



**COMPETENCY-BASED CURRICULUM**

**FOR THE TRADE OF**

**FRUITS AND VEGETABLES PROCESSING**

**UNDER**

**CRAFTSMEN TRAINING SCHEME (CTS)**

**IN SEMESTER PATTERN**

**Government of India**  
**Ministry of Skill Development and Entrepreneurship**  
**Directorate General of Training**

## CONTENTS

Sl. No.	Topics	Page No.
01	Introduction	
02	General Information	
03	Course Structure	
04	Job Roles	
	4.1 Brief Description	
	4.2 NOS & QP/NCO Mapping	
05	NSQF Level Compliance	
06	General Training Plan, Examination & Pass regulation	
07	Learning Outcomes	
08	Assessable Outcomes with Assessment Criteria	
09	Syllabus Content with Time Structure	
	9.1 9.1 Syllabus content for Professional Skill & Knowledge	
	9.2 9.2 Syllabus Content of Core Skills	
10	Employability Skills	
	10.1 General Information	
	10.2 Distribution of Topics Between Semesters for Employability Skills	
	10.3 Syllabus Content of Employability Skill	
11	Infrastructure	
12	Assessment Standard	
	12.1 Assessment Guideline	
	12.2 Internal Assessments (Formative Assessment)	
	12.3 Final Assessment- All India Trade Test (Summative Assessment)	
13	List of Tools & Equipment-Annexure I	
14	Guidelines for Instructors and Paper Setters- Annexure II	
15	List of Trade Committee Members	

## INTRODUCTION

India is one of the youngest nations in the world. Our youth are our strength. However, a challenge facing the country is that of skilling our youth as per the demands of the industry. Recognizing the need for quickly coordinating the skill development and entrepreneurship efforts of all concerned stakeholders, the Government of India created the Ministry of Skill Development and Entrepreneurship on 9th November, 2014. To create further convergence between the Vocational Training System through Industrial Training Institutes (ITIs) and the new skill initiatives of the Government, the Training and Apprenticeship Training divisions from the Directorate General of Employment and Training (DGET) under the Ministry of Labour and Employment stand transferred to the Ministry of Skill Development and Entrepreneurship (MSDE) with effect from 16th April, 2015. This move brings over 11000 ITIs and scores of other institutions, and the Apprenticeship and Training divisions, under the Ministry.

The Ministry of Skill Development and Entrepreneurship is an apex organization for the development and coordination of the vocational training including Women's Vocational Training in our country. The Ministry conducts the vocational training programmes through the Craftsmen Training Scheme (CTS), Apprenticeship Training Scheme (ATS), Modular Employable Scheme (MES) under the Skill Development Initiative (SDI) Scheme, and Craftsmen Instructor Training Scheme (CITS) to cater the needs of different segments of the Labour market. The National Council for Vocational Training (NCVT) acts as a central agency to advise Government of India in framing the training policy and coordinating vocational training throughout India. The day-to-day administration of the ITIs rests with the State Governments/ Union Territories.

Training courses under the CTS is being offered through a network of more than 11000 Government and Private Industrial Training Institutes (ITIs) located all over the country with a total seating capacity of more than 16 Lakhs with an objective to provide skilled workforce to the industry in 126 trades. Skill development courses exclusively for women are also being offered under CTS and other schemes through Government and Private ITIs and Regional Vocational Training Institutes (RVITIs) for Women.

The Apprentices Act, 1961 was enacted with the objective of regulating the program of apprenticeship training in the industry by utilizing the facilities available within for imparting on-the-job training. The Act makes it obligatory for employers in specified industries to engage apprentices in designated trades to impart on the job training for school leavers, and ITI passed outs to develop skilled manpower for the industry.

The Ministry is implementing the Employable Scheme (MES) under the Skill Development Initiative Scheme to provide vocational training to people to develop skilled manpower for the industry through a network of Vocational Training Providers (VTPs) located across the country.

Central Staff Training and Research Institute (CSTARI), Kolkata is the nodal institute for the development/revision of curricula under all vocational training schemes of the Ministry. National Instructional Media Institute (NIMI), Chennai is to make available instructional material in various trades for the use of trainees and trainers to ensure overall improvement in the standard of institutional training under the CTS and ATS schemes. The institute is actively involved in the development, production and dissemination of instructional media Packages (IMPs) comprising of books on Trade Theory, Trade Practical, Test/Assignment, and Instructor's Guide.

The National Skills Qualification Framework (NSQF), published in the Gazette of India on 27th December, 2013, is a national framework that aims to integrate general and vocational streams of education and training. The main goal of the NSQF is to focus on competency-based qualifications, which in turn facilitate and enhance transparency, both within and between general and vocational streams. The National Skill Development Agency (NSDA) under the Ministry is responsible for anchoring and implementation of the Framework, by bringing together the key stakeholders through the National Skill Qualifications Committee (NSQC).

The competency-based framework organizes qualifications into ten levels, with the entry level being 1, and the highest level being 10. Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are (1) Process, (2) Professional knowledge, (3) Professional skill, (4) core skill, and (5) Responsibility. The paradigm shift from learning focused on inputs to an outcome/competency-based education would help in the Recognition of Prior Learning (RPL), and simultaneously enable the alignment of the Indian qualifications with international ones. Government funding is expected to be on a preferential basis for NSQF compliant courses. The NSQF notification provides a Qualification Register, which is the official national database of all qualifications aligned to NSQF levels. Through this Register, learners can expect access to all NSQF compliant qualifications.

The Ministry has set up Mentor Councils to focus on courses under NCVT in various sectors with representation from thought leaders among different stakeholders viz., industries, innovative entrepreneurs who have proved to be game-changers, academic/professional institutions, and champion ITIs for each of the sectors. The Mentor Council for each sector reviews curriculum, admission criteria, course duration, and requirement of trainers and assessment/evaluation systems for the sector on a continuous basis and make recommendations regarding the same. Sector-wise Core Groups are formed to plan and prepare the documentation for the competency-based curricula for the courses under each sector.

## 2. GENERAL INFORMATION

1	Qualification	Fruits and Vegetables Processing
2	N.C.O./NOS Code No.	7414.90
3	NSQF Level	Level 4
4	Duration of the course/qualification	One year (Two semesters)
5	Entry Qualification	Passed 10th Class with Science and Mathematics
6	Trainees per unit	20

Note:

Out of the two Instructors required for a unit of 2(1+1), one must have Degree/Diploma, and other must have NTC/NAC qualifications, in the relevant field.

