Factors needed to establish and document HACCP records

i. Seven stages of HACCP

There are twelve stage and seven principles to be implemented in the HACCP Food Quality Management system. They are as follows:

Stage 1. Assemble the HACCP Team with expertise in product and process. Determine what training is required and for whom.
Stage 2. Describe product.
Stage 3. Identify intended use
Stage 4. Construct a detailed flow diagram of the process.
Stage 5. Confirm flow diagram against process in operation (or planned process);
Stage 6. Principle 1. Identify hazards associated with each step, conduct a hazard analysis and consider control measures that will control hazards;
Stage 7. Principle 2. Establish Critical Control Points and tolerance levels

for each CCP.
Stage 8. Principle 3. Establish critical limits for each C.C.P, and validate these limits;
Stage 9. Principle 4. Establish a monitoring system for each C.
Stage10. Principle 5. Establish corrective actions.
Stage11. Principle 6. Establish verification procedures.
Stage 12. Principle 7. Establish documentation and record keeping
The application of HACCP should do be done in 12 stages. Now let's talk to seven stages.

Assemble the HACCP team – stage1

The first task in the application of HACCP is to assemble a team having the knowledge and expertise to develop an HACCP plan.
Ideally the team should not be larger than six, although for some stages of the study it may be necessary to enlarge the team temporarily with personnel from other departments
When selecting the team, the coordinator should focus on:
Those who will be involved in hazard identification

- ✓ Those who will be involved in determination of critical control points
- ✓ Those who will monitor critical control points
- ✓ Those who will verify operations at critical control points
- ✓ Those who will examine samples and perform verification procedures

Knowledge required
Selected personnel should have a basic understanding of:

- ➢ Technology and equipment used on the processing lines
- ➢ Practical aspects of the food operations
- ➢ The flow and technology of the process
- ➢ Applied aspects of food microbiology

The team must include a coordinator (chairperson) whose role is to:
• Ensure that the composition of the team meets the needs of the study
• Suggest changes to the team if necessary
• Coordinate the team's work.

Describe product and identify intended use - stage 2 and 3

The HACCP team must make a complete description of each food product - including all ingredients/processing methods/packaging materials/etc. used in the formulation of the product
- To assist in the identification of all possible hazards associated with the product. In brief, the product description should include the name of the product, ingredients and composition, potential to support microbial growth (water activity [Aw], pH, etc.), brief details of the process and

technology used in production, appropriate packaging and intended use, including target population.
The product to which the HACCP plan applies should be described on Forms 1 and2
Before arriving at the specific details of the product description to be included in the forms, the HACCP team should address the questions outlined below.

Formulation of product

- What raw materials or ingredients are used?
- Are microorganisms of concern likely to be present in or on these materials, and if so what are they?
- If food additives or preservatives are used, are they used at acceptable levels, and at those levels do they accomplish their technical objective?
- Will the pH of the product prevent microbial growth or inactivate particular pathogens? Will the Aw of the product prevent microbial growth?
- What is the oxidation/reduction potential (Eh) of the product

Processing and preparation checklist

- ✓ Can a contaminant reach the product during preparation, processing or storage? • Will microorganisms or toxic substances of concern be inactivated during cooking, reheating or other processing?
- ✓ Could any microorganisms or toxins of concern contaminate food after it has been heated?
- ✓ Would more severe processing be acceptable or desirable?
- ✓ Is the processing based on scientific data?
- ✓ How does the package or container affect survival and/or growth of microorganisms?
- ✓ How much time is taken for each step of processing, preparation, storage and display?
- ✓ What are the conditions?

ii. Conduct Hazard Analysis

Hazard analysis is the first HACCP principle. As the name HACCP implies, hazard analysis is one of the most important tasks.

HOW TO CONDUCT A HAZARD ANALYSIS?

1. **Review incoming materials:**

In order to complete this activity, use the product description form

(Form 1) and the list of product ingredients and incoming material (Form 2). Review the information on the product description form (Form 1) and determine how it could influence your interpretation during the analysis of the process. For example, a ready-to-eat product must not contain pathogens in amounts that may harm the consumer

To facilitate the identification of potential hazards, answer the following questions for each incoming material:

- ✓ Could pathogenic microorganisms, toxins, chemicals or physical objects possibly be present on/in this material?
- ✓ Are any returned or reworked products used as ingredients? If yes, is there a hazard linked to that practice?
- ✓ Are preservatives or additives used in the formulation to kill microorganisms or inhibit their growth or to extend shelf-life?
- ✓ Are any ingredients hazardous if used in excessive amounts? (for example, nitrites could be a chemical hazard if used excessively
- ✓ Could any ingredients, if used in amounts lower than recommended or if omitted altogether, result in a hazard because of microbial vegetative or speculated cell outgrowth?
- ✓ Does the amount and type of acid ingredients and the resulting pH of the final product affect growth or survival of microorganisms?
- ✓ Do the moisture content and the water activity (Aw) of the final product affect microbial growth? Do they affect the survival of pathogens (parasites, bacteria, fungi)?
- ✓ Should adequate refrigeration be maintained for products during transit or in holding

