

# LEARNING OUTCOMES BASED CURRICULUM

## JOB ROLE: Food Analyst

(Ref. Id: FIC/Q7607)

Sector: Food Processing

NSQF Level: 4

## Classes 11 and 12

विद्यया ऽ मृतमश्नुते



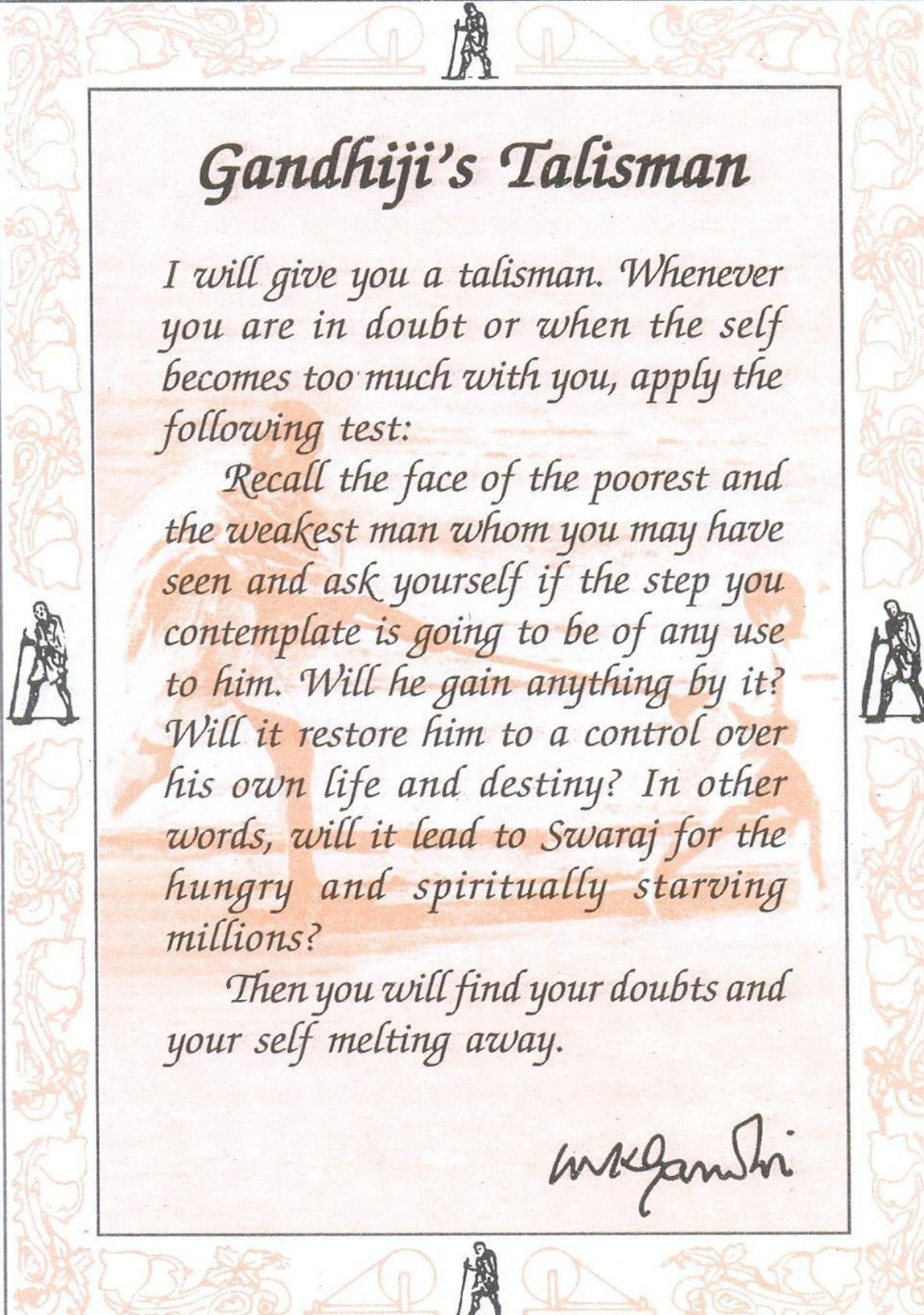
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NCERT

**PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION**

(a constituent unit of NCERT, under MoE, Government of India)

