Co-funded by the European Union

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Norwegian Embassy
Islamabad

FOOD PROCESSING & PACKAGING TECHNICIAN

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - November, 2019

NAVTTC

Implemented by
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Published by
National Vocational and Technical Training Commission
Government of Pakistan

Headquarter
Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
www.navttc.org

Responsible
Director General Skills Standard and Curricula, National Vocational and Technical Training Commission
National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Layout & design
SAP Communications

Photo Credits
TVET Sector Support Programme

This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs)s and private sector organizations.

Document Version
November, 2019
Islamabad, Pakistan

FOOD PROCESSING & PACKAGING TECHNICIAN

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - November, 2019

Introduction

Welcome to your Learner's Guide for the *Food Processing & Packaging Technician*. It will help you to complete the programme and to go on to complete further study or go straight into employment.

The *Food Processing & Packaging Technician* programme is to engage young people with a programme of development that will provide them with the knowledge, skills and understanding to start this career in Pakistan. The programme has been developed to address specific issues, such as the national, regional and local cultures, the manpower availability within the country, and meeting and exceeding the needs and expectations of their customers.

The main elements of your learner's guide are:

- **Introduction:**
  - This includes a brief description of your guide and guidelines for you to use it effectively
- **Modules:**
  - The modules form the sections in your learner's guide
- **Learning Units:**
  - Learning Units are the main sections within each module
- **Learning outcomes**:
  - Learning outcomes of each learning units are taken from the curriculum document
- **Learning Elements:**
  - This is the main content of your learner's guide with detail of the knowledge and skills (practical activities, projects, assignments, practices etc.) you will require to achieve learning outcomes stated in the curriculum
  - This section will include examples, photographs and illustrations relating to each learning outcome
- **Summary of modules**:
  - This contains the summary of the modules that make up your learner's guide
- **Frequently asked questions**:
  - These have been added to provide further explanation and clarity on some of the difficult concepts and areas. This further helps you in preparing for your assessment.
- **Multiple choice questions for self-test**:
  - These are provided as an exercise at the end of your learner's guide to help you in preparing for your assessment.

FOOD PROCESSING & PACKAGING TECHNICIAN

Module-5

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - November, 2019

Module 5: 072100980 Maintain tools and equipment

Objective of the module:

After completing this module, the learner will be able to apply skills and knowledge to perform processing functions in accordance with the industry's approved guidelines and procedures:

Duration 40 hours **Theory:** 8 hours **Practical:** 32 hours

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1: **Perform cleaning of tools and equipment**	**P1.** Check the cleanliness status of machine after completion of each batch as per the instructions given in manual **P2.** Take corrective measures in case of inappropriate cleaning **P3.** Maintain record keeping	Describe the cleaning methods tool and equipment's (dry cleaning, wet cleaning) Define cleaning measures parameters (repeat cleaning in case of any deviation) Explain procedure of maintaining and filling up of (check list, log-book, log sheet)	Hose cleaning pipe, scrubbers, mopes, color coded brushes, water gun, suction blowers
LU2: **Apply food grade lubricants of tools/equipment**	**P1.** Check gauge of food lubricants as per machine manual **P2.** Ensure proper food lubrication of machinery as per schedule	Define food grade & non-food grade lubricants. (quinpiex, silicone spray oven chain lubricants) Describe the importance of lubrication of machinery/machinery (decrease friction loses, decrease wear and tear, smooth run)	Grease gun, lubrication gun
LU3: **Implement Internal Control Plan (ICP) for tools and**	**P1.** Inspect the tools/equipment regularly **P2.** Identify damaged tools/equipment	Describe the inspection schedule for tools and equipment. Define inspection methods of tools and equipment (visual, and calibration of tool	Drill Machine, grinder, Electric and instrument Tools, thermometer, conductivity meter

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
equipment's	**P3.** Perform repair/replace tools/parts **P4.** Perform calibration as per defined frequency Drill Machine, grinder, Electric and instrument Tools, thermometer, conductivity meter **P5.** Maintain all record of tools/equipment's as per industry SOPs	and equipment) Define repair/replacement techniques (trainings) Define calibration methods (physical, by PLC) Describe the procedure of inventory of tools and equipment (inventory sheets, consumption record)	
LU:4 **Adopt housekeeping practices for tools/equipment (e.g. 5 S)**	**P1.** Identify and eliminate all unnecessary items from the workplace Step 1, Seiri, or Sort **P2.** Put every necessary item in good order, and focused on efficient and effective storage methods, Step 2. *Seiton*, or Systematize **P3.** Inspect the workplace and equipment for defects Step 3. *Seiso*, or Sweep **P4.** Keep the workplace organized, orderly and clean Step 4: *Seiketsu*, or Standardize **P5.** Ensure to follow the 5S standards Step 5: *Shitsuke*, or Self-Discipline	Describe each step of 5S of housekeeping practices for tools and equipment (Sort, set, shine, standardized and sustain)	Pressure guns for oiling Hand jacks Volt and ampere meters PPE's, chemical suit, safety helmet,

LU1:

Perform cleaning of tools and equipment

Wet Cleaning: Wet cleaning refers to methods of professional cleaning that, in contrast to traditional dry cleaning. Safe detergents and non-toxic spot removers are what make wet cleaning an environmentally sound method.

Dry Cleaning: Dry cleaning is any cleaning process for cleaning, using a chemical solvent other than water.