Distribution of notional training hours of the training per week:

Total hours /week	Trade practical	Trade theory	Employability skills	Extra-curricular activity
<b>40 Hours</b>	<b>30 Hours</b>	<b>6 Hours</b>	<b>2 Hours</b>	<b>2 Hours</b>

### 3. COURSE STRUCTURE

Name of the Qualification: Fruits and Vegetables Processing

Total duration of the course: 12 Months

Training duration details:

Course Elements	Hourly Distribution
Professional Skills	1320 hrs
Professional Knowledge	264 hrs
Employability Skills	88 hrs
Extra Curricular Activities	88 hrs
In-plant Training/Project Work	160 hrs
Admission & Examination	160 hrs
Total	2080 hrs

## 4. JOB ROLES

### 4.1 Brief description

- This course is meant for the candidates who aspire to become:
- Quality Analyst in Fruits and vegetable processing industry
- Supervisor in Fruits and Vegetable Processing Industry
- Cold Storage Supervisor in Frozen fruits and vegetables industry
- Packaging Supervisor in Fruits and Vegetable Processing industry
- Skilled worker in Food MNC
- Entrepreneur in Fruits and vegetables processing

### 4.2 NOS & QP/NCO Mapping:

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#### NSQF LEVEL COMPLIANCE

The Broad Learning outcomes of Fruits and Vegetables Processing trade under CTS matches with the Level descriptor at Level- 4.

The NSQF level-4 descriptor is given below:

LEVEL	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
Level 4	work in familiar, predictable, routine, situation of clear choice	factual knowledge of field of knowledge or study	recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts	language to communicate written or oral, with required clarity, skill to basic Arithmetic and algebraic principles, basic understanding of social political and natural environment	Responsibility for own work and learning.

## **6. General Training Plan, Examination & Pass regulation**

### **General Training Plan**

The knowledge and skill components as stated in the section for 'learning outcomes' are to be imparted in accordance with the instructions in respect of the content and time structure.

### **Assessment**

The assessment for the semester-based qualification is carried out by conducting formative assessments, and end-of-semester examinations, as per the guidelines given in the Curriculum. The internal assessments for theory subjects and practical are conducted for evaluating the knowledge and skill acquired by trainees and the behavioral transformation of the trainees as per the learning outcomes. Theory examinations are conducted in Trade Theory, Workshop Calculation & Science, Engineering Drawing and Employability Skills. Trade practical examinations are conducted by the respective State Governments. The details of the examination and assessment standard are in a latter section. NCVT prepares the question papers for the Trade practical. Candidates are to demonstrate that they can:

Read& interpret technical parameters/documentation, plan and organize work processes, and identify necessary materials and tools,

Perform a task/job with due consideration to safety rules, accident prevention regulations and environmental protection stipulations,

Apply Professional Knowledge, Core Skills, and Employability Skills while performing the task/job.

Check the task/job as per the drawing for proper functioning, and identify and rectify errors in the job, if any.

Document the technical parameters related to the task/job.

### **Pass regulation**

For the purposes of determining the overall result, weightage of 25 percent is applied to each semester examination. The minimum pass percent for Practical is 60% & minimum pass percent for Theory subject is 40%.



## 7. Learning outcomes

The following are minimum broad learning outcomes after completion of the [Fruits and Vegetables Processing] course of [Duration of course]-1 year duration:

### A. GENERIC OUTCOMES

Recognize & comply safe working practices, environment regulation and housekeeping.

Work in a team, understand and practice soft skills, technical English to communicate with required clarity.

Understand and explain the concept in quality tools and labour welfare legislation and apply such in day to day work to improve productivity & quality.

Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.

Explain entrepreneurship and manage/organize related task in day to day work for personal & societal growth.

Understand and apply basic computer working, basic operating system and uses internet services to get accustomed & take benefit of IT developments in the industry.

### B. SPECIFIC OUTCOMES

#### SEMESTER – I

1. Identify and select fresh fruits and vegetables with the help of checklist.
2. Identify the spoilage in fruits and vegetables and state the reason for the spoilage.
3. Identify spices and food additives by visual inspection.
4. Prepare and pack perishables for storage and then store under refrigerated conditions with safety precautions.
5. Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content.
6. Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content.
7. Prepare and preserve Tomato products by using appropriate machines such as pulper, autoclave, and corking machine with safety precautions, determine acidity and TSS content.
8. Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture.
9. Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test.
10. Examine the tetra pack w.r.t to the materials of construction & dimension and its type.

#### SEMESTER - II

1. Prepare preserve (murabba), candy, crystallized and fruit bar by using appropriate machines/Tools such as solar drier, cabinet drier, weighing balance and refractometer with safety precautions and determine the TSS contents.
2. Prepare synthetic vinegar by using appropriate tools and check the quality and explain other methods of vinegar production and its types.
3. Explain and understand the process of wine preparation and canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.

4. Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content.
5. Check physical quality parameters in frozen market samples of frozen fruits and vegetables.

## 8. ASSESSABLE OUTCOMES WITH ASSESSMENT CRITERIA

### Note:

- The training shall be conducted as per the syllabus.
- The trainee shall demonstrate the competencies that are defined below in the assessable outcomes highlighted below.
- The trainee shall be assessed for his/her achievement levels in all the assessable outcomes on the basis of the formative assessment, Theory & Practical examinations, observation, and viva-voce.
- The trainee shall be assessed for his/her achievement levels in all the assessable outcomes of the Employability Skills on the basis of Theory Examinations, and for his/her ability to apply the concepts in Practical.
- The assessable outcomes and assessment criteria will serve as a set of guidelines for Trainers, Paper setters, Moderators, and Assessors.

Assessable outcomes along with assessment criteria to be achieved after each semester and completion of qualification:

### Generic assessable outcomes:

Assessable outcomes	assessment CRITERIA
1. Recognize & comply safe working practices, environment regulation and housekeeping.	1.1 Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to site policy.
	1.2 Recognize and report all unsafe situations according to site policy.
	1.3 Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	1.4 Identify, handle and store / dispose off dangerous goods and substances according to site policy and procedures following safety regulations and requirements.
	1.5 Identify and observe site policies and procedures in regard to illness or accident.
	1.6 Identify safety alarms accurately.
	1.7 Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	1.8 Identify and observe site evacuation procedures according to site policy.
	1.9 Identify Personal Productive Equipment (PPE) and use the same as per related working environment.
	1.10 Identify basic first aid and use them under different circumstances.
	1.11 Identify different fire extinguisher and use the same as per requirement.
	1.12 Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.
	1.13 Deploy environmental protection legislation & regulations
	1.14 Take opportunities to use energy and materials in an

	environmentally friendly manner
	1.15 Avoid waste and dispose waste as per procedure
	1.16 Recognize different components of 5S and apply the same in the working environment.
2. Work in a team, understand and practice soft skills, technical English to communicate with required clarity.	2.1 Obtain sources of information and recognize information.
	2.2 Use and draw up technical drawings and documents.
	2.3 Use documents and technical regulations and occupationally related provisions.
	2.4 Conduct appropriate and target oriented discussions with higher authority and within the team.
	2.5 Present facts and circumstances, possible solutions & use English special terminology.
	2.6 Resolve disputes within the team
	2.7 Conduct written communication.
3. Understand and explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.	3.1 Semester examination to test the concept in productivity, quality tools and labour welfare legislation.
	3.2 Their applications will also be assessed during execution of assessable outcome.
4. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	4.1 Semester examination to test knowledge on energy conservation, global warming and pollution.
	4.2 Their applications will also be assessed during execution of assessable outcome.
5. Explain entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	5.1 Semester examination to test knowledge on entrepreneurship.
	5.2 Its applications will also be assessed during execution of assessable outcome.
6. Understand and apply basic computer working, basic operating system, simulate part programme using simulation software and uses internet services to get accustomed & take benefit of IT developments in the industry.	6.1 Semester examination to test knowledge on basic computer working, basic operating system and uses internet services.
	6.2 Their applications will also be assessed during execution of assessable outcome.