**Shyamla Hills, Bhopal- 462 002, M.P., India**

<http://www.psscive.ac.in>



## Gandhiji's Talisman

*I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test:*

*Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj for the hungry and spiritually starving millions?*

*Then you will find your doubts and your self melting away.*

*M.K. Gandhi*

# LEARNING-OUTCOMES BASED CURRICULUM

**JOB ROLE: Food Analyst**

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**LEARNING OUTCOME BASED VOCATIONAL  
CURRICULUM,  
Food Processing,  
Food Analyst,  
March, 2025**

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<http://www.psscive.ac.in>

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**Published by:**

Joint Director  
PSS Central Institute of Vocational Education,  
NCERT, Shyamla Hills, Bhopal



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# FOREWORD

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The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent unit of National Council of Educational Research and Training (NCERT) is spearheading the efforts of developing learning outcome based vocational curriculum and courseware aimed at integrating both vocational and general qualifications to open pathways of career progression for students. It is a part of Vocationalisation of Education under Samagra Shiksha. The PSS Central Institute of Vocational Education (PSSCIVE) is developing curricula under the project approved by the Project Approval Board (PAB) of Samagra Shiksha of Ministry of Human Resource Development (MHRD), Govt. of India.

The main purpose of the learning outcome-based curricula is to bring about the improvement in teaching-learning process and working competences through learning outcomes embedded in the vocational subject. It is a matter of great pleasure to introduce this learning outcome-based curriculum as part of the vocational training packages for the job role of "Food Analyst". The curriculum has been developed for the secondary students of vocational education and is aligned to the National Occupation Standards (NOSs) of a job role identified and approved under the National Skill Qualification Framework (NSQF). The curriculum aims to provide children with employability and vocational skills to support occupational mobility and lifelong learning. It will help them to acquire specific occupational skills that meet employers' immediate needs. The teaching process is to be performed through the interactive sessions in classrooms, practical activities in laboratories and workshops, projects, field visits, and professional experiences. The curriculum has been developed and reviewed by a group of experts and their contributions are greatly acknowledged. The utility of the curriculum will be adjudged by the qualitative improvement that it brings about in teaching-learning. The feedback and suggestions on the content by the teachers and other stakeholders will be of immense value to us in bringing about further improvement in this document.

**Dinesh Prasad Saklani**  
**Director,**  
**National Council of Education Research and Training,**  
**New Delhi**

# PREFACE

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India today stands poised at a very exciting juncture in its saga. The potential for achieving inclusive growth are immense and the possibilities are equally exciting. The world is looking at us to deliver sustainable growth and progress. To meet the growing expectations, India will largely depend upon its young workforce. The much-discussed demographic dividend will bring sustaining benefits only if this young workforce is skilled and its potential is channelized in the right direction.

In order to fulfill the growing aspirations of our youth and the demand of skilled human resource, the Ministry of Human Resource Development (MHRD), Government of India introduced the revised Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education that aims to provide for the diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provide an alternative for those pursuing higher education. For spearheading the scheme, the PSS Central Institute of Vocational Education (PSSCIVE) was entrusted the responsibility to develop competency-based curricula, student workbooks, teacher handbooks and e-learning materials for the job roles in various sectors, with growth potential for employment.

The PSSCIVE firmly believes that the vocationalisation of education in the nation needs to be established on a strong footing of philosophical, cultural and sociological traditions and it should aptly address the needs and aspirations of the students besides meeting the skill demands of the industry. The curriculum, therefore, aims at developing the desired professional, managerial and communication skills to fulfill the needs of the society and the world of work. In order to honor its commitment to the nation, the PSSCIVE has initiated the work on developing learning outcome-based curricula with the involvement of faculty members and leading experts in respective fields. It is being done through the concerted efforts of leading academicians, professionals, policy makers, partner institutions, Vocational Education and Training experts, industry representatives, and teachers. The expert group through a series of consultations, working group meetings and use of reference materials develops a National Curriculum. Currently, the Institute is working on developing curricula and courseware for over 50 job roles in various sectors, besides the curricula developed for 100 job roles

We extend our gratitude to all the contributors for selflessly sharing their precious knowledge, acclaimed expertise, and valuable time and positively responding to our request for development of curriculum. We are grateful to MHRD and NCERT for the financial support and cooperation in realizing the objective of providing competency based modular curricula and courseware to the States and other stakeholders under the PAB (Project Approval Board) approved project of *Samagra Shiksha* of Ministry of Human Resource Development (MHRD), Government of India.