2. **Evaluate processing operations for hazards**
   The objective of this activity is to identify all realistic potential hazards related to each processing operation, the product flow and the employee traffic pattern
3. **Observe actual operating practices**
   The HACCP team must be very familiar with every detail of the operation under investigation. Any identified hazard must be recorded on the appropriate forms**.**
4. **Take measurements**
   It may be necessary to take measurements of important processing parameters to confirm actual operating conditions. Before measuring, make sure all devices are accurate and correctly
5. **Analyse the measurements**
   A qualified individual (with proper scientific background) must analyse the measurements to interpret correctly the data collected. During the review and interpretation of the data.

iii. Determine critical control points

The determination of critical control points (Task 7) is the second principle of HACCP. The Codex guidelines define a critical control point (CCP) as "a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level"
The determination of a CCP in the HACCP system can be facilitated by the application of a decision tree such as that included in the Codex Hazard Analysis and Critical Control Point (HACCP) system and guidelines for its application (see Figure) which indicates a logical reasoning approach. The application of the decision tree should be flexible according to the type of operation (production, slaughter, processing, storage, distribution or other). The decision tree proposed by Codex may not be applicable to all situations. Other approaches based on risk analysis may be used

iv. Establish critical limits for each critical control point

At each critical control point (CCP)/critical limits are established and specified.
Critical limits are defined as criteria that separate acceptability from unacceptability.
A critical limit represents the boundaries that are used to judge whether an operation is producing safe products. Critical limits may be set for factors such as temperature, time (minimum time exposure), physical product dimensions, water activity, moisture level, etc. These parameters, if maintained within boundaries, will confirm the safety of the product
It is essential that the person(s) responsible for establishing critical limits have a knowledge of the process and of the legal and commercial standards required for the product

v. Establish verification procedures

Verification is embodied in HACCP Principle 6: Establish verification procedures. The Codex guidelines define verification as "the application of methods, procedures, tests and other evaluations, in addition to monitoring to determine compliance with the HACCP plan". Verification and auditing methods, procedures and tests, including random sampling and analysis, can be used to determine if the HACCP system is working correctly
Each HACCP plan should include verification procedures for individual CCPs and for the overall plan. HACCP plans are expected to evolve and to improve with experience and new information.
Periodic verification helps improve the plan by exposing and

strengthening weaknesses in the system and eliminating unnecessary or ineffective control measures. Verification activities include

- HACCP plan validation
- HACCP system audits
- Equipment calibration
- Targeted sample collection and testing

vi. Record keeping procedures

The producer should maintain records of the methods and procedures used in the HACCP system. Examples include:

- ✓ Description of the monitoring system for the critical limit of each CCP, including: the methods and equipment used for monitoring, the frequency of monitoring and the person performing the monitoring
- ✓ Plans for corrective actions for critical limit violations or situations resulting in potential hazards
- ✓ Description of record keeping procedures, including copies of all record forms
- ✓ Description of verification and validation procedures

All HACCP monitoring records should be kept on forms that contain the following information:

- Form title
- Time and date
- Product identification (including product type, package size, processing line and product code)
- Critical limits
- Monitoring observation or measurement
- Operator's signature or initials
- Corrective action taken, where applicable - Reviewer's signature or initials
- Date of review

Theoretical learning Activity

- ✓ Brainstorming on stages of HACCP and Record keeping procedures
- ✓ Individual exercises on stages of HACCP and Record keeping procedures
- ✓ Trainees group discussion on stages of HACCP and Record keeping procedures

 **Practical learning Activity**

 Points to Remember (Take home message)

Seven stages of HACCP; Determine the critical control points (CCPs). Establish critical limits.

Learning outcome 3 formative assessment

Written assessment

Question1. Identify Seven (7) stages of HACCP

- **Answer / Assemble the HACCP team**
  - **Conduct Hazard Analysis**
  - **Determine critical control points**
  - **Establish critical limits for each critical control point**
  - **Establish verification procedures**
  - **Record keeping procedures**

Question2. How to conduct hazard analysis?

Answer/

- **Review incoming materials**
- **Evaluate processing operations for hazards**
- **Observe actual operating practices**
- **Take measurements**
- **Analyse the measurements**

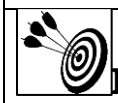
Question3: what will be involved in hazard identification?