## B. SPECIFIC OUTCOMES

### Semester-I

Assessable outcomes	Assessment criteria
Identify and select fresh fruits and vegetables with the help of checklist.	<ul style="list-style-type: none"> <li>Identify fruits and vegetables</li> <li>Prepare selection criteria check list for fruits and vegetables.</li> <li>Select fresh fruits and vegetables</li> </ul>
Identify the spoilage in fruits and vegetables	<ul style="list-style-type: none"> <li>Observe the spoiled fruits and vegetables and its</li> </ul>

and state the reason for the spoilage.	<p>products</p> <ul style="list-style-type: none"> <li>Identify and record the cause of spoilage.</li> <li>State general principle and methods of food preservations.</li> </ul>
Identify spices and food additives by visual inspection.	<ul style="list-style-type: none"> <li>Identify spices</li> <li>Identify food additives</li> </ul>
Prepare and pack perishables for storage and then store under refrigerated conditions with safety precautions.	<ul style="list-style-type: none"> <li>Prepare fruits/vegetables for Refrigeration</li> <li>Fill and seal the fruits/vegetables into packaging material.</li> <li>Store under refrigerated condition.</li> </ul>
Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content.	<ul style="list-style-type: none"> <li>Maintain the perfect hygiene standard</li> <li>Select perfect fruits</li> <li>Prepare fruits for juice</li> <li>wash fruits</li> <li>Prepare fruits juice</li> <li>Measure juice</li> <li>Determine TSS</li> <li>Determine acidity</li> <li>Perform calculation</li> <li>Fill the preserved fruit juices in sterilized bottles</li> <li>Cork and crown the bottles</li> <li>Sterilize the bottles</li> <li>Label the bottles</li> <li>Maintain safety</li> </ul>
Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content.	<ul style="list-style-type: none"> <li>Maintain perfect hygiene standard</li> <li>select perfect fruits</li> <li>prepare fruits for juice extraction</li> <li>prepare fruit juice</li> <li>measure fresh fruit juice</li> <li>determine TSS</li> <li>determine Acidity</li> <li>perform calculations for Squashes, RTS, Nectar, Cordial, Crush and Syrup preparation and mixing of ingredients</li> <li>Fill beverage into sterilized bottles</li> <li>cork and crown the bottles</li> <li>Label the bottle</li> <li>Maintain safety</li> </ul>
Prepare and preserve Tomato products by using appropriate machines such as pulper, autoclave, and corking machine with safety precautions, determine acidity and TSS content.	<ul style="list-style-type: none"> <li>Maintain perfect hygiene standard</li> <li>prepare tomatoes</li> <li>prepare tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato ketchup/tomato chutney/tomato soup</li> <li>Preserve and store tomato juice/ tomato puree/tomato paste/ tomato sauce/tomato</li> </ul>

	<p>ketchup/tomato chutney/tomato soup.</p> <ul style="list-style-type: none"> <li>● determine TSS</li> <li>● determine acidity</li> <li>● Maintain safety</li> </ul>
Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture.	<ul style="list-style-type: none"> <li>● Maintain perfect hygiene standard</li> <li>● Select fruits/vegetables for drying</li> <li>● prepare fruits/vegetables for drying</li> <li>● Dry the fruits/vegetables by sun drying/ cabinet drying /solar drying.</li> <li>● Determine the moisture content.</li> <li>● Pack and store</li> <li>● Maintain safety</li> </ul>
Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test.	<ul style="list-style-type: none"> <li>● Maintain perfect hygiene standard</li> <li>● Select fruits</li> <li>● prepare fruit</li> <li>● prepare fruit juice for fruit jelly</li> <li>● Pectin test of fruit juice</li> <li>● prepare jam/jelly/marmalades</li> <li>● Determine the end point for jam/jelly/marmalades.</li> <li>● Identify the consistency for jam/jelly/marmalades.</li> <li>● preserve and store jam/jelly/marmalades.</li> <li>● Maintain safety</li> </ul>
Examine the tetra pack w.r.t to the materials of construction & dimension and its type.	<ul style="list-style-type: none"> <li>● identify the material used in tetra pack layers</li> <li>● check the weight of various types of tetra pack</li> <li>● measure the thickness of tetra pack</li> <li>● check the dimension of tetra pack</li> <li>● identify the types of tetra pack.</li> <li>● Maintain safety</li> </ul>

### Semester-II

Assessable outcomes	Assessment criteria
Prepare preserve (murabba), candy, crystallized and fruit bar by using appropriate machines/Tools such as solar drier, cabinet drier, weighing balance and refractometer with safety precautions and determine the TSS contents.	<ul style="list-style-type: none"> <li>● Maintain perfect hygiene standard</li> <li>● Select fruits/vegetables</li> <li>● prepare fruit/vegetables</li> <li>● Prepare syrup.</li> <li>● Test and adjust TSS content of syrup.</li> <li>● Dry fruits/vegetables for candy,</li> <li>● Crystallized.</li> <li>● Pack and store</li> <li>● Maintain safety</li> </ul>
Prepare synthetic vinegar by using appropriate tools and check the quality and explain other methods of vinegar production and its types.	<ul style="list-style-type: none"> <li>● Maintain perfect hygiene standard</li> <li>● prepare synthetic vinegar</li> <li>● test and adjust pH and titrable Acidity of vinegar</li> </ul>