Finally, for transforming the proposed curriculum design into a vibrant reality, all the institutions involved in the delivery system shall have to come together with a firm commitment and they should secure optimal community support. The success of this curriculum depends upon its effective implementation and it is expected that the managers of vocational education and training system, including subject teachers will make efforts to create better facilities, develop linkages with the world of work and foster a conducive environment as per amendments made in the curriculum document.

The PSSCIVE, Bhopal remains committed in bringing about reforms in the vocational education system through the learner-centric curricula and courseware. We hope that this document will prove useful in turning out more competent Indian workforce for the 21<sup>st</sup> century.

**Dr. Deepak Paliwal**  
**Joint Director**  
**PSS Central Institute of Vocational Education**  
**Bhopal**

# ACKNOWLEDGEMENTS

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On behalf of the team at the PSS Central Institute of Vocational Education (PSSCIVE) we are grateful to the members of the Project Approval Board (PAB) of *Samagra Shiksha* and the officials of the Ministry of Education (MoE), Government of India for the financial support to the project for development of curricula.

We are grateful to the Director, National Council for Education, Research and Training (NCERT) for his support and guidance. We also acknowledge the contributions of our colleagues at the Technical Support Group of *Samagra Shiksha*, MoE, National Skill Development Agency (NSDA) and National Skill Development Corporation (NSDC) and Food Industry Capacity Initiatives of India (FICSI) for their academic support and cooperation in the development of curricula.

We are also grateful to Dr. R. Ravichandran, Course Coordinator, Dr Rakesh Kumar Raman, Assistant Professor, Department of Humanities, Sciences, Education and Research, PSSCIVE, Bhopal, and the experts Dr. Dinesh Kumar, Head, Food Science & Post Harvest Technology, ICAR-IARI, Delhi and Dr. Neelam Upadhyay, Senior Scientist, Food Science & Post Harvest Technology, ICAR-IARI, Delhi for their contributions in the development of this learning outcome-based curricula for the Job Role: Food Analyst for Class 11 and 12. We also acknowledge the support of Shalu Giri, Sneha Soni, and Prachi Gautam of Food Technology & Processing Lab, PSSCIVE, Bhopal. The contributions made by Dr. Vinay Swarup Mehrotra and his team, at PSSCIVE in the development of the curriculum for the Employability Skills (Part-A) are also duly acknowledged.

**PSSCIVE Team**



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# 1. COURSE OVERVIEW

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## **COURSE TITLE: Food Analyst**

A food analyst is responsible for conducting qualitative and quantitative tests to determine the physical and chemical properties of food. They are also responsible for recording and compiling the test results, preparing charts and reports as well preparing and incubating plates with cultures. They define quality assurance targets and procedures and see to their maintenance and continued improvement by reviewing targets, protocols, supplies, processes, equipment, and technologies for quality standards.

**COURSE OBJECTIVES:** On completion of the course, students should be able to:

- Prepare for testing process
- Carry out chemical, physical, microbiological, and sensory testing of food
- Carry out analysis of packaging material used for food
- Carry out compilation and record observation
- Apply necessary health and safety practices to ensure workplace health and safety
- Work effectively with others
- Use resources at the workplace optimally

**COURSE REQUIREMENTS:** The learner should have the basic knowledge of science.

**COURSE LEVEL:** On completion of this course, a student can take up a higher-level course for a job role in Food Analyst.