LU2:

Apply food grade lubricants of tools/equipment

Food-Grade lubricants

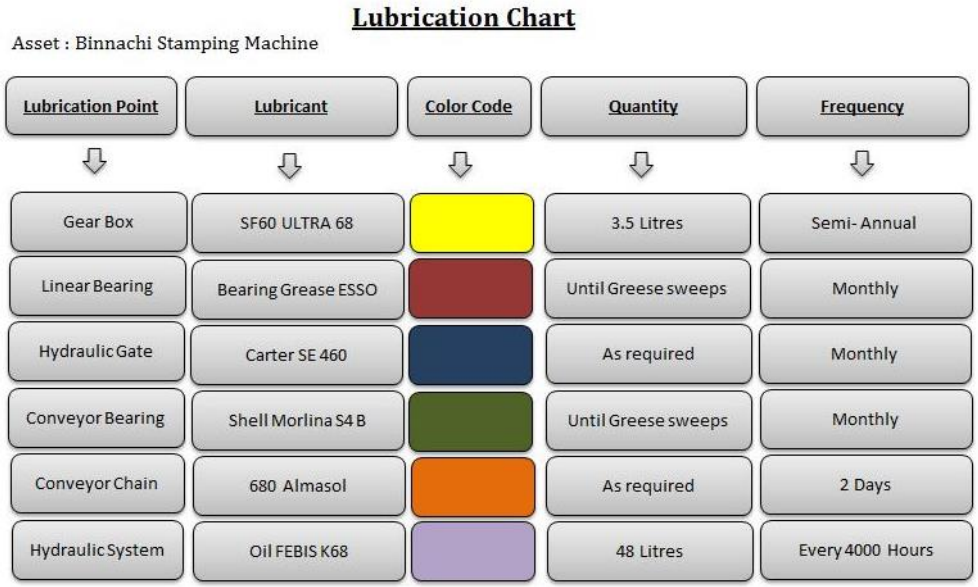
H1 lubricants are food-grade lubricants used in food-processing environments where there is the possibility of incidental food contact.

H2 lubricants are food-grade lubricants used on equipment and machine parts in locations where there is no possibility of contact.

H3 lubricants are food-grade lubricants, typically edible oils, used to prevent rust on hooks, trolleys and similar equipment.

Lubrication Chart

https://www.infosysblogs.com/supply-chain/images/Lub%20Chart.jpg



LU3:
Implement Internal Control Plan (ICP) for tools and equipment's

https://encrypted-tbn0.gstatic.com/images?q=tbn%3AANd9GcSeRb4wilXmKKMzU7YJCCx63k0td2v8XyvvsYrY0EvnFJTqgqZj

Importance of calibration

1. To ensure readings from an instrument are consistent with other measurements.
2. To determine the accuracy of the instrument readings.
3. To establish the reliability of the instrument i.e. that it can be trusted.

LU:4
Adopt housekeeping practices for tools/equipment (e.g. 5 S)

https://encrypted-tbn0.gstatic.com/images?q=tbn%3AANd9GcSnZuPrfDycupsj3JFDBzFQz5dgUcff-gbUto_IXm4K9E9Dx07P

FOOD PROCESSING & PACKAGING TECHNICIAN

Module-6

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - November, 2019

Module 6: 072100981 Receive Raw Materials as per manufacturing order

Objective of the module:

After completing this module, the learner will be able to check quality raw materials in accordance with the Current Good Manufacturing Practices (CGMP) as well as industry's approved guidelines and procedures in food processing industry.