Answer/

- ✓ Those who will be involved in determination of critical control points
- ✓ Those who will monitor critical control points
- ✓ Those who will verify operations at critical control points
- ✓ Those who will examine samples and perform verification procedures

Learning Outcome 2.4: Apply control methods for each point of HACCP

 **Duration: 4hrs**

 **Learning out ome objectives:**

By the end of the learning outcome, the trainees will be able to:

1. Describe clearly food deliveries and storage
2. Define multi-use fridges
3. Explain dry food storage
4. Explain first in-first out

 **Resources**

Equipment	Tools	Materials
	Reference books Markers Flip chart Boards	Video aids Internet Video aids Internet

	Chalks Projector Papers	
Advance preparation:		

2.4.1: Control methods for each point of HACCP

1. **Food deliveries and receiving**
   - All food must come from approved sources
   - Homemade or uninspected food is not allowed.
   - Inspect all incoming food for torn, damaged or stained boxes.
   - Inspect the condition of the delivery truck.
   - Check the temperature of incoming food. Refrigerated foods must be at 4°C (40°F) or less. Frozen food must be at -18°C (0°F) or less.

1. **Storage**

O General

- Practice F.I.F.O. (First in, First Out)
- Store chemical products away from food products.

- When foods are repackaged, clearly label and date container.
- All food containers must be properly covered.

2. **Food preparation**

a. Wash your hands before beginning preparation and in between tasks.
b. Prepare food in small batches.
c. Prevent cross contamination by cleaning and sanitizing utensils and work surfaces in between tasks, or by using color coded cutting boards for different foods.
d. Prepare the food as close to serving time as possible.

4. Cooling cooked food

a. Hot and cold spots
b. If no rotating base on the microwave physically stop the cooking process and turn the food occasionally.
c. Check internal temperature at 3 different sites.
d. Place thicker portions of food toward the exterior of the microwave dish.
e. Ensure the containers are microwave safe.

5. Cooling

Food should be cooled from 60°C (140°F) to 4°C (40°F) within 4 to 6 hours. It can take hours, if not days, for large quantities of food to cool to appropriate temperatures.

- Suggestions of how to reduce cooling times:
- Place pots of food in an ice water bath.
- Divide large quantities of food into smaller containers 10cm (4in) in depth.
- Stir frequently.
- Slice or divide large cuts of meat into smaller pieces.
- Place in the refrigerator and once it cools to 4°C (40°F) cover the container.

6. Reheating

- Reheat cold hazardous food to original cooking temperature.
- Reheat quickly on or in the stove.
- Never reheat slowly over several hours in hot holding units. Place food in/on stove or in microwave to reheat then place in hot holding units.

7. Serving

- Prevent cross contamination by ensuring servers take appropriate personal hygiene measures (e.g. Hand washing, no direct contact with food).
- Ensure clean and sanitized utensils are used.
- Ensure Do not stack plates when serving meals to customers.

- service areas kept clean, and regularly wipe down menus. If transporting foods, ensure vehicles are clean and foods are held at proper hot or cold holding temperatures.

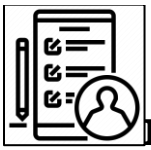
Theoretical learning Activity

- ✓ Brainstorming on stages of HACCP and Record keeping procedures
- ✓ Individual exercises on stages of HACCP and Record keeping procedures

Points to Remember (Take home message)

Meaning of;

Food deliveries and receiving
FIFO
Cooling



Learning outcome 4 formative assessment

Written assessment

Question 1. Explain **Food deliveries and receiving**

- **Answer /** All food must come from approved sources
  - Homemade or uninspected food is not allowed.
  - Inspect all incoming food for torn, damaged or stained boxes.
  - Inspect the condition of the delivery truck.
- Check the temperature of incoming food. Refrigerated foods must be at 4°C (40°F) or less. Frozen food must be at -18°C (0°F) or less

Question 2. Answer by true or false, **Food preparation refer to;**

a. Wash your hands before beginning preparation and in between tasks.

b. Prepare food in small batches.

c. Prevent cross contamination by cleaning and sanitizing utensils and work surfaces in between tasks, or by using color coded cutting boards for different foods**.**

d. Prepare the food as close to serving time as possible.

Answer/

a) True

b) True

c) True

d) True

Question 3. Choose the correct answer, good ways to reheat food is

a) Reheat cold hazardous food to original cooking temperature.

b) Do not reheat quickly on or in the stove.

c) Always use ovens while reheating food

d) **Answer/**

a) Reheat cold hazardous food to original cooking temperature.

Learning Unit 3: Revised Food Safety Procedures Monitor Food Safety Program

STRUCTURE OF LEARNING UNIT 3

Learning outcomes:

3.1. Communicate food safety procedures
3.2. Organize training and mentoring food safety policies and procedures
3.3. Follow operational activities to ensure policies and procedures
3.4. Prevent food spoilage

Learning outcome 3.1. Communicate food safety procedures

Duration: 3hrs

Learning outcome objectives:

By the end of the learning outcome, the trainees will be able to:

1. Identify the different ways to use while communicating food safety procedures

2. communicate food safety procedures effectively

3. .....