## **COURSE DURATION: 600 hrs**

Class 11	: 300 hrs
Class12	: 300 hrs
<b>Total</b>	<b>: 600 hrs</b>

## 2. SCHEME OF UNITS AND ASSESSMENT

This course is a planned sequence of instructions consisting of Units meant for developing employability and vocational competencies of students of Class 11 and 12, opting for vocational subject along with general education subjects. The unit-wise distribution of hours and marks for Class 11 is as follows:

<b>CLASS 11</b>			
	<b>Units</b>	<b>No. of Hours for Theory and Practical 300</b>	<b>Max. Marks for Theory and Practical 100</b>
<b>Part A</b>	<b>Employability Skills</b>		
	Unit 1: Communication Skills – III	25	<b>10</b>
	Unit 2: Self-management Skills – III	25	
	Unit 3: Information and Communication Technology Skills – III	20	
	Unit 4: Entrepreneurial Skills – III	25	
	Unit 5: Green Skills – III	15	
	<b>Total</b>	<b>110</b>	<b>10</b>
<b>Part B</b>	<b>Vocational Skills</b>		
	Unit 1: Introduction to Food Processing Sector	25	<b>40</b>
	Unit 2: Organize lab and manage resources to carry out testing	45	
	Unit 3: Plan for testing process	35	
	Unit 4: Perform chemical and physical analysis	40	
	Unit 5: Food safety and hygiene	20	
	<b>Total</b>	<b>165</b>	
<b>Part C</b>	<b>Practical Work</b>		
	Practical Examination	06	10
	Written Test	01	10
	Viva Voce	03	10
	<b>Total</b>	<b>10</b>	<b>30</b>
<b>Part D</b>	<b>Project Work/Field Visit</b>		
	Practical File/Student Portfolio	10	05
	Viva Voce	05	05
	<b>Total</b>	<b>15</b>	<b>10</b>
	<b>Grand Total</b>	<b>300</b>	<b>100</b>

The unit-wise distribution of hours and marks for Class 12 is as follows:

<b>CLASS 12</b>			
	<b>Units</b>	<b>No. of Hours for Theory and Practical 300</b>	<b>Max. Marks for Theory and Practical 100</b>
<b>Part A</b>	<b>Employability Skills</b>		
	Unit 1: Communication Skills – IV	25	<b>10</b>
	Unit 2: Self-management Skills – IV	25	
	Unit 3: Information and Communication Technology Skills – IV	20	
	Unit 4: Entrepreneurial Skills – IV	25	
	Unit 5: Green Skills – IV	15	
	<b>Total</b>	<b>110</b>	<b>10</b>
<b>Part B</b>	<b>Vocational Skills</b>		
	Unit 1: Food Safety and Personal Hygiene	45	
	Unit 2: Food Standards	40	<b>40</b>
	Unit 3: Sensory, Microbiological and Statistical Analysis	25	
	Unit 4: Post Test Analysis	20	
	Unit 5: Results, Discussion and Preparation of Certificate of Analysis	35	
	<b>Total</b>	<b>165</b>	
<b>Part C</b>	<b>Practical Work</b>		
	Practical Examination	06	10
	Written Test	01	10
	Viva Voce	03	10
	<b>Total</b>	<b>10</b>	<b>30</b>
<b>Part D</b>	<b>Project Work/Field Visit</b>		
	Practical File/Student Portfolio	10	05
	Viva Voce	05	05
	<b>Total</b>	<b>15</b>	<b>10</b>
	<b>Grand Total</b>	<b>300</b>	<b>100</b>

## **3. TEACHING/TRAINING ACTIVITIES**

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The teaching and training activities have to be conducted in classroom, laboratory/ workshops and field visits. Students should be taken to field visits for interaction with experts and to expose them to the various tools, equipment, materials, procedures and operations in the workplace. Special emphasis should be laid on the occupational safety, health and hygiene during the training and field visits.

### **CLASSROOM ACTIVITIES**

Classroom activities are an integral part of this course and interactive lecture sessions, followed by discussions should be conducted by trained vocational teachers. Vocational teachers should make effective use of a variety of instructional aids, such as audio-video materials, color slides, charts, diagrams, models, exhibits, hand-outs, online teaching materials, etc. to transmit knowledge and impart training to the students.

### **PRACTICAL WORK IN LABORATORY/WORKSHOP**

Practical work may include but not limited to hands-on-training, simulated training, role play, case-based studies, exercises, etc. Equipment and supplies should be provided to enhance hands-on learning experience of students. Only trained personnel should teach specialized techniques. A training plan that reflects tools, equipment, materials, skills and activities to be performed by the students should be submitted by the vocational teacher to the Head of the Institution.