Duration 40 hours **Theory:** 8 hours **Practical:** 32 hours

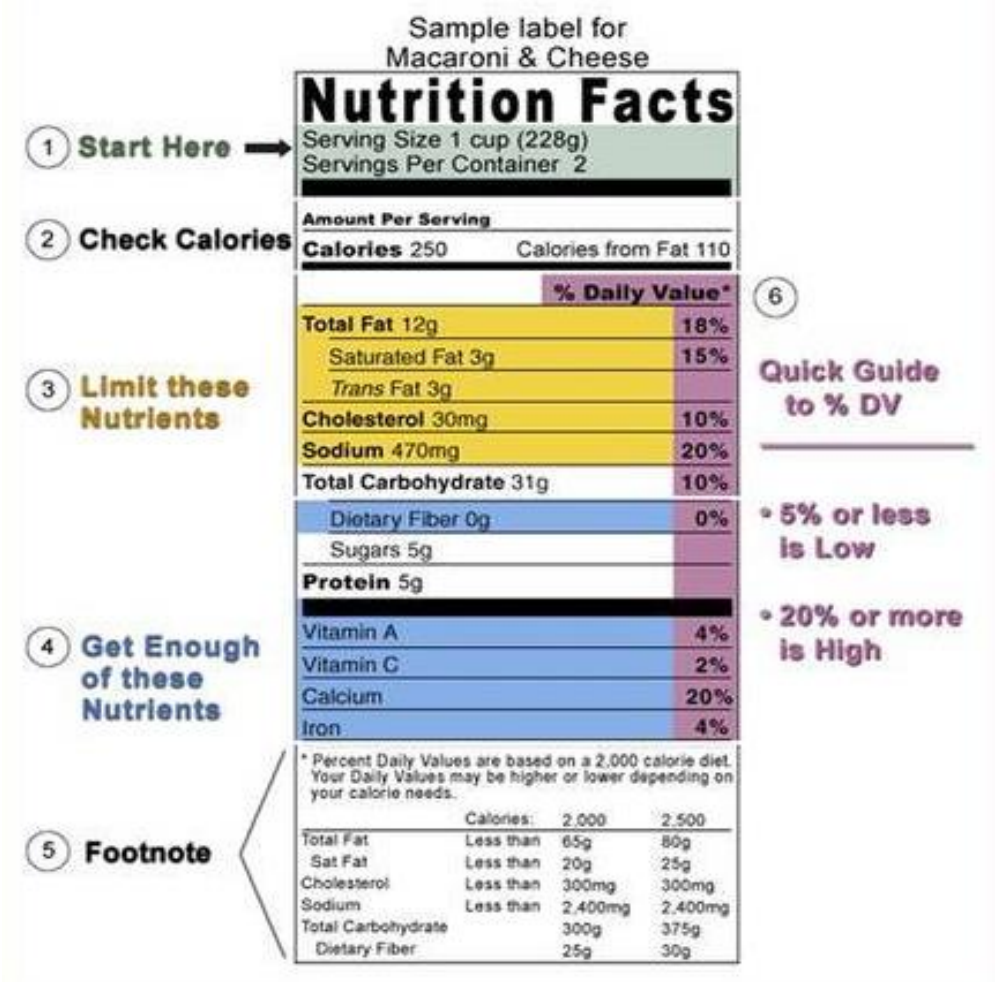
Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1. **Identify different raw materials as per food processing manufacturing order**	**P1.** Generate requirement for raw materials as per manufacturing order **P2.** Verify quantity of received raw materials as per manufacturing order	Describe the properties of good raw material (according to company specification, according to regulatory specification) Describe the importance of verification of raw material (smooth plant running)	Hand jacks, trolleys, hand buckets, Weighing scales, Pellets
LU2. **Ensure raw material quality parameters (physical, chemical, biological, color or flavor retention)**	**P1.** Perform testing of raw materials as per specification **P2.** Ensure materials identification labels as per the specifications of food specific processing order **P3.** Check expiry date on each labeled food raw material as per specifications	Explain quality control procedures for testing of raw material (taste, smell, pH, acidity,) Enlist the components of Label (product name, MFG, EXP date, quantity, storage condition etc.) Define the methods of checking expiry date of raw material (use by date, best before use)	Refractometer, burettes, moisture analyzer, colorimeter, muffle furnace, pH meter, Kjeldhal apparatus, TDS meter,

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU3. **Measure the ingredients according to manufacturing order/recipe**	**P1.** Perform balancing and zero-tare of measuring equipment's **P2.** Ensure volumetric and by-weight measurement of ingredients as per requirements	Explain Importance of taring the weighting devices (remove error, accurate weighting if ingredient, facilitate batch standardization) Describe the Importance of measuring of ingredients in manufacturing of food item (facilitate the batch standardization)	Weighing balance, master weights, measuring cylinders, measuring tools
LU4. **Maintain record of all received/labeled materials as per SOPs**	**P1.** Maintain log book/log sheets for record of all received materials **P2.** Analyze quality trends of raw materials	Define record management; Describe the Importance of record keeping (facilitate tractability, facilitate rework, control plant operation) Describe the effect of raw material trend (indicate strength and weakness of process)	Log sheets, log books
LU5: **Store the ingredients according to standard procedure**	**P1.** Ensure the cleaning of storage area **P2.** Place the raw materials in designated areas to avoid cross contamination **P3.** Ensure storage of raw materials as per SOPs	Enlist the methods of cleaning (wet and dry cleaning) Enlist parameters for storage of different types of ingredients. (e.g. temperature, Humidity, nature of ingredients.) Describe the protocol for raw materials of raw material storage (cleaning of storage area, follow FIFO and FEFO)	scrubbers, mopes, color coded brushes, Thermometer
LU6: **Handle the raw**	**1.** Use of appropriate PPEs for	Enlist PPE's for handling raw material (gloves, safety shoes, gum shoes,	PPE's,

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
materials in an appropriate manner	handling raw materials **P2.** Use hand jacks and trolleys in case of high weight	chemical suite, face shield) Describe the methods of handling of high weight material (use hand jacks and trollies)	Hand jacks and trolleys
LU7: Provide raw materials to processing unit as per requirements of manufacturing order	**P1.** Check the inventory of raw materials as per manufacturing order **P2.** Hand over the raw materials to production in charge	Describe the importance of inventory checks (facilitate check and balance) Define procedures of handing over raw materials (receive MIR and hand over the raw material to production in charge)	Lifters, Trolleys, Hand jacks, Conveyer belt

LU2.