Resources

Equipment	Tools	Materials
	- Reference books - Boards - Markers - Pictures - Chalk - Documents - Projector - Flip chart	- Internet - Tutorial videos - Audio visuals

Advance preparation:

.

.

.

The indicative content 3.1. Communicate food safety procedures.

One of your roles as a supervisor is to supervise the day-to-day implementation of the food safety program in your workplace.

To do this it is essential that you have good communication skills.

3.1.1. Types of communication methods in food safety:

Refers to the kinds of ways to we can use when communicating food safety procedures and measure at workplace.

- Induction training

- On-the-job training

- Briefings and staff meetings

- Notice boards (communication board)

- Staff intranet (staff social medea where they get some course and trainings)

- Memos, e-mail and sms

- Mentoring

-Leaflet is a small sheet of paper that put across a message clearly.

- Other training sessions.

Theoretical learning Activity

- ✓ Research on types of communication methods and their procedures of food safety
- ✓ Brainstorming on types of communication methods
- ✓ Individual exercises on types of communication methods and their procedures of food safety
- ✓ Group discussion on types of communication methods and their procedures of food safety**.**
- ✓ **etc**

Practical learning Activity

- ✓ Presentation on types of communication methods and their procedures of food safety
- ✓ Scenario creation showing communication types

Points to Remember (Take home message)

Identify ways of communication methods

Learning outcome 3.1. formative assessment

Written assessment

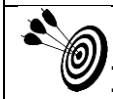
1. Answer true or false, the following are types of communication methods in food safety.
   A. Notice board
   B. Memo
   C. Sign post
   D. Briefing and staff meeting
   E. Book
   F. Mentoring
   G. Leaflet

Answer

A. True
B. True
C. False
D. True
E. False
F. True
G. true

Learning outcome 3.2. Organize training and mentoring food safety policies and procedures

 **Duration: 3hrs**

 **Learning outcome objectives:**

By the end of the learning outcome, the trainees will be able to:

1. Understand food safety training methods
2. Identify different food safety training methods
3. Organize a food safety training

 **Resources**

Equipment	Tools	Materials
	- Reference books - Boards - Markers - Pictures - Chalk - Documents - Projector - Flip chart	- Internet - Tutorial videos - Audio visuals

 **Advance preparation:**

The indicative content 3.2: 1 identification of methods for technical training.

Food Safety Training Methods

There is no standard that will outline all the requirements for technical training in the food industry. Each facility, product and position is unique and will require specific technical knowledge from staff. Some positions require more formal training than others. Technical training is not always restricted to 'how to do the job.' In most situations, it is important to combine this training with food safety and other training.

There are various methods for technical training of employees including:

- Using job specific written SOPs (Standard Operating Procedures);

- Videos; and

- Job shadowing (study from what others do)

- Lecture and

- Lecture/discussion

Types and methods of training in food safety

- Cross-training

Staff Most facilities ensure that some employees are cross-trained so they are available to fill in on short notice

- Critical Control Point (CCP) Training

Employees responsible for monitoring critical control points (CCPs) must be trained to understand the importance of the CCP and the critical limits.

They must also understand procedures for monitoring the CCP, deviation procedures, and document control procedures.
Staff members responsible for key positions often need training not only for their job, but also in other duties. These include:

- ✓ Maintaining documentation;
- ✓ Understanding reasons for certain corrective actions; and plant's HACCP plan.

- Calibration/Maintenance Training

Maintenance staff members are often overlooked when it comes to food safety. Most companies hire maintenance personnel with the certification for their specific trade (e.g. plumber's certificate, electrician's certificate, etc.). However, they often overlook the importance of training these employees on how their work will affect food safety.
Employees hired to calibrate or adjust equipment must also understand how their tasks affect food safety. Maintenance staff must have the skills and knowledge to make sure that equipment is cleaned and sanitized. This must be done before equipment is allowed back into operations. Create procedures to notify Sanitation/Production/QA Staff when maintenance is complete. Also develop procedures to let maintenance staff and services know when there are changes in process safety or control.

- Sanitation Training

To reduce the chances of accidental food contamination, make sure staff have a basic knowledge of chemical use and sanitation.
The most important training for sanitation staff is how to correctly handle chemicals. Train sanitation crews in the correct dress and personal protective equipment required for both food safety and personal safety.
Teach sanitation staff how to store and separate chemicals.
Make sure they know to store all cleaning, sanitizing and pest control chemicals in areas separate from food processing.