### **FIELD VISITS/ EDUCATIONAL TOUR**

In field visits, children will go outside the classroom to obtain specific information from experts or to make observations of the activities. A checklist of observations to be made by the students during the field visits should be developed by the Vocational Teachers for systematic collection of information by the students on the various aspects. Principals and Teachers should identify the different opportunities for field visits within a short distance from the school and make necessary arrangements for the visits. At least three field visits should be conducted in a year.

## **4. ASSESSMENT AND CERTIFICATION**

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Upon successful completion of the course by the candidate, the Central/ State Examination Board for Secondary Education and the respective Sector Skill Council will certify the competencies.

The National Skills Qualifications Framework (NSQF) is based on outcomes referenced to the National Occupation Standards (NOS's), rather than inputs. The NSQF level descriptors, which are the learning outcomes for each level, include the process, professional knowledge, professional skills, core skills and responsibility. The assessment is to be undertaken to verify that individuals have the knowledge and skills needed to perform a particular job and that the learning programme undertaken has delivered education at a given standard. It should be closely linked to certification so that the individual and the employer could come to know the competencies acquired through the vocational subject or course. The assessment should be reliable, valid, flexible, convenient, cost effective and above all it should be fair and transparent. Standardized assessment tools should be used for assessment of knowledge of students. Necessary arrangements should be made for using technology in assessment of students.

### **KNOWLEDGE ASSESSMENT (THEORY)**

Knowledge Assessment should include two components: one comprising of internal assessment and second an external examination, including theory examination to be conducted by the Board. The

assessment tools shall contain components for testing the knowledge and application of knowledge. The knowledge test can be objective paper-based test or short structured questions based on the content of the curriculum.

### **WRITTEN TEST**

It allows candidates to demonstrate that they have the knowledge and understanding of a given topic. Theory question paper for the vocational subject should be prepared by the subject experts comprising group of experts of academicians, experts from existing vocational subject experts/teachers, subject experts from university/colleges or industry. The respective Sector Skill Council should be consulted by the Central/State Board for preparing the panel of experts for question paper setting and conducting the examinations.

The blue print for the question paper may be as follows:

**Duration: 3hrs**

S. No.	Typology of Question	No. of Questions			Marks
		Very Short Answer (1 mark)	Short Answer (2 Marks)	Long Answer (3 Marks)	
1.	Remembering – (Knowledge based simple recall questions, to know specific facts, terms, concepts, principles, or theories; identify, define or recite, information)	2	1	2	10
2.	Understanding – (Comprehension – to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase, or interpret information)	1	2	2	11
3.	Application – (Use abstract information in concrete situation, to apply knowledge to new situations: Use given content to interpret a situation, provide an example, or solve a problem)	0	1	1	05
4.	High Order Thinking Skills – (Analysis & Synthesis – Classify, compare, contrast, or differentiate between different pieces of information; Organize and/ or integrate unique pieces of information from a variety of sources)	0	1	0	02
5.	Evaluation – (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	0	1	0	02
	<b>Total</b>	<b>3x1=3</b>	<b>6x2=12</b>	<b>5x3=15</b>	<b>30 (14 Question)</b>

## **SKILL ASSESSMENT (PRACTICAL)**

Assessment of skills by the students should be done by the assessors/examiners on the basis of practical demonstration of skills by the candidate, using a competency checklist. The competency checklist should be developed as per the National Occupation Standards (NOS's) given in the Qualification Pack for the Job Role to bring about necessary consistency in the quality of assessment across different sectors and Institutions. The student has to demonstrate competency against the performance criteria defined in the National Occupation Standards and the assessment will indicate that they are 'competent', or are 'not yet competent'. The assessors assessing the skills of the students should possess a current experience in the industry and should have undergone an effective training in assessment principles and practices. The Sector Skill Councils should ensure that the assessors are provided with the training on the assessment of competencies.

Practical examination allows candidates to demonstrate that they have the knowledge and understanding of performing a task. This will include hands-on practical exam and viva voce. For practical, there should be a team of two evaluators – the subject teacher and the expert from the relevant industry certified by the Board or concerned Sector Skill Council. The same team of examiners will conduct the viva voce.