Ensure raw material quality parameters (physical, chemical, biological, color or flavor retention)



http://hunter-gatherer.com/old/sites/default/files/imagecache/500/nutrition-label.jpg

LU3.
Measure the ingredients according to manufacturing order/recipe
Weighing Procedure

ELECTRONIC ANALYTICAL BALANCE

THE WEIGHING PROCEDURE:

- ***Checking the Balance***

  - Check the *Balance Environment*, *Calibration*, and *Balance Uncertainties* (**Never assume that the balance has been left in proper operating conditions by the previous user.**)

Balance Environment

The surrounding work area has to be kept neat and tidy. It is a good idea to dust the balance pan with a camel's hair brush (or any equivalent) to remove any materials that may have been left by the previous user.

https://slideplayer.com/slide/1463911/4/images/19/ELECTRONIC+ANALYTICAL+BALANCE+THE+WEIGHING+PROCEDURE%3A.jpg

LU4

Maintain record of all received/labeled materials as per SOPs

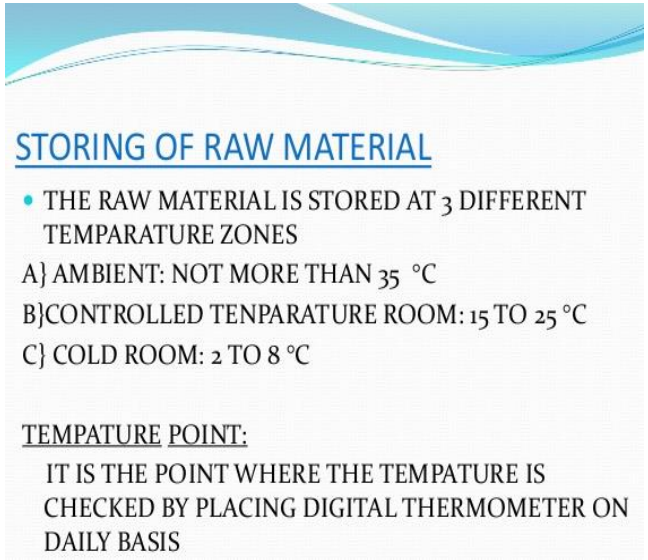
Record:

https://image.slidesharecdn.com/recordkeeping-170121125057/95/record-keeping-2-638.jpg?cb=1485003076

LU5:

Store the ingredients according to standard procedure

https://image.slidesharecdn.com/rawmaterialwarehouse-130426090544-phpapp01/95/raw-material-warehouse-5-638.jpg?cb=1366967654



Sanitation Safety Planning

http://archive.sswm.info/sites/default/files/toolbox/WHO%202015%20Sanitation%20Safety%20Planning%20Modules.png

LU6:
Handle the raw materials in an appropriate manner

https://cumidirect.com/blog/post/different-types-of-pallet-truck-and-its-purposes

LU7:
Provide raw materials to processing unit as per requirements of manufacturing order

PHYSICAL INVENTORY COUNT SHEET

FORMAT NO:

STOCK COUNTED	TYPE OF MATERIAL STOCK
FROM DATE: _____/____/____ TO DATE: _____/____/____	[ ] RAW MATERIAL [ ] CONSUMABLE GOODS [ ] CHEMICALS / SIMILAR [ ] GAS CYLINDERS / SIMILAR

Team Leader	Team:

Unit	Location / Area	Sub Division / Room No.

Physical Inventory information

Material Code	Material Name	Quantity	U.M.O	Storage Location	Sub Div/Rack	Condition / Expiry / Broken etc..

http://www.inpaspages.com/wp-ontent/uploads/2014/05/physical_inventory_countsheet.png

FOOD PROCESSING & PACKAGING TECHNICIAN

Module-7

LEARNER GUIDE

National Vocational Certificate Level 2

Version 1 - November, 2019

Module 7: 072100982 Perform Food Cleaning and Sanitation

Objective of the module:

After completing this module, the learner will be able to apply skills and specific knowledge to perform cleaning and sanitation in accordance with the industry's approved guidelines and procedures.

Duration 60 hours **Theory:** 12 hours **Practical:** 48 hours

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
LU1: Ensure availability of all cleaning and sanitation materials	**P1.** Verify cleaning and sanitation materials as per requirement **P2.** Check quality parameters of cleaning chemicals (pH, Purity, Reactivity, Conductivity)	Describe the handling procedures of cleaning & sanitation materials according to the nature of material. (check quality and quantity) Explain the procedures to check the quality of cleaning solution (concentration, composition, pH etc.)	Cleaning trolleys, mops, brushes, pH meter,
LU2: Ensure all utilities are available	**P1.** Check the availability of potable water for cleaning **P2.** Check the availability of heating source **P3.** Check the availability of compressed air	Define portable water Enlist the sources of heating (wet steam, dry steam hot water) Enlist the uses of compressed air.	Cleaning hose pipes, shower guns
LU3: Perform cleaning and sanitation as per schedule/proced	**P1.** Select appropriate method of cleaning as per product nature (dry and wet cleaning)	Define cleaning and sanitation; Explain different cleaning techniques like dry cleaning, wet cleaning, cleaning in place etc. Describe the use of color coded of	Conductivity meters, level switches, flow meters, color coded buckets,