	<ul style="list-style-type: none"> <li>• bottle the synthetic vinegar</li> <li>• Maintain safety</li> </ul>
Explain and understand the process of wine preparation and canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.	<ul style="list-style-type: none"> <li>• Express the understanding of the defects such as pin holes, color defects, swell defects, coating defect, can-end-defect, handling defects and seam defects in cans.</li> <li>• Explain process of canning, wine preparation, causes of defects in canned foods.</li> <li>• State the food safety standards.</li> </ul>
Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content.	<ul style="list-style-type: none"> <li>• Maintain perfect hygiene standard</li> <li>• Select fruits/vegetables</li> <li>• Wash fruits/vegetables</li> <li>• prepare fruit/vegetables</li> <li>• prepare spices for pickle</li> <li>• prepare pickles with oil/salt/vinegar</li> <li>• test titrable Acidity in pickle</li> <li>• pack and store</li> <li>• Maintain safety</li> </ul>
Check physical quality parameters in frozen market samples of frozen fruits and vegetables.	<ul style="list-style-type: none"> <li>• State blanching and freezing of fruits/vegetables.</li> <li>• Check the physical parameter of market sample of frozen fruits/vegetables and enter data in record sheet.</li> <li>• Prepare solution for blanching test.</li> <li>• Check peroxidase activity in frozen vegetable market sample.</li> </ul>

## 9. SYLLABUS CONTENT WITH TIME STRUCTURE

### SYLLABUS FOR THE TRADE OF Fruits and Vegetables Processing

#### 9.1 Syllabus Content for Professional Skill & Knowledge

First Semester

Duration: Six Months

Detailed Syllabus:

Syllabus : Fruits and Vegetable Processing		
First Semester		
Week	Practical	Theory
1	Admission	
2-3	Spoilage of fruits and vegetables  Industrial visit in fruits and vegetables processing industry.	<ul style="list-style-type: none"> <li>• Introduction - Definition and scope of preservation. History and development of food preservation industry with special reference to India.</li> <li>• Different types of spoilages in fresh fruits and vegetables. General principles and methods of food preservation.</li> </ul>
4-5.	Identifications of Fruits and vegetables.	<ul style="list-style-type: none"> <li>• Definition of Fruits and vegetables, Difference in between fruits and vegetable,</li> <li>• Fruits and vegetables as available in different parts of the country, their preservation, season of maturity. Constituents of food, importance of fruits &amp; Vegetables in the diet.</li> </ul>
6-7.	Identification of spices and food additives used in fruits and vegetable processing.	<ul style="list-style-type: none"> <li>• Selection of raw materials including fruits and vegetables for Preparation of various products. Spices and other constituents, their properties, condiments and other additives and ingredients, and their flavouring and preservative properties.</li> </ul>
8-9	Study of common food processing equipments such as pulper, sealers, juice extracting machines, autoclaves, corking machines etc.	<ul style="list-style-type: none"> <li>• Study of various equipments: usage, care/maintenance and precautions.</li> </ul>
10-11.	Refrigeration and other methods for storing perishables.	<ul style="list-style-type: none"> <li>• Storage of fresh fruits and vegetable. Methods and containers used in fresh fruits and vegetable preservation</li> </ul>
12-13	Preparation of Fruit Juice. Preservation of fruits juices with addition of preservative.	<ul style="list-style-type: none"> <li>• Technology of extraction of juices from different types of fruits.</li> <li>• Definition of Preservatives-types of preservatives commonly used in food industry limits of usage of preservatives</li> </ul>

14-15	Preparation of common fruit beverages. Determination of Acids in fruits and vegetable products	<ul style="list-style-type: none"> <li>Fruit beverages: Squashes, syrups, nectars, RTS, crushes, cordial etc.</li> </ul>
16-17	Preparation of tomato juices, puree, sauces, ketchups, soup, paste, chutney etc	<ul style="list-style-type: none"> <li>Tomato products: Technology of manufacture of tomato products.</li> </ul>
18-19	Various methods of drying: sun drying, cabinet drying and solar drying.	<ul style="list-style-type: none"> <li>Sun drying &amp; dehydration and its merits and demerits.</li> <li>Principles involved preservation by drying method.</li> <li>Treatment prior to drying.</li> </ul>
20-21	Preparation of Jam, jelly and marmalades.	<ul style="list-style-type: none"> <li>Jams, Jellies and marmalades: selection, preparation, production and preservation. Difference in between jam and jelly.</li> </ul>
22-23	Practical demonstration of sealing pouching machine. Examination of the tetra pack	<ul style="list-style-type: none"> <li>Study of various types of containers like Glass, Tin- merits and demerits of each-scope for new types of containers/ packaging materials, such as plastic pouches, tetra pack, PET bottle and cartons. Understanding the label its importance, and labelling requirements</li> </ul>
24-25	Industrial Training: Fruits and vegetables processing industry.	
26	Revision/Examination	

Second Semester

Duration: Six Months

Detailed Syllabus:

Syllabus : Fruits and Vegetable Processing		
Second Semester		
Week No.	Practical	Theory
1	Admission	
2-5	Preparation of wine	<ul style="list-style-type: none"> <li>Fermented beverages-wines</li> </ul>
6-7	Preparation of synthetic vinegars.	<ul style="list-style-type: none"> <li>Different type of vinegar, methods of Vinegar Production.</li> </ul>
8-10	Preparation of preserves, candies, crystallized and glazed and fruit bars.	<ul style="list-style-type: none"> <li>Definition of preserves, candied fruits, glazed fruits, crystallized fruits- methods of preparation of these.</li> </ul>
11-14	Demonstration of Canning process in fruits and vegetables canning industry. Visit to canning industry	<ul style="list-style-type: none"> <li>Canning and bottling- Canning of fruits and vegetables- principles, procedure and steps involved- care in handling of common available fruits and vegetables in the region.</li> </ul>



15-16	Identification of defective cans, Precautions while consuming the canned foods.	<ul style="list-style-type: none"> <li>• Scheme and layout of canning industry.</li> <li>• Study about the various defects in canned products, lacquers.</li> </ul>
17-18	Freezing demonstration on market sample of frozen fruits and vegetables	<ul style="list-style-type: none"> <li>• Study of Frozen Fruits and Vegetables, Blanching and Freezing.</li> </ul>
19-21	Preparations of different types of pickles from fruits and vegetables.	<ul style="list-style-type: none"> <li>• Pickles, chutneys and sauces, Different types of pickles, Methods of preparation curing techniques, defects and remedies.</li> </ul>
22-23	Examination of processed products. Cleaning and maintenance of the equipments. Detection of benzoic acid, sulphur dioxide and KMS in fruits and vegetable products.	<ul style="list-style-type: none"> <li>• Study of Food safety Standards:</li> <li>• HACCP, ISO 22000, GMP, and FSSAI. Importance of personal Hygiene, Cleaning &amp; Sanitary standards in Fruits and Vegetable preservation. Good Handling Processes (GHP), Traceability aspects of processed product.</li> </ul>
24-25	Industrial training in canning industry	
26	Revision/Examination	

## 9.2 SYLLABUS CONTENT OF Employability Skills

### General Information

Name of the subject	: EMPLOYABILITY SKILLS
Applicability	: CTS- Mandatory for all trades ATS- Mandatory for fresher only
Hours of Instruction	110 Hrs.
Examination	: The examination shall be held at the end of semesters.
Instructor Qualification	<p>MBA or BBA with two years' experience or Graduate in Sociology/ Social Welfare/ Economics with Two years' experience or Graduate/ Diploma with Two years' experience and trained in Employability Skills from ITIs</p> <p style="text-align: center;">and</p> <p>Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above</p> <p style="text-align: center;">or</p> <p>Existing Social Studies Instructors duly trained in Employability Skills from DGET institutes</p>
Instructor	One full-time instructor is required for 1000 seats and above For seats less than 1000, the instructor may be out sourced/ hired on contract basis.