**Project Work** (individual or group project) is a great way to assess the practical skills on ascertain time period or timeline. Project work should be given on the basis of the capability of the individual to perform the tasks or activities involved in the project. Projects should be discussed in the class and the teacher should periodically monitor the progress of the project and provide feedback for improvement and innovation. Field visits should be organized as part of the project work. Field visits can be followed by a small-group work/project work. When the class returns from the field visit, each group might be asked to use the information that they have gathered to prepare presentations or reports of their observations. Project work should be assessed on the basis of practical file or student portfolio.

**Student Portfolio** is a compilation of documents that supports the candidate's claim of competence. Documents may include reports, articles, photos of products prepared by students in relation to the unit of competency.

**Viva voce** allows candidates to demonstrate communication skills and content knowledge. Audio or video recording can be done at the time of viva voce. The number of external examiners would be decided as per the existing norms of the Board and these norms should be suitably adopted/adapted as per the specific requirements of the vocational subject. Viva voce should also be conducted to obtain feedback on the student's experiences and learning during the project work/field visits.

## 5. UNIT CONTENTS

### CLASS 11

#### Part A: Employability Skills

S.No.	Units	Duration (hrs)
1.	Communication Skills- III	25
2.	Self-management Skills – III	25
3.	Information and Communication Technology Skills - III	20
4.	Entrepreneurial Skills – III	25
5.	Green Skills – III	15
	<b>Total</b>	<b>110</b>

#### UNIT 1: COMMUNICATION SKILLS – III

Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 hrs)
1. Demonstrate knowledge of communication	1. Introduction to communication 2. Importance of communication 3. Elements of communication 4. Perspectives in communication 5. Effective communication	1. Role-play on the communication process 2. Group exercise on factors affecting perspectives in communication 3. Classroom discussion on the 7Cs of effective communication 4. Chart making on elements of communication	03
2. Demonstrate verbal communication	1. Verbal communication 2. Public Speaking	1. Role-play of a phone conversation. 2. Group exercise on public speaking	02



3. Demonstrate non-verbal communication	<ol style="list-style-type: none"> <li>1. Importance of non-verbal communication</li> <li>2. Types of non-verbal communication</li> <li>3. Visual communication</li> </ol>	<ol style="list-style-type: none"> <li>1. Role-play on non-verbal communication</li> <li>2. Group exercise on body language</li> <li>3. Group activity on methods of communication</li> </ol>	02
4. Speak using correct pronunciation	<ol style="list-style-type: none"> <li>1. Pronunciation basics</li> <li>2. Speaking properly</li> <li>3. Phonetics</li> <li>4. Types of sounds</li> </ol>	<ol style="list-style-type: none"> <li>1. Group activities on practicing pronunciation</li> </ol>	01
5. Apply an assertive communication style	<ol style="list-style-type: none"> <li>1. Important communication styles</li> <li>2. Assertive communication</li> <li>3. Advantages of assertive communication</li> <li>4. Practicing assertive communication</li> </ol>	<ol style="list-style-type: none"> <li>1. Group discussion on communication styles</li> <li>2. Observing and sharing communication styles</li> </ol>	03
6. Demonstrate the knowledge of saying no	<ol style="list-style-type: none"> <li>1. Steps for saying 'No'</li> <li>2. Connecting words</li> </ol>	<ol style="list-style-type: none"> <li>1. Group discussion on how to respond</li> <li>2. Group activity on saying 'No'</li> </ol>	02
7. Identify and use parts of speech in writing	<ol style="list-style-type: none"> <li>1. Capitalisation</li> <li>2. Punctuation</li> <li>3. Basic parts of speech</li> <li>4. Supporting parts of speech</li> </ol>	<ol style="list-style-type: none"> <li>1. Group activity on identifying parts of speech</li> <li>2. Writing a paragraph with punctuation marks</li> <li>3. Group activity on constructing sentences</li> <li>4. Group activity on identifying parts of speech</li> </ol>	03
8. Write correct sentences and paragraphs	<ol style="list-style-type: none"> <li>1. Parts of a sentence</li> <li>2. Types of object</li> <li>3. Types of sentences</li> <li>4. Paragraph</li> </ol>	<ol style="list-style-type: none"> <li>1. Activity on writing sentences</li> <li>2. Activity on active and passive voice</li> <li>3. Assignment on types of sentences</li> </ol>	02
9. Communicate with people	<ol style="list-style-type: none"> <li>1. Greetings</li> <li>2. Introducing self and others</li> </ol>	<ol style="list-style-type: none"> <li>1. Role-play on formal and informal greetings</li> <li>2. Role-play on introducing someone</li> <li>3. Practice greetings</li> </ol>	02