- Supervisor Training

Supervisory employees are generally responsible for making sure all food employees on their shift follow company procedures and policies. Most supervisory staff must be competent and trained to standards in the following areas:
- Relationship between the prevention of foodborne illness and the personal hygiene of an employee;
- The policies and responsibilities of a supervisor for preventing the transmission of foodborne disease from an employee to food or food products;
- The required food temperatures and safe cooking, cooling and storage of any potentially hazardous foods in the facility;
- The relationship between food safety and the management and control of:
- Cross-contamination - Hand contact with ready-to-eat foods;
- Hand washing - Maintaining a manufacturing environment in clean

condition and good repair; - The correct procedures for cleaning and sanitizing utensils;
- Poisonous or toxic material identification;
- Knowledge of all important processing points in the operation (from purchasing through to packaging)

Theoretical learning Activity

- ✓ Research on Food safety training methods
- ✓ Brainstorming on food safety training methods
- ✓ Group discussion on food safety training methods
- ✓ Group work on food safety training methods
- ✓ Role play on food safety training methods
- ✓ etc

Practical learning Activity

- ✓ Presentation on types of communication methods and their procedures of food safety.

Points to Remember (Take home message)

1. Understand food safety training methods
2. Identify different food safety training methods

Learning outcome 3.2. formative assessment

Written assessment

1. Differentiate sanitation and calibration training?
2. List at least 4 difference areas the supervisors should be trained in in order to maintain food safety.
3. Identify five food safety training do you think they very important to produce safe food.

ANSWERS

1. Calibration training is all about repairing hygienically food contact surfaces.

Sanitation Training: To reduce the chances of accidental food contamination, make sure staff have a basic knowledge of chemical use, handling them and sanitation.

2. - Relationship between the prevention of foodborne illness and the personal hygiene of an employee;
   - The policies and responsibilities of a supervisor for preventing the transmission of foodborne disease from an employee to food or food products;
   - The required food temperatures and safe cooking, cooling and storage of any potentially hazardous foods in the facility;
   - The relationship between food safety and the management and control of:
   - Cross-contamination - Hand contact with ready-to-eat foods;
   - Hand washing - Maintaining a manufacturing environment in clean condition and good repair; - The correct procedures for cleaning and sanitizing utensils;
   - Poisonous or toxic material identification;
   - Knowledge of all important processing points in the operation (from purchasing through to packaging)

3. Types of food safety training

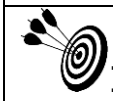
- **Cross-training**: Staff must be trained in all sections and facilities in order to be aware of all activities.
- **Critical Control Point (CCP) Training**: training about how to maintain CCP. They must also understand procedures for

monitoring the CCP, deviation procedures, and document control procedures.

- **Maintenance Training**; training about the maintenance staff to repairs hygienically food contact surfaces.
- **Sanitation Training**: To reduce the chances of accidental food contamination, make sure staff have a basic knowledge of chemical use, handling them and sanitation.
- **Supervisor Training**

Learning outcome 3.3. Follow operational activities to ensure policies and procedures

 **Duration: 3hrs**

 **Learning outcome objectives:**

By the end of the learning outcome, the trainees will be able to:

1. Understand operational activities
2. Identify different operational activities

 **Resources**

Equipment	Tools	Materials
	- Reference books - Boards - Markers - Pictures - Chalk - Documents	- Internet - Tutorial videos - Audio visuals

	- Projector - Flip chart	
Advance preparation: . . .		

The i**ndicative content 3.3.1. Follow operational activities to ensure policies and procedures**

3.3.1. Operational activities of food safety

- ❖ Controlling and reduce outbreak of food poisoning

- Carriers should be inspected by the manufacturer on receipt and prior to loading to ensure they are free from contamination and suitable for the transportation of food
- Carriers should be loaded, arranged and unloaded in a manner that prevents damage and contamination of the food.
- Transporters or storage facilities should be required to take proper hygienic measures to protect the food and should be required to keep and retain records that will document their adherence to food safety plans.

- ❖ Registration of premise and vehicles.

- Containers used to hold dangerous substances should be identified and, where appropriate, be lockable to prevent malicious or accidental contamination of food.
- Where the same conveyance or container is used for transporting different foods, or non-foods, effective cleaning and, where necessary, disinfection should take place between loads.
- Lot identification/registration is essential in product recall and also helps effective stock rotation. Each container of food should be permanently marked to identify the producer and the lot. Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985) applies.
- Where appropriate, particularly in bulk transport, containers and conveyances should be designated and marked for food use only and be used only for that purpose.