## Semester-wise Distribution of Topics (Employability Skill)

Course Duration	Topics		Examination
	Semester 1	Semester 2	
01 Year (Two semesters)	1. English Literacy 2. I.T. Literacy 3. Communication Skills	Entrepreneurship Skills Productivity Occupational Safety , Health, and Environment Education Labour Welfare Legislation Quality Tools	Final examination at the end of second semester

## Syllabus Content for Employability Skills

### Semester 1

#### Learning Objectives (1st semester)

1. Read, write and communicate in English language for day to day work.
2. Communicate in written and oral and with required clarity ensuring that the information communicated is clear, concise and accurate.
3. Understand and apply basic computer working, basic operating system and uses internet services to get accustomed & take benefit of IT developments in the industry.

#### Detailed Syllabus

<b>1. English Literacy</b> <b>Hours of Instruction: 20 Hrs.</b> <span style="float: right;"><b>Marks Allotted: 09</b></span>	
Pronunciation	Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)
Functional Grammar	Transformation of sentences, Voice change, Change of tense, Spellings.
Reading	Reading and understanding simple sentences about self, work and environment
Writing	Construction of simple sentences Writing simple English
Speaking / Spoken English	Speaking with preparation on self, on family, on friends/ classmates, on know, picture reading gain confidence through role-playing and discussions on current happening job description, asking about someone's job habitual actions. Cardinal (fundamental) numbers ordinal numbers. Taking messages, passing messages on and filling in message forms Greeting and introductions office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.
<b>2. I.T. Literacy</b> <b>Hours of Instruction: 20 Hrs.</b> <span style="float: right;"><b>Marks Allotted: 09</b></span>	
Basics of Computer	Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.
Computer Operating System	Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc, Use of Common applications.
	Basic operating of Word Processing, Creating, opening and closing

Word processing and Worksheet	Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets
Computer Networking and INTERNET	Basic of computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks), Meaning of World Wide Web (WWW), Web Browser, Web Site, Web page and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT – ACT, types of cyber crimes.

### 3. Communication Skills

**Hour of Instruction: 15 Hrs.Marks Allotted: 07**

Topic	Contents
Introduction to Communication Skills	Communication and its importance
	Principles of Effective communication
	Types of communication – verbal, nonverbal, written, email, talking on phone.
	Nonverbal communication –characteristics, components-Para-language
	Body – language
	Barriers to communication and dealing with barriers.
	Handling nervousness/ discomfort.
Listening Skills	Listening-hearing and listening, effective listening, barriers to effective listening guidelines for effective listening.
	Triple- A Listening – Attitude, Attention & Adjustment.
	Active Listening Skills.
Motivational Training	Characteristics Essential to Achieving Success
	The Power of Positive Attitude
	Self-awareness
	Importance of Commitment
	Ethics and Values
	Ways to Motivate Oneself Personal Goal setting and Employability Planning.
Facing Interviews	Manners, Etiquettes, Dress code for an interview
	Do's & Don'ts for an interview
Behavioral Skills	Problem Solving
	Confidence Building
	Attitude

## Semester 2

### Learning Objectives (2nd Semester)

- Knowledge of business activities, ability to interact with consumers for development of businesses.
- Understand and apply productivity, its benefits and factors affecting the productivity.
- Follow and maintain procedures to achieve a safe working environment in line with occupational health, safety, environment regulations and Labour welfare legislation and requirements.
- Understand and apply quality concepts as per ISO and BIS system and its importance.
- Recognize different components of 5S and apply the same in the working environment.

### Detailed Syllabus

<b>4. Entrepreneurship skill</b>	
<b>Hour of Instruction: 15 Hrs.Marks Allotted: 06</b>	
Topic	Content
Business & Consumer:	Types of business in different trades and the importance of skill, Understanding the consumer, market through consumer behavior, market survey, Methods of Marketing, publicity and advertisement
Self Employment:	Need and scope for self-employment, Qualities of a good Entrepreneur (values attitude, motive, etc.), SWOT and Risk Analysis
Govt Institutions :	Role of various Schemes and Institutes for self-employment i.e. DIC, SIDBI, MSME, NSIC, Financial institutions and banks
Initiation Formalities :	Project Formation, Feasibility, Legal formalities i.e., Shop Act, Estimation & Costing, Investment Procedure - Loan Procurement - Agencies - banking Process
<b>5. Productivity</b>	
<b>Hour of Instruction: 10 Hrs.Marks Allotted: 05</b>	
Productivity	Definition, Necessity, Meaning of GDP.
Benefits	Personal / Workman – Incentive, Production linked Bonus, Improvement in living standard. Industry Nation.
Affecting Factors	Skills, Working Aids, Automation, Environment, Motivation How improves or slows down.
Comparison with developed countries	Comparative productivity in developed countries (viz. Germany, Japan and Australia) in selected industries e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.
Personal Finance Management	Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.
<b>6. Occupational Safety, Health &amp; Environment</b>	
<b>Hour of Instruction: 15 Hrs. Marks Allotted: 06</b>	
Safety & Health :	Introduction to Occupational Safety and Health and its importance at workplace
Occupational Hazards :	Occupational health, Occupational hygiene, Occupational Diseases/ Disorders & its prevention

Accident & safety :	Accident prevention techniques- control of accidents and safety measures
First Aid :	Care of injured & Sick at the workplaces, First-aid & Transportation of sick person
Basic Provisions :	Idea of basic provisions of safety, health, welfare under legislation of India
<b>7.Labour Welfare Legislation</b>	
<b>Hour of Instruction: 05 Hrs. Marks Allotted: 03</b>	
Labour Welfare Legislation	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen"s Compensation Act
<b>8.Quality Tools</b>	
<b>Hour of Instruction: 10 Hrs.Marks Allotted: 05</b>	
Quality Consciousness :	Meaning of quality, Quality Characteristic
Quality Circles :	Definition, Advantage of small group activity, objectives of Quality Circle, Roles and Functions of Quality Circles in organisation, Operation of Quality Circle, Approaches to Starting Quality Circles, Steps for Continuation Quality Circles
Quality Management System:	Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.
House Keeping :	Purpose of Housekeeping, Practice of good Housekeeping.5S Principles of Housekeeping: SEIRI – Segregation, SEITON – Arrangement, SEISO – Cleaning, SEIKETSU – maintenance of Standards, SHITSUKE - Discipline

## 10. Infrastructure

1. Instructors' Qualification	(i) National Trade Certificate in Preservation of Fruits & Vegetables trade with three years experience in relevant field/industry. OR (ii) Diploma in Food Technology or Post Harvest Management with two years experience in relevant field/industry. OR (iii) Degree in Food Technology or Post Harvest Management with One years experience in relevant field/industry.
2.Desirable qualification	Preference will be given to craft instructor's certificate (CIC).
3. Space Norms	Lab Space – 96 Sq. m Class Room Space -30 Sq. m
4. Power Norms	5 KW
5.Tools, Equipment & General Machinery	(As per Annexure II)

Note:

Out of two Instructors required for the unit of 2(1+1), one must have Degree/Diploma and other must have NTC/NAC qualifications.