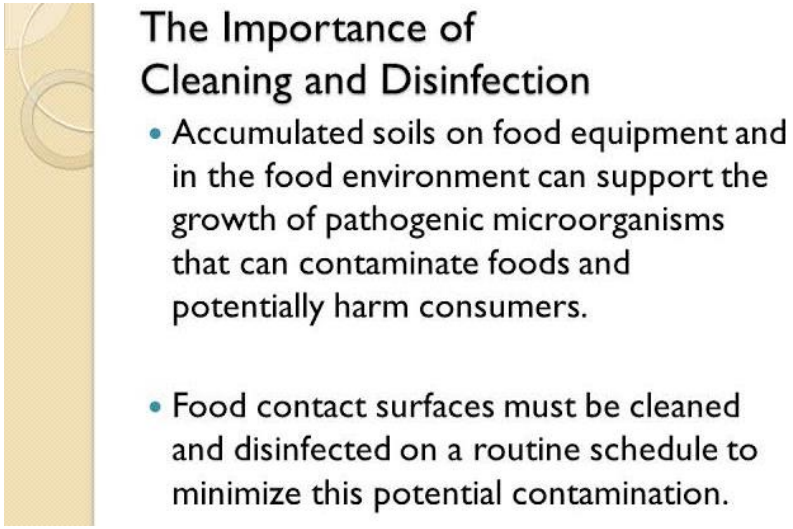
Learning Unit	Learning Outcomes	Learning Elements	Materials Required
ure	**P2.** Use of color-coded cleaning tools for food and nonfood surfaces **P3.** Apply 4Ts (Time, Temperature, Titration, Turbulence) of cleaning **P4.** Perform disinfection of food contact surfaces where required **P5.** Validate cleaning method as per requirement	cleaning tool (red for toilets, blue for low risk area, green for food containing areas, yellow for clinical). Define 4t's of cleaning Describe the importance of disinfection of food contact surfaces (remove microorganisms, reduce hazard risks) Describe how to verify cleaning (swab and ATP test)	mobs, pumps, atomizer, burettes flask, beakers, thermometer
LU4: Verify cleaning and sanitation by analytical/swab test/ATP-testing	**P1.** Perform visual verification of surface after cleaning **P2**. Analyze pH of initial and final rinsing water **P3.** Ensure all analytical/Swab/ATP results are as per standards	Describe the visual inspection of cleaned surface (visual, smell, and by hand) Define TDS and pH of water. Describe the process of swab and ATP test	PPE's (Goggles, face shield, comical suite, chemical gloves), swab sticks, petri dishes, autoclave
LU5: Prepare log sheets as per procedure	**P1.** Maintain record of all 4Ts **P2.** Maintain records of all lab results	Describe how to maintain the records of 4T's (log sheet) Explain the importance of record keeping (facilitate check and balance, facilitate to control operation efficiently)	Log sheets, log books
LU6: Control cleaning solution	**P1.** Consider the water temperature & pressure during cleaning process	Define importance of water temperature and pressure in cleaning (effective cleaning)	Pumps, Air Blowers

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
temperature to melt fats/meats	**P2.** Ensure cleaning solution temperature as per specification of food processing to remove product debris	Define the Effect of temperature on cleaning efficiency (increase the cleaning efficiency desolation the deposits)	
LU7: Ensure equipment free of visible soil, haze or water beads	**P1.** Ensure cleaning of stainless steel (SS) equipment with acid on regular basis **P2.** Ensure filtration of cleaning solutions and water before cleaning	Enlist cleaning solutions (Nitric acid, sodium hydro oxide) Describe the purpose of filtration of cleaning solution. Enlist the types of cleaning filters (in reuse solution)	Brushes, scrappers, sponge, Vacuum Pump
LU8: Sanitize inaccessible parts of machinery prior to assembling	**P1.** Ensure cleaning of hard to reach parts by dismantle cleaning **P2.** Rinse equipment from top to bottom	Enlist the types of cleaning (CIP, COP) Write down the procedure of equipment cleaning (initial rinsing, acid circulation, intermediate rinse)	Toolkit, hose pipe, scrappers, brushes
LU9: Ensure pre-operation Inspection	**P1.** Verify by sight, feel and smell the workplace regularly **P2.** Use flashlights and other lights to see non visible parts of machinery before start operation **P3.** Ensure equipment free of visible soil, haze or water beads	Describe the physical inspection of work place (by visual check, smell) Describe the process of visual inspection of non-visible parts of machinery (flash lights) Describe the importance of inspection of parts before assembling (assure plant cleaning and eliminate rework) Describe how to assure the completion of cleaning process (Visually inspection, turn off cleaning supplies, pH of drainage	Artificial nose, flash light, pH meter, Turbidity meter, BOD meter

Learning Unit	Learning Outcomes	Learning Elements	Materials Required
	P4. Inspect visible parts and inaccessible parts of machinery after assembling **P5.** Inspect that equipment is free of chemicals, tools and cleaning supplies **P6.** Inspect that guards are in place before starting equipment **P7.** Complete formal pre-operation inspection according to plant Sanitation Standing Operating Procedures (SSOP)	water) Describe the importance of safe guards on equipment (reduce safety hazards, provide safety to equipment) Enlist the elements of the SSOC's (identify affected areas, identify cleaning tools, dis assembling process and methods of cleaning)	

LU1:

Ensure availability of all cleaning and sanitation materials



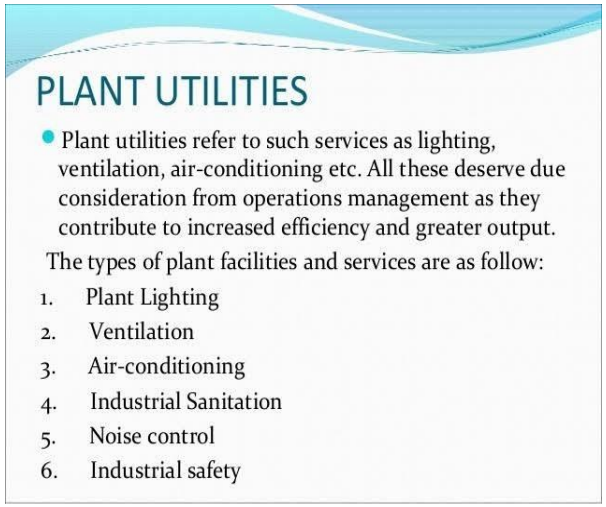
https://encrypted-tbn0.gstatic.com/images?q=tbn%3AANd9GcTnaKVhIMoYuDW82KTu8erbT082Z5ot-fQ_9vIGKwRApvORaheB