- ❖ Content and labelling of food
- Prepackaged foods should be labelled with clear instructions to enable the next person in the food chain to handle, display store and use the product safely: Codex General Standard for the Labelling 1 of Prepackaged Foods (CODEX STAN 1-1985) applies.
  - ❖ Prevention of manufacture and sale of injurious food
- The manufacturer should verify that carriers are suitable for the transportation of food. For example:
- The manufacturer should have a program in place to demonstrate the adequacy of cleaning and sanitizing. For example, for bulk carriers a written cleaning and sanitizing procedure should be available.
- Where the same carriers are used for food and non-food loads (e.g. dual use), procedures should be in place to restrict the type of non-food loads to those that do not pose a risk to subsequent food loads after an acceptable cleaning or to food loads in the same shipment. For example, the manufacturer may require a cleaning certificate and a record of the previous material transported prior to loading or unloading of dual-use tankers, or may have a program in place to verify the adequacy of cleaning, e.g. tanker inspection, sensory evaluation of ingredients and/or analysis, as appropriate.
  - ❖ Prevention of contamination and equipment contamination
- Chemical treatment should be monitored and controlled to deliver the desired concentration and to prevent contamination.
- Chemical sanitizers will be used in accordance with the manufacturer's instructions, ensuring that concentrations, surface contact times and rinsing requirements are maintained.
- Packaging design and materials should provide adequate protection for products to minimize contamination, prevent damage, and accommodate proper labelling.
  - ❖ Prevision of clean water, sanitary facilities, washing facilities
- The first step is to identify those circumstances that pose a significant health risk, such as improper handling of sensitive products or ineffective cleaning or sanitizing of transportation vehicles.
- Premises, appliances and vehicles will be kept clean to a standard that prevents accumulation of any garbage, food residues, dirt, grease or other visible matter
- Only potable water should be used
- Water recirculated for reuse should be treated and maintained in such a condition that no risk to the safety and suitability of food results from its use. The treatment process should be effectively monitored.
- Recirculated water which has received no further treatment and

water recovered from processing of food by evaporation or drying may be used, provided its use does not constitute a risk to the safety and suitability of food.

- Recirculated water should be treated, monitored and maintained as appropriate to the intended purpose.
- Food spoilage is a metabolic process that causes foods to be undesirable or unacceptable for human consumption due to changes in sensory characteristics. Spoiled foods may be safe to eat, i.e. they may not cause illness because there are no pathogens or a toxin present, but changes in texture, smell, taste, or appearance cause.

Theoretical learning Activity

- ✓ Research on operational activities of food safety
- ✓ Brainstorming on operational activities of food safety
- ✓ Display on operational activities of food safety
- ✓ Group discussion on operational activities of food safety
- ✓ Individual exercises on operational activities of food safety**.**
- ✓ **etc**

Practical learning Activity

- ✓ Presentation on operational activities of food safety

Points to Remember (Take home message)

1. Describing operational activities
2. Different operational activities

Learning outcome 3.3. formative assessment

Written assessment

1. What do you understand by Operational activities?
2. Give six activities that should be done during the operation.
3. In controlling and reducing the outbreak of food poisoning, what are the different measures the employees can possess?

ANSWERS

1. Operational activities are all activities that should be maintained on the daily working.
2.
   - ❖ Controlling and reduce outbreak of food poisoning
   - ❖ Registration of premise and vehicles.
   - ❖ Content and labelling of food
   - ❖ Prevention of manufacture and sale of injurious food
   - ❖ Prevention of contamination and equipment contamination
   - ❖ Prevision of clean water, sanitary facilities, washing facilities
3. Measures to control and reducing the outbreak of food poisoning.

- Carriers should be inspected by the manufacturer on receipt and prior to loading.
- Carriers should be loaded, arranged and unloaded in a manner that prevents damage and contamination of the food.
- Transporters or storage facilities should be required to take proper hygienic measures to protect the food.

Duration: 3hrs

Learning outcome objectives:

By the end of the learning outcome, the trainees will be able to:

1. Understand operational activities
2. Identify different operational activities

Resources

Equipment	Tools	Materials
	- Reference books - Boards - Markers - Pictures - Chalk - Documents - Projector - Flip chart	- Internet - Tutorial videos - Audio visuals

Advance preparation:

.

The indicative content 3.4.1. Identification of food spoiled

Food spoilage is a metabolic process that causes foods to be undesirable or unacceptable for human consumption due to changes in sensory characteristics. texture, smell, taste, touch and or appearance cause them to be rejected.

Food spoilage may be caused by:

- Insect damage
- Physical change
- Indigenous enzymes' activities (proteins which drives chemical reaction in its cells)
- Microbial spoilage (microbial contamination) caused by fungi, bacteria, mold and yeast
- Water content which support microbial growth
- Environmental conditions (oxygen , warm, light and moisture)
- In appropriate packaging and storage
- Chemical contaminant
- And physical contaminant

Characteristics

- Texture looks off
- Lack of physical appearance
- Having a funky or rancid odor
- Lack of natural color (discolored)
- There is physical molds

Prevention from food spoilage

- ✓ Pasteurization or heat treatment to kill microbes and bacteria
- ✓ Use of food preservation to fight against microorganisms spoiling the food or making it unsafe.
- ✓ Proper handling of food
- ✓ Proper packaging of food and transportation and
- ✓ Use proper storage reduce contamination.