## 11. ASSESSMENT STANDARD

### 11.1 Assessment guidelines:

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. Due consideration shall be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/wastage as per procedure, behavioral attitude, sensitive to environment and regularity in training. The sensitivity towards OSHE and self-learning attitude shall be considered while assessing competency.

Assessment shall be evidence based comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet for assessment
- Viva-voce
- Progress Chart
- Attendance and punctuality
- Assignment
- Project work

Evidence of internal assessment should be preserved for an appropriate period of time for audit and verification by examination body.

The following marking pattern to be adopted while assessing:

- a) Weightage in the range of 60-75% to be allotted during assessment under following performance level:
  - For performance in this grade, the candidate with occasional guidance and showing due regard for safety procedures and practices, has produced work that demonstrates attainment of an acceptable standard of craftsmanship. In this work there is evidence of:
    - Demonstration of good skill in the use of hand tools, machine tools, and workshop equipment
    - Below 70% tolerance dimension achieved while undertaking different work with those demanded by the component/job.
    - A fairly good level of neatness and consistency in the finish
    - Occasional support in completing the project/job.
- b) Weightage in the range of above 75%- 90% to be allotted during assessment under following performance level:
  - For this grade, the candidate, with little guidance and showing due regard for safety procedures and practices, has produced work that demonstrates attainment of a reasonable standard of craftsmanship. In this work there is evidence of:
    - Good skill levels in the use of hand tools, machine tools, and workshop equipment
    - 70-80% tolerance dimension achieved while undertaking different work with those demanded by the component/job.
    - A good level of neatness and consistency in the finish
    - Little support in completing the project/job
- c) Weightage in the range of above 90% to be allotted during assessment under following performance level:

- For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship. In this work there is evidence of:
- High skill levels in the use of hand tools, machine tools, and workshop equipment
- Above 80% tolerance dimension achieved while undertaking different work with those demanded by the component/job.
- A high level of neatness and consistency in the finish.
- Minimal or no support in completing the project.



## 11.2. INTERNAL ASSESSMENT (FORMATIVE ASSESSMENT)

Comp. No.	ASSESSABLE OUTCOME	INTERNAL ASSESSMENT Marks
<b>GENERIC</b>		
1.	Recognize & comply safe working practices, environment regulation and housekeeping.	
2.	Work in a team, understand and practice soft skills, technical English to communicate with required clarity.	
3.	Explain energy conservation, global warming, and pollution and contribute in the day to day work by optimally using available resources.	
4.	Explain personnel finance, entrepreneurship, and manage/organize related task in the day to day work for personal & societal growth.	
5.	Understand and apply basic computer working, basic operating system, simulate part program using simulation software and uses internet services to get accustomed & take benefit of IT developments in the industry.	
<b>SPECIFIC</b>		
1.	Identify and select fresh fruits and vegetables with the help of checklist.	
2.	Identify the spoilage in fruits and vegetables and state the reason for the spoilage.	
3.	Identify spices and food additives by visual inspection.	
4.	Prepare and pack perishables for storage and then store under refrigerated conditions with safety precautions.	
5.	Prepare fruit juices with juice extracting machines with safety precautions and preserve fruit juices with addition of preservatives and determine the acidity and TSS content.	
6.	Prepare and package fruit beverages such as Squashes, RTS, Nectar, Cordial, Crush and Syrup by using appropriate machines such as pulper, juice extractor, autoclave, and corking machine with safety precautions, determine the acidity and TSS content.	
7.	Prepare and preserve Tomato products by using appropriate machines such as pulper, autoclave, and corking machine with safety precautions, determine acidity and TSS content.	
8.	Prepare, dry and storage fruits and vegetables with appropriate methods such as drying, cabinet drying and solar drying with safety precautions and determine the moisture.	
9.	Prepare, preserve and store jam, jelly and marmalades by using appropriate machines such as pulper, autoclave & sealer with safety precautions, determine acidity and TSS content, pectin test.	
10.	Examine the tetra pack w.r.t to the materials of construction & dimension and its type.	
	Sub-Total of Internal assessment for Semester- I	20
11.	Prepare preserve (murabba), candy, crystallized and fruit bar by using appropriate machines/Tools such as solar drier, cabinet drier, weighing balance and refractometer with safety precautions and determine the TSS contents.	
12.	Prepare synthetic vinegar by using appropriate tools and check the quality and explain other methods of vinegar production and its types.	

13.	Explain and understand the process of wine preparation and canning process of fruits and vegetables and Identify defects by physical observation & its causes in canned foods and explain food safety standards.	
14.	Prepare fruits/vegetables pickles with oil/salt/vinegar/spices, determine acidity content.	
15.	Check physical quality parameters in frozen market samples of frozen fruits and vegetables.	
	Sub-Total of Internal assessment for Semester- II	20
	Total of Internal Assessment	40

Note: The generic outcome to be assessed along with the specific outcome.

### 11.3 FINAL ASSESSMENT- All India Trade TEST (SUMMATIVE ASSESSMENT)

There will be a single objective type Examination paper for the subjects Trade Theory and Employability Skills.

The two objective type Examination papers as mentioned above will be conducted by National Council for Vocational Training (NCVT), whereas examination for the subject Trade Practical will be conducted by the State Government. NCVT shall supply the Question Paper for the subject Trade Practical.