Cealning Equipments

https://www.youtube.com/watch?v=tudIbWRForc

LU2:

Ensure all utilities are available



https://www.google.com/search?q=define+utility+facilities+of+food+industry&hl=en&sxsrf=ACYBGNQrMAbiu5oT-mK-HoPQUyi3cyfyg:1570856000515&source=lnms&tbm=isch&sa=X&ved=0ahUKEwjWs53P9pXlAhWkolwKHRnaBT0Q_AUIEigB&biw=1366&bih=625#imgrc=crHdlV60__4PbM

Types of steam

https://slideplayer.com/slide/7987997/

LU3:

Perform cleaning and sanitation as per schedule/procedure

Improving Automation

Improving Automation (2)

Four key automation parameters for efficient cleaning (4Ts):

- Time: duration of cleaning cycles
- Temperature: temperature of cleaning substances
- Titer: concentration of cleaning substances
- Turbulence: speed and impact of cleaning liquids

⇨ By using software to calculate the optimum combination of each parameter, considerable cost reductions can be achieved!

https://image.slidesharecdn.com/c223cleaning-in-placefinal-web-161121005134/95/c22-3-cleaninginplacefinalweb-50-638.jpg?cb=1479689515

Cleaning Validation Steps

https://www.gmpsop.com/cleaning-validation-requirements/

Surface Sampling by Swab

https://youtu.be/CiVC4S0_NmA

LU5:
Prepare log sheets as per procedure

Food premises cleaning schedule

https://images.template.net/wp-content/uploads/2016/12/19125819/Food-Premises-Cleaning-Schedule.zip

LU6:

Control cleaning solution temperature to melt fats/meats

LU7:

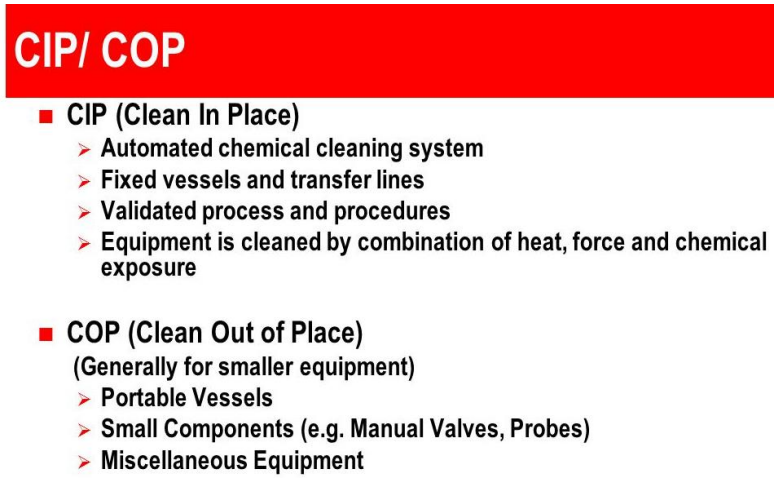
Ensure equipment free of visible soil, haze or water beads

Cleaning Process

https://youtu.be/7m9MKr0KjTg

LU8:
Sanitize inaccessible parts of machinery prior to assembling

CIP vs COP



http://slideplayer.com/4038788/13/images/50/CIP/+COP+CIP+%28Clean+In+Place%29+COP+%28Clean+Out+of+Place%29.jpg

LU9:

Ensure pre-operation Inspection

https://blog.predictivesolutions.com/blog/workplace-safety-inspection-strategy-guide-2

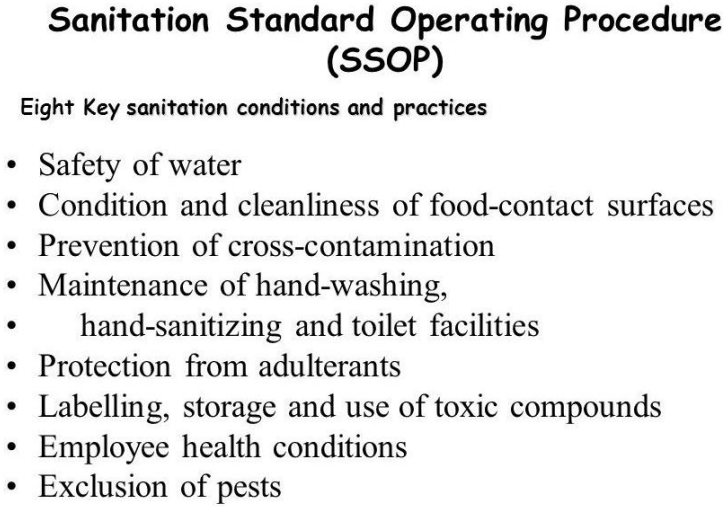
Importance of Cleaning

Inspections are important as they allow you to:

listen to the concerns of workers and supervisors gain further understanding of jobs and tasks identify existing and potential hazards

determine underlying causes of hazards recommend corrective action monitor steps taken to eliminate hazards or control the risk (e.g., engineering controls, administrative controls, policies, procedures, personal protective equipment).