(i) Use of food additives; Food additives are substances or mixture of substances, which are present in the foods to kill and stop microoraganism growth, Examples are: (i) sugar, (ii) salt, (iii) acids, (iv) spices.

3.4.2**: Storing food inside a freezer**

-Store raw meat poultry and seafood by tightly wrapping it

-Refrigerate or freeze perishable prepared food and leftover wthin2hours

-Keep foods wrapped or covered

-Use shallow pans for quick cooling

-Store read to eat foods above row hazardous foods to prevent cross-contamination

3.4.3: Thawing/Defrosting

- ✓ Food can be safely defrosted:
- ✓ In the refrigerator;
- ✓ Under cold running water;
- ✓ In the microwave on the defrost cycle;
- ✓ Raw food defrosted should not be refrozen;
- ✓ cook them without thawing

- **3.4.4. Food storage and temperature control**

Required storage temperatures are as follows:

- Raw meat and cooked /poultry/seafood/vegetables/diary products: 0C – 5C
- Dry store: 12C – 18C
- Frozen products: Will remain frozen (usually below -18C)

I. Refrigeration Storage

All refrigeration units must have an accurate indicating thermometer.

- Temperatures must be maintained at 4°C (40°F) or less.

- Store all raw foods below cooked or ready to eat foods to prevent cross contamination

- Avoid packing refrigerator full, air needs to circulate to maintain proper temperature.

II. Freezer Storage

- Must be maintained at -18°C (0°F) or less.

III. Dry Storage

- Keep food at least 15cm (6in) off the floor to facilitate cleaning and to easily identify rodent problem. At 12C – 18C

IV. Cooking temperature

a. 145 °F for 15 seconds 62.7 0C

- Seafood, beef, and pork

- Eggs cooked should be placed onto a plate and immediately served

b. 155 °F for 15 seconds 68.3 0C

- Ground products containing beef, pork, or fish

- Fish nuggets or sticks

- Steaks

c. 165 ºF for 15 seconds 78.8 0C

- Poultry

- Stuffed fish, pork, or beef

- Pasta stuffed with eggs, fish, pork, or beef (such as lasagna or manicotti)

d. 135 ºF for 15 seconds 57.2 0C

- Fresh, frozen, or canned fruits and vegetables that are going to be held on a steam table or in a hot box

Reheating temperature

Reheat cooked, hot food to 165 ºF for 15 seconds and start the cooling process again using a different cooling method when the food is:

- Above 70 ºF and 2 hours or less into the cooling process; and

- Above 41 ºF and 6 hours or less into the cooling process.

Hot and Cold Holding Proper Hot Holding

- **Proper hot holding**

-Maintain temperature of hazardous food above 63°C (140°F).

- **Proper Cold Holding**

Keep food cold in refrigerated display units or on ice. The internal temperature of the food must be maintained at 4°C (40°F)

-Rapidly chill the food using an appropriate cooling method if the temperature is found to be above 41 ºF.

Conversion of "°C to °F or °F to °C"

°F = (°C × 9/5) + 32

°C = (°F − 32) x 5/9

Example °C to °F Conversion

For example, to convert 26°C to °F (the temperature of a warm day):

°F = (°C × 9/5) + 32

°F = (26 × 9/5) + 32

°F = (46.8) + 32

°F = **78.8° F**

Theoretical learning Activity

- ✓ Research on operational activities of food safety
- ✓ Brainstorming on operational activities of food safety
- ✓ Display on operational activities of food safety
- ✓ Group discussion on operational activities of food safety
- ✓ Individual exercises on operational activities of food safety
- ✓ **etc**

Practical learning Activity

- ✓ Presentation on operational activities of food safety

Points to Remember (Take home message)

- Meaning of food spoilage
- Causes of food spoilage
- Characteristics and
- Food spoilage preventions

Learning outcome 3.4. formative assessment

Written assessment

1. Fill the following table concerning food temperature.

Fill the following table concerning food temperature.

Items	Appropriate temperature for them
Hot holding food	
Cold holding	
Freezing temperature	
Reheating temperature	
Refrigerating temperature	
Cooling temperature	

2. Identify food spoilage prevention methods. At least five points
3. Describe food spoilage referring to its causes?

ANSWERS

1.

Items	**Appropriate temperature for them**
Hot holding food	**Above 65^0C**
Cold holding	**5^0C (^0F)**
Freezing temperature	**-18^0C (0^0F)**
Reheating temperature	**72^0C(160^0F) original cooking time**
Refrigerating temperature	**4^0C (40 ^0F)**
Cooling temperature	**5**

2. **Prevention from food spoilage**
   - Pasteurization or heat treatment to kill microbes and bacteria
   - Use of food preservation to fight against microorganisms spoiling the food or making it unsafe.
   - Proper handling of food
   - Proper packaging of food and transportation and
   - Use proper storage reduce contamination.