<b>Marking Pattern</b>		
<b>Sl. No.</b>	<b>Subject for the trade test</b>	<b>Maximum marks for the each subject</b>
1.	Practical	100
2.	Trade Theory	80
3.	Employability Skills	Objective type Written test of 80 marks (Trade Theory 30 marks & Employability Skills 50 marks)
4.	Internal assessment	20
<b>TOTAL:</b>		<b>200</b>

TRADE: FRUIT AND VEGETABLE PROCESSING  
LIST OF TOOLS & EQUIPMENTS

Sr.no.	Name of the item	Qty
1	Vacuum Gauge	01 no
2	Pressure Gauge	01 no
3	Seam Checking gauge or screw gauge	01 no
4	Refractometers (Pocket) 0-32,28-62,58-920 Brix Sugar Scale	02 no
5	Brinometer (Salinometer)	02 no
6	Hydrometers of different ranges 0-30, 30-60, 60-90, Brixhydrometer	01 no
7	PH Meter (Digital)	01 no
8	Fruit Trays	6+2 no
9	Stainless steel mugs	8 no
10	Stainless steel bowls	8 no
11	Thermometer (Digital)	06 no
12	Pressure Cooker	02 no
13	Sandashi (Tongs)	01 no
14	Perforated spoons S.S.12"Length 4 " dia	06 no
15	Coring knives	06 no
16	Pitting knives	06 no
17	Cutting knives	06 no
18	Juice Extractor (Screw type) 1 HP motor	01 no
19	Lime Juice Extractor & orange juice halving & Burring	01 no
20	Crown corking machine hand operated one.	01 no
21	Pilfer proof capping machine	01 no
22	Weighing balance (digital)	03 no
23	Stainless steel knives	6 pcs+16pcs
24	Spoons of assorted size	16pcs
25	Stainless steel degdhes	6pcs
26	Can and cork Remover	As per Requirement
27	Jell meters	6 no
28.	Cabinet dryer (electrical):5 to 10 tray capacity drier trays of SS/Aluminium, flat or perforated,3/4 W, with three phase trays of SS/electrical connection, temp control	01 no.
29	Stainless steel trays of assorted size	16 no
30	Stainless steel buckets or stainless buckets	06 no
31	Gas burner with cylinder.	06 no
32	Electric Mixer	2 no
33	Spoons, Wooden Ladle	16 no
34	Masons Jars for 1 gross bottle	01 no

35	Water Tank with tap 4'x4'z3'	01 no
36	Refrigerator double door 200 litre	01 no
37	Auto claves 20 lit cap	02 no
38	S.S.Vessels with lids 20 lit cap.	10 no
39	S.S. Vessels with lids 6 lit cap.	06 no
40	S.S.Vessels with lids 10 lit cap.	06 no
41	Hand Washing basin with tripod stands	03 no
42	Micrometer Seam Checking guage' 0.001 LC	01 no
43	Oven (drying) (0-250 C) digital Display, with auto temperature controller, suitable insulated, fans , Heating elements.	01 no
44	Pulper Electric 1/4 Tonne capacity per 8 hrs with 1 HP Motor and two S.S: Seines (1/16 mesh. 1/32 mesh)	01 no
45	Bottle Stand for 1 gross bottle	01 no
46	Distilled water Assembly/water purifier with pre filter, activates charcoal / resin unit and UV exposure units. Complete with water supply tank and piping.	01 no
47	Fruit mill (junior model,0.5 ton/hr with 1 hp motor)	01 no
48	Stainless Steel Pricker	06 no
49	Solar dryer (cabinet type) complete with solar box. Size app 6'*3'	01 no
50	Steel scale 12" Standard steel	04 no
51	Lemon Squeezer	06 no
52	Volume Measuring Stick	04 no
53	Vacuum pan(Capacity 500 litre evaporation/Driven by motor reduction gear box/inside vessel made up of thick stainless steel plate/outer jacket is of S.S./with mail hole and sight glasses on 2 sides/Stirrer is made of Teflon blades. Fitted with an outer at the bottom and a condensate receiving vessels.	
54	Deep Fridge: Temperature up to -40 C, auto temp controller	01 no
55	Mechanical peeler/ Batch type for fruit and vegetable peeling.	01 no
56	Steam jacket kettle 50 litre double jacketed with indenting lever, steam inlet and outlet with steel trolley and accessories to be fitted with boiler.	
57	Baby Boiler/Diesel fuel/capacity of boiler as per capacity of steam jacket kettle.	01 no
58	Exhausting box: Straight line exhaust box has an exhaust tunnel 3048 mm long and overall length is 3962 mm. Made of strong structural iron frame.	
59	Lidding machine for lidding of can/bottles	01 no

60	Sulphuring chamber 5 kg Capacity made up of wooden, place for burning sulphur and exhaust.	01 no
61	Vaccum Bottle filling machine capacity 5kg/hrs, made up of stainless steel.	01 no
62	Bottle washer: with ½ HP motor, single phase, two heads for brushes, water spray unit of 10-12 bottles.	01 no
63	Sealer for sealing of jars.	01 no
64	Shredder for slicing of fruit and vegetable capacity 5kg/hrs.	01 no
65	Sugar coating pan of stainless steel, revolving type with speed controller.	01 no
66	Improved stove made up of MS with proper safety measures , with gas cylinders	01 no
67	Pickle mixer, Rotatory type and contact part of stainless steel.	01 no
68	Heat Sealing Machine Hand/Pedal Operated	01 no
69	Stainless Steel Strainer/Sieve	06 no
70	Vernier Calliper: 15cm 0.01 mm LC	04 no
71	Desicator	03 no
72	Microscope	02 no
73	Microwave oven	01 no
74	Fermenter	02 no
75	Moisture box: Aluminium, 100gm capacity.	02 no
76	Liquid filling machine: For filling liquid in bottles, 200ml, 500ml, 1000ml. Manually operated	01 no
77	Continuous water supply	
78	Computer/laptop for Faculty with Internet Connection with, colour Printer and photo copy Scanner	
79	LED multimedia Projector	01 no
80	UPS 650 VA	02 no
81	A.C for Theory room	As per requirement

CONSUMABLES TOOLS & ITEMS		
SI. No.	Name of the item/tools	Qty
1	Beaker 50, 100, 250 ml, 500 ml	12 no
2	Conical flask 50, 100, 250 ml, 500 ml	12 no
3	Measuring cylinder 100ml, 250ml, 200 ml, 500ml,	12 no
4	Measuring flask of assorted sizes	12 no
5	Burette of assorted sizes with Burette stands	12 no
6	Pipettes of assorted sizes	12 no
7	Thermometer (10°C to 110°C) Digital	16Pcs
8	Rubber Gloves	12 pair for each trainee
9	Aprons	01 for each trainee
10	Jelly Filter bags	04Pcs
11	Glass Funnels of assorted sizes	12 no
12	Funnels 500ml. & 100ml. separating	12 no
13	Test Tube With Test tube stand	25 no
14	Glass rod	10 no
15	Gas lighter	06 no
16	Ph meter Rod	02 no
17	Petri dish with cover	16 no
18	Glass slides	16pcs
19	Refilling of gas cylinder for lab	As per required
20	Air tight glass container of different size	As per required