Sanitation SOP's



https://www.google.com/search?q=Sanitation+Standing+Operating+Procedures+&tbm=isch&ved=2ahUKEwiegNCVgJblAhXDThQKHbuJA6wQ2-cCegQIABAA&oq=Sanitation+Standing+Operating+Procedures+&gs_l=img.3...80767.80767..81062...0.0..0.0.0.....0....1..gws-wiz-img.Sug-toKoRwE&ei=RGahXZ7OA8OdUbuTjuAK&bih=625&biw=1366#imgrc=wdPwzpGVVxH2mM&imgdii=Yl4N5B4_xPq0fM

Module summary

Course: *Food Processing & Packaging Technician (Level 2)*	**Total Course Duration:** 340 Hours
Course Overview:	
In this training program trainee will learn and acquire specialized knowledge and practical skills required to function as a Food Processing & Packaging Technician in Food Processing and Packaging industry. The specific objectives of developing these qualifications are as under: • Improve the overall quality of training delivery and setting national benchmarks for training of Food Processing & Packaging Technician in the country. • Provide flexible pathways and progressions to learner enabling them to receive relevant, up-to-date and current skills in Food Industry. • Provide basis for competency-based assessment which is recognized and accepted by employers in modern days. • Establish a standardized and sustainable system of training in consultation with the industry for Food Processing & Packaging Technician in the country.	

Module	Learning Unit	Duration
Module 1. **Comply with Personal Health and Safety Guidelines**		50
Module 2. **Communicate the Workplace Policy and Procedure**		40
Module 3. **Perform Basic Communication (Specific)**		50
Module 4. **Perform Basic Computer**		60

Module	Learning Unit	Duration
Application (Specific)		
Module 5. **Maintain Tools and Equipment**	**LU1.** Perform cleaning of tools and equipment **LU2.** Apply food grade lubricants of tools/equipment **LU3.** Implement Internal Control Plan (ICP) for tools and equipment's **LU4.** Adopt housekeeping practices for tools/equipment (e.g. 5 S)	40
Module 6. **Receive Raw Materials as per Manufacturing Order**	**LU1.** Identify different raw materials as per food processing manufacturing order **LU2.** Ensure raw material quality parameters (physical, chemical, biological, color or flavor retention) **LU3.** Measure the ingredients according to manufacturing order/recipe **LU4.** Maintain record of all received/labeled materials as per SOPs **LU5.** Store the ingredients according to standard procedure **LU6.** Handle the raw materials in an appropriate manner **LU7.** Provide raw materials to processing unit as per requirements of manufacturing order	40
Module 7. **Perform Food Cleaning and Sanitation**	**LU1.** Ensure availability of all cleaning and sanitation materials **LU2.** Ensure all utilities are available **LU3.** Perform cleaning and sanitation as per schedule/procedure **LU4.** Verify cleaning and sanitation by analytical/swab test/ATP-testing **LU5.** Prepare log sheets as per procedure **LU6.** Control cleaning solution temperature to melt fats/meats **LU7.** Ensure equipment free of visible soil, haze or water beads **LU8.** Sanitize inaccessible parts of machinery prior to assembling **LU9.** Ensure pre-operation Inspection	60

Frequently Asked Questions

1. What is Competency Based Training (CBT) and how is it different from currently offered trainings in institutes?	Competency-based training (CBT) is an approach to vocational education and training that places emphasis on what a person can do in the workplace as a result of completing a program of training. Compared to conventional programs, the competency based training is not primarily content based; it rather focuses on the competence requirement of the envisaged job role. The whole qualification refers to certain industry standard criterion and is modularized in nature rather than being course oriented.
2. What is the passing criterion for CBT certificate?	You shall be required to be declared “Competent” in the summative assessment to attain the certificate.
3. What are the entry requirements for this course?	The entry requirement for this course is Middle or equivalent.
4. How can I progress in my educational career after attaining this certificate?	You shall be eligible to take admission in the National Vocational Certificate in level-5, DAE in Food Processing Technology or equivalent course. In certain case, you may be required to attain an equivalence certificate from The Inter Board Committee of Chairmen (IBCC).
5. If I have the experience and skills mentioned in the competency standards, do I still need to attend the course to attain this certificate?	You can opt to take part in the Recognition of Prior Learning (RPL) program by contacting the relevant training institute and getting assessed by providing the required evidences.
6. What is the entry requirement for	There is no general entry requirement. The institute shall assess you, identify your competence gaps and offer

Recognition of Prior Learning program (RPL)?	you courses to cover the gaps; after which you can take up the final assessment.
7. Is there any age restriction for entry in this course or Recognition of Prior Learning program (RPL)?	There are no age restrictions to enter this course or take up the Recognition of Prior Learning program
8. What is the duration of this course?	The duration of the course work is 2 years (4 Levels).
9. What are the class timings?	The classes are normally offered 25 days a month from 08:00am to 01:30pm. These may vary according to the practices of certain institutes.
10. What is equivalence of this certificate with other qualifications?	As per the national vocational qualifications framework, the level-4 certificate is equivalent to Matriculation. The criteria for equivalence and equivalence certificate can be obtained from The Inter Board Committee of Chairmen (IBCC).
11. What is the importance of this certificate in National and International job market?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). These standards are also recognized worldwide as all the standards are coded using international methodology and are accessible to the employers worldwide through NAVTTC website.
12. Which jobs can I get after attaining this certificate? Are there job for this certificate in public sector as well?	You shall be able to take up jobs in Food Processing industry like, Dairy industry, Beverage industry, baking and confectionery industry, meat and egg industry as well as fruits/vegetable processing industry.
13. What are possible career progressions in industry after attaining this	You shall be able to progress up to the level of supervisor after attaining sufficient experience, knowledge and skills during the job. Attaining additional