- Use of food additives; Food additives are substances or mixture of substances, which are present in the foods to kill and stop microoraganism growth, Examples are: (i) sugar, (ii) salt, (iii) acids, (iv) spices.

3. Food spoilage is a metabolic process that causes foods to be undesirable or unacceptable for human consumption due to changes in sensory characteristics. texture, smell, taste, touch and or appearance cause them to be rejected.

Food spoilage may be caused by:

- Insect damage
- Physical change
- Indigenous enzymes' activities (proteins which drives chemical reaction in its cells)
- Microbial spoilage (microbial contamination) caused by fungi, bacteria, mold and yeast
- Water content which support microbial growth
- Environmental conditions (oxygen , warm, light and moisture)
- In appropriate packaging and storage
- Chemical contaminant
- And physical contaminant

SUMMATIVE ASSESSMENT

Integrated situation

UBUMWE RESTAURANT is going to host 200guests in an annual youth forum during 10 days by serving 3 meals per day. The hosting guest number is very far superior than the optimum that the restaurant use to serve by normal daily basis; note that the normal clients will also be allowed to attend and be served as always, and then the restaurant doesn't have professionals in food safety procedures implementation to manage all consumables within standard procedures to avoid food contamination. As a fresh graduate you are specifically appointed to prepare food safety procedures implementation for that restaurant, by considering the following guidelines:

1. HACCP principles.
2. Organization and characteristics of food safety

3. Food safety policies, procedures and food products specification
4. How to make change of practices to avoid food spoilage

Assesment Criterion 1: hygiene

Checklist	Score	
	Yes	No
Indicator:Personal hygiene is respected		
✓ Professional chief uniform attire is worn		
✓ Hands are washed correctly		
✓ Clean as you go is applied		
✓ Proper cleaning of ingredients is respected.		
Observation		

Assesment Criterion 2: Safety

Checklist	Score	
	Yes	No
Indicator:Operational activities of food safety is respected		
✓ Training of food handlers		
✓ Content and labelling of food		
✓ Registration of premises and vehicles		
✓ Prevention of manufacture and sale of injurious food		
✓ Controlling and reducing outbreak of food poisoning		
✓ Food imports		
Observation		

Assesment Criterion 3: Quality of Process

Checklist	Score	
	Yes	No
Indicator:Control method for HCCP is done		
✓ Food deliveries and storage		
✓ Multi-use fridges		
✓ Dry food storage		
✓ First in-first out		
✓ Food labelling codes		
✓ Food preparation		
✓ Use of temperature		
Observation		

Assesment Criterion 4: Quality of product

Checklist	Score	
	Yes	No
Indicator: Storage conditions is respected		
✓ Heat treatment		
✓ Low temperatures		
✓ Dehydration		
✓ Chemical preservation		
✓ Vacuum packing		
✓ Smoking		
Indicator: Temperature control is respected		
✓ Cooking and reheating food		
✓ Chilling or freezing food		
✓ Holding hot and cold		
Observation		

Assesment Criterion 5: Relevance

Checklist	Score	
	Yes	No
Indicator: Timed and food safety procedures implementation are respected		
✓ Time is respected		
✓ Food safety procedures implementation is respected		
Observation		

Assesment Criterion 6: Perfection

Checklist	Score	
	Yes	No
Indicator: Right innovations and creativity are well done		
✓ Innovation in food safety procedures implementations		
✓ Creativity in food and safety procedures implementations		
Observation		

References:

1. http://www.fao.org/es/esn/food/risk_mra_jemra_en.stm
2. http://www.who.int/fsf/micro/index.htm
3. http://www.fao.org/ag/agp/agpp/pesticid/jmpr/pm_jmpr.htm
4. http://www.who.int/pcs/jmpr/jmpr.htm
5. : http://www.fao.org/es/ESN/food/risk_biotech_en.stm
6. http://www.who.int/fsf/GMfood/index.htm
7. http://www.nonprofitrisk.org/ws-ps/topics/blp/protect-ps.htm.
8. http://www.foodstandards.gov.au/_srcfiles/39997-TF1a.pdf.
9. http://www.who.int/foodsafety/publications/consumer/5keys/en/
10. . http://www.food.gov.uk/multimedia/pdfs/sfbbfullpack.pdf.
11. http://www.asiafoodjournal.com/article.asp?id=2678.
12. http:// www.cfsan.fda.gov/~comm/daivalid.html
13. http://www.rsb.gov.rw
14. Professional Cookery, 2nd Edition, Level 2 Diploma, Pam Rabone, Holly Bamunuge; Trevor Eeles, Mark Furr ShyamPatior, Dereick Rushton, Sue J Wood with Len Unwin; First edition 2007, this Edition 2010.