CONSUMABLES ITEMS & CHEMICALS		
SI. No.	Name of the item	Qty.
1	Photo Copy Paper A4	As per Required
2	Scale	As per Required
3	Correcting Fluid pen	As per Required
4	Dusting Cloth	As per Required
5	Pen	As per Required
6	Temporary marker	As per Required
7	Stapler (Small & Big)	As per Required
8	Puncher	As per Required
9	Fevi stick	As per Required
10	Stapler Pin	As per Required
11	Ruled Register	As per Required
12	File Folder	As per Required
13	Vim Liquid	As per Required
14	Dettol Hand wash	As per Required
15	Scotch Bright	As per Required
16	Colin	As per Required

17	Aluminium Foils	As per Required
18	Duster	As per Required
19	Juna	As per Required
20	Seasonal Fruits and Vegetables	As per Required
21	Salt	As per Required
22	Sugar	As per Required
23	red chilly	As per Required
24	black pepper	As per Required
25	Dalchini	As per Required
26	large elaychi	As per Required
27	Jeera	As per Required
28	Saunf	As per Required
29	Laung	As per Required
30	Vinegar	As per Required
31	Butter	As per Required
32	Hing	As per Required
33	Methi	As per Required
34	mustard oil	As per Required
35	Glucose	As per Required
36	food grade color	As per Required
37	food grade flavour	As per Required
38	Sodium Benzoate	As per Required
39	Potassium met bisulphide	As per Required
40	citric acid	As per Required
41	Glacial Acetic acid	As per Required
42	Other Chemicals/Raw material Require for Practical's	As per Required
43	Tissue paper roll	As per Required

#### FURNITURE

SI. No.	Class Room	Qty. for 20 trainees
1	Instructor Chair & Table with Glass	01 no
2	Magnetic White Board	01 no
3	Display Board	01 no
4	Table for computer/printer/scanner with chair	01 Set
5	Dual Desk	08 no
SI. No.	Workshop/Lab	Qty. for 20 trainees
1	Working table with 6-3x21/2 Aluminium tops	05 no



2.	Stools	20 no
3	Laboratory Table with rack (8'2'-6"-6") and sinks	04 no
4	Racks for keeping books (glass panel)etc	01 sets
5	Trainee Locker with space for 20	01 no
6	Storage Rack for Chemicals	01 no
7	Cup Board (large)	04 no
8	First Aid Box	01 no
9	Fire Extinguisher	As per required
10	Goodrej Almirha	02 no
11	Wooden Show Case For keeping & Display sample	02 no
12	White Board	01 no

Note: Raw material, Testing chemicals and consumables are not included in the list.

## ANNEXURE-II

### Guidelines for INSTRUCTORS AND paper setters

All questions of theory paper for the trade will be in objective type format.

Due care to be taken for proper & inclusive delivery among the batch. Some of the following method of delivery may be adopted:

- Lecture
- Lesson
- Demonstration
- Practice
- Group discussion
- Discussion with peer group
- Project work
- Industrial visit

Maximum utilization of latest form of training viz., audio visual aids, integration of IT, etc. May be adopted. The total hours to be devoted against each topic may be decided with due diligence to safety & with prioritizing transfer of required skills.

Questions may be set based on following instructions:-

Sl. No.	Question on different aspect	Weightage in %age	Key Words may be like
1	Information received	25	What, Who, When
2	Knowledge	50	Define, Identify, Recall, State, Write, List & Name
3	Understanding	15	Describe, Distinguish, Explain, Interpret & Summarize
4	Application	10	Apply, Compare, Demonstrate, Examine, Solve & Use

Due weightage to be given to all the topics under the syllabus while setting the question paper.

### 13. LIST OF TRADE COMMITTEE MEMBERS

Sl. No.	Name & Designation Sh/Mr./Ms.	Organization	Mentor Council Designation
Members of Sector Mentor council			
1.	Dr D.C Sexana	Professor & HOD, Food Engineering and Tech. Dept, S.L.I.E.T, Longowal, Punjab	Chairman
2.	Dr S.L Shrivastava	Professor, IndiaN Institute of Technology, Kharagpur	Member
3.	Dr. Vikas Nanda	Associate Professor, Food Engineering and Tech. Dept, S.L.I.E.T, Longowal, Punjab	Member
4.	Dr Ashok Kumar	Professor Department of Process and Food Engineering, Punjab Agriculture University, Ludhiana, Punjab	Member
5.	Dr. D.S Sogi	Professor Department of Food Science and Technology, Guru Nanak Dev University, Amritsar, Punjab	Member
6.	Dr. Neeraj Kumar	Assistant Professor, National institute of food technology Entrepreneurship & Management, Kundli, Sonipat, Haryana	Member
7.	Rakesh Kumar	Principal, Govt. I.T.I, Hajipur, Bihar	Member
8.	M.A. Tejani	Gits Foods Products Pvt.Ltd, Pune	Member
9.	Er Parduman singh	Principal, Govt. I.T.I, Nabha, Punjab	Member
10.	Dr P.S Negi	Scientist, Central Food Technological, Research Institute, Mysore	Member
11.	Rizwana Ansari (T.O)	Govt. I.T.I, Chindwara, Madhya Pradesh	Member
12.	Priti Dwivedi (T.O)	Govt. I.T.I, Chindwara, Madhya Pradesh	Member
13.	Khurseed Jamal Siddique (TO)	Govt. I.T.I, Chindwara, Madhya Pradesh	Member
14.	Sandhya Singh (TO)	Govt. I.T.I, Chindwara, Madhya Pradesh	Member
15.	Ranjeeta Sharma	Principal, Maharashi Dayanand Institute of Tech. Jabalpur, M.P	Member
Mentor			
	J.P Meena (Director)	DGET HQ, New Delhi.	Mentor
Members of Core Group			
1.	K.L.Kulli (JDT)	CSTARI, Kolkata	Co-ordinator
2.	G.Mohan (ADT)	NIMI, Chennai.	Member
3.	Raminder Kumar (V.I)	R.V.T.I, Panipat	Team Leader
4.	Sriya Suman Patro	Lecturer, Government Polytechnic, Behrampur, Ganjam, Odisha	Member
Other industry representatives			
1.	Gagandeep Gupta	Quality Assurance Manager, International	Member

		Fresh Farm Product India, Ltd,Channo, Sangrur,Punjab	
2.	Paramdeep Singh Ghuman	Moonak Distiller and Bottler pvt ltd, Moonak, Sangrur, Punjab	Member
3.	Vijay Singh	G.M, International Mega Food Park, Fazilka,Punjab	Member
4.	Ranveer Singh	Sr. Manufacturer Executive, I.T.C, Greater Noida, U.P	Member
5.	Rohit Verma	G.M, Jupiter multi-fruit processor Plot no 1, phase III, Industrial area Talliwal, District Una, H.P	Member