certificate?	relevant qualifications may aid your career advancement to even higher levels.
14. Is this certificate recognized by any competent authority in Pakistan?	This certificate is based on the nationally standardized and notified competency standards by National Vocational and Technical Training Commission (NAVTTC). The official certificates shall be awarded by the relevant certificate awarding body.
15. Is on-the-job training mandatory for this certificate? If yes, what is the duration of on-the-job training?	On-the-job training is not a requirement for final / summative assessment of this certificate. However, taking up on-the-job training after or during the course work may add your chances to get a job afterwards.
16. How much salary can I get on job after attaining this certificate?	The minimum wages announced by the Government of Pakistan in 2019 are PKR 17,500. This may vary in subsequent years and different regions of the country. Progressive employers may pay more than the mentioned amount.
17. Are there any alternative certificates which I can take up?	There are some short courses offered by some training institutes on this subject. Some institutes may still be offering conventional certificate courses in the field.
18. What is the teaching language of this course?	The leaching language of this course is Urdu and English.
19. What is the examination / assessment system in this program?	Competency based assessments are organized by training institutes during the course which serve the purpose of assessing the progress and preparedness of each student. Final / summative assessments are organized by the relevant qualification awarding bodies at the end of the certificate program. You shall be required to be declared “Competent” in the summative assessment to attain the certificate.
20. Does this certificate enable me to work as freelancer?	You can start your small business of Baking, juice processing, carbonated beverages and confectionery etc. You may need additional skills on entrepreneurship to support your initiative.

Test Yourself (Multiple Choice Questions)

Module 05

8. Which of the following is used for drying of utensils after sanitizing?
    A. Tissues
    B. Towels
    C. Air
    D. Vacuum
9. Which is the commonly used sanitizing agent?
    A. Wax
    B. Oil
    C. Chlorine
    D. Sodium chloride
10. Which of the following is related to 5S?
    A. Personal hygiene
    B. Sanitation of building
    C. Maintenance of machines
    D. Housekeeping for tools and equipment
11. Which of the following is important lubricant used in food processing industry?
    A. Water
    B. Alkali
    C. Grease
    D. Acid

Module 06

12. Do hygroscopic compounds include?
    A. NaOH
    B. H_2O
    C. NaCl
    D. H_3O

13. How acidity of sample is measured?
    A. Filtration
    B. Distillation
    C. Titration
    D. Digestion
14. By what means error in analysis can be minimized?
    A. Calibration
    B. Sanitation
    C. Evaporation
    D. Distillation
15. Which of the following shows melting point property?
    A. Acids
    B. Bases
    C. Lipids
    D. Proteins
16. What is the safe temperature to be used in frozen storage?
    A. 10 ºC
    B. 5 ºC
    C. 0 ºC
    D. -10 ºC
17. What is measuring device to assess the thickening of solutions?
    A. Vinometer
    B. Turbidity meter
    C. Viscometer
    D. Polari meter
18. What is the unit used for total soluble solids in a solution?
    A. TDS
    B. TSS
    C. SNF
    D. MS
19. What type of testing can be performed by Kjeldahl Apparatus?

A. Sugars
B. Proteins
C. Fats
D. Minerals

20. What is determined by use of Muffle furnace?
A. Sugars
B. Proteins
C. Fats
D. Ash

21. What type of solution is prepared by gram equivalent weight?
A. Molar solution
B. Molal solution
C. Normal solution
D. Percent solution

Module 07

22. By which of the following, steam can be generated?
A. Pumps
B. Blowers
C. Boilers
D. Conveyors

23. What does Cleaning In Place (CIP) play role in sanitation?
A. Glassware
B. Loose accessories
C. Inaccessible parts
D. Utensils

24. How separation of dust, leaves and straws from food lots is practiced?
A. Dry cleaning
B. Wet cleaning
C. Sanitizing
D. Waxing

25. What is the method used in cleaning of conveyors and belts?
    A. Dry cleaning
    B. Wet cleaning
    C. Sanitizing
    D. Waxing
26. What is color code for cleaning tools used in cleaning of food containing area?
    A. Red color
    B. Green color
    C. Yellow color
    D. Blue color
27. How disinfection of area is verified?
    A. pH
    B. Brix
    C. RH
    D. Swab
28. What acid can clean stainless steel surfaces effectively?
    A. Nitric acid
    B. Acetic acid
    C. Tartaric acid
    D. Malic acid

KEY for MCQ's

Sr. #	Ans.	Sr. #	Ans.	Sr. #	Ans.	Sr. #	Ans.
8	**C**	13	**C**	18	**B**	23	**C**
9	**C**	14	**A**	19	**B**	24	**A**
10	**D**	15	**C**	20	**D**	25	**B**
11	**C**	16	**D**	21	**C**	26	**B**
12	**A**	17	**C**	22	**C**	27	**D**
						28	**A**

National Vocational and Technical Training Commission (NAVTTC)

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
+92 51 9044 322
+92 51 9044 322
info@navttc.org
www.navttc.org