10. Introduce yourself to others and write about oneself	1. Talking about self 2. Filling a form	1. Practice self-introduction and filling up forms 2. Practice self-introduction to others	01
11. Develop questioning skill	1. Main types of questions 2. Forming closed and open-ended questions	1. Practice exercise on forming questions 2. Group activity on framing questions	01
12. Communicate information about family to others	1. Names of relatives 2. Relations	1. Practice talking about family 2. Role-play on relations	01
13. Describe habits and routines	1. Concept of habits and routines	1. Discuss habits and routines 2. Group activity on describing routines	01
14. Ask or give directions to others	1. Asking for directions 2. Using landmarks	1. Role-play on asking and giving directions 2. Identifying symbols	01
<b>Total</b>			<b>25</b>

### UNIT 2: SELF-MANAGEMENT-III

<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (15 hrs)</b>	<b>Duration (25 hrs)</b>
1. Identify and analyze own strengths and weaknesses	1. Understanding self 2. Techniques for identifying strengths and weaknesses 3. Difference between interests and abilities	1. Activity on writing aims in life 2. Prepare a worksheet on interests and abilities	03
2. Demonstrate personal grooming skills	1. Guidelines for dressing and grooming 2. Preparing a personal grooming checklist	1. Activity on dressing and grooming standards 2. Self-reflection on dressing and grooming	04
3. Maintain personal hygiene	1. Importance of personal hygiene 2. Three steps to personal hygiene 3. Essential steps of hand washing	1. Role-play on personal hygiene 2. Assignment on personal hygiene	03
4. Demonstrate the knowledge of working in a team and participating in group activities	1. Describe the benefits of teamwork 2. Working in a team	1. Assignment on working in a team 2. Self-reflection on teamwork	03

5. Develop networking skills	1. Benefits of networking skills 2. Steps to build networking skills	1. Activity on networking 2. Assignment on networking skills	03
6. Describe the meaning and importance of self-motivation	1. Meaning of self-motivation 2. Types of motivation 3. Steps to building self-motivation	1. Activity on staying motivated 2. Assignment on reasons hindering motivation	03
7. Set goals	1. Meaning of goals purpose of goal-setting 2. Setting SMART goals	1. Assignment on setting SMART goals 2. Activity on developing long-term and short-term goals	03
8. Apply time management strategies and techniques	1. Meaning and importance of time management 2. Steps for effective time management	1. Checklist for making preparation for daily activities 2. Preparing To-do-list	03
<b>Total</b>			<b>25</b>

### UNIT 3: INFORMATION AND COMMUNICATION TECHNOLOGY-III

Learning Outcome	Theory (08 hrs)	Practical (12 hrs)	Duration (20 hrs)
1. Create a document on the word processor	1. Introduction to ICT 2. Advantages of using a word processor. 3. Work with Libre Office Writer	1. Demonstration and practice of the following: <ul style="list-style-type: none"> <li>• Creating a new document</li> <li>• Typing text</li> <li>• Saving the text</li> <li>• Opening and saving file on Microsoft word/Libre Office Writer.</li> </ul>	02
2. Identify icons on the toolbar	1. Status bar 2. Menu bar 3. Icons on the Menu bar 4. Multiple ways to perform a function	1. Work with a basic user interface of LibreOffice writer 2. Working with LibreOffice Writer or Microsoft Word	02
3. Save, close, open and print document	1. Save a word document 2. Close 3. Open an existing document 4. Print	1. Perform the functions for saving, closing and printing documents on LibreOffice Writer 2. Perform the functions on Microsoft Word	02

4. Format text in a word document	1. Change style and size of text 2. Align text 3. Cut, Copy, Paste 4. Find and replace	1. Perform the functions of formatting on LibreOffice Writer 2. Perform the functions of formatting on Microsoft Word	02
5. Check spelling and grammar in a word document	1. Use of spell checker 2. Autocorrect	1. Perform the functions of checking spellings on LibreOffice Writer 2. Perform the functions of checking the spelling on Microsoft Word	02
6. Insert lists, tables, pictures, and shapes in a word document	1. Insert bullet list 2. Number list 3. Tables 4. Pictures 5. Shapes	1. Perform the functions on LibreOffice Writer	03
7. Insert header, footer and page number in a word document	1. Insert header 2. Insert footer 3. Insert page number 4. Page count	1. Perform the functions on LibreOffice Writer 2. Perform the functions on Microsoft Word	03
8. Make changes by using the track change option in a word document	1. Tracking option 2. Manage option 3. Compare documents	1. Perform the functions on LibreOffice Writer 2. Perform the functions on Microsoft Word	04
<b>Total</b>			<b>20</b>

#### **UNIT 4: ENTREPRENEURIAL SKILLS – III**

<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (15 hrs)</b>	<b>Duration (25 hrs)</b>
1. Differentiate between different kinds of businesses	1. Introduction to Entrepreneurship 2. Types of business activities	1. Role-play on different kinds of businesses	03
2. Describe the significance of entrepreneurial values	1. Meaning of value 2. Values of an Entrepreneur 3. Case study on qualities of an entrepreneur	1. Role-play on qualities of an entrepreneur	03
3. Demonstrate the attitudinal changes required to become an entrepreneur	1. Difference between the attitude of entrepreneur and employee	1. Interviewing employees and entrepreneurs	03
4. Develop thinking skills like an entrepreneur	1. Problems of entrepreneurs 2. Problem-solving 3. Ways to think like an entrepreneur	1. Group activity on identifying and solving problems	04

5. Generate business ideas	1. The business cycle 2. Principles of idea creation 3. Generating a business idea 4. Case studies	1. Group activity to create business ideas	04
6. Describe customer needs and the importance of conducting a customer survey	1. Understanding customer needs 2. Conducting a customer survey	1. Conducting a customer survey	04
7. Create a business plan	1. Importance of business planning 2. Preparing a business plan 3. Principles to follow for growing a business 4. Case studies	1. Activity on developing a business plan	04
<b>Total</b>			<b>25</b>

### UNIT 5: GREEN SKILLS – III

Learning Outcome	Theory (07 hrs)	Practical (08 hrs)	Duration (15 hrs)
1. Describe the importance of the main sector of the green economy	1. Meaning of ecosystem, food chain and sustainable development 2. Main sectors of the green economy- E-waste management, green transportation, renewal energy, green construction, and water management	1. Discussion on sectors of green economy 2. Preparing posters on various sectors for promoting green economy 3. Writing an essay or a short note on the important initiatives for promoting green economy.	06
2. Describe the main recommendations of policies for the green economy	1. Policies for a green economy	1. Discussion on initiatives for promoting the green economy	03
3. Describe the major green sectors/ areas and the role of various stakeholders in the green economy	1. Stakeholders in the green economy	1. Group discussion on the role of stakeholders in the green economy 2. Preparation of posters on green sectors and their stakeholders 3. Making solar bulbs.	03
4. Identify the role of government and private agencies in	1. Role of the government in promoting a green	1. Discussion on the role of Government and Private Agencies in	

the green economy	economy 2. Role of private agencies in promoting green economy	promoting a green economy. 2. Posters on green sectors.	03
<b>Total</b>			<b>15</b>

### Part B–Vocational Skills – Class 11

S.No.	Units	Duration (Hrs)
1.	Unit 1: Introduction to Food Processing Sector	25
2.	Unit 2: Component required for Lab Analysis	45
3.	Unit 3: Techniques for testing process	35
4.	Unit 4: Perform Physical and chemical analysis	40
5.	Unit 5: Food safety and hygiene	20
<b>Total</b>		<b>165</b>

<b>UNIT 1: INTRODUCTION TO FOOD PROCESSING SECTOR</b>			
<b>Learning Outcome</b>	<b>Theory 10 Hrs</b>	<b>Practical 15 Hrs</b>	<b>Duration (25 Hrs)</b>
1. Understand the structure, importance, and scope of the food processing sector	Overview of the food processing industry, major sectors, and its impact in India.	Field visits to local food processing units, report preparation, and presentation	6
2. Describe the types of food processing industries	Types of industries: dairy, meat, fruits and vegetables, cereals, bakery, and beverages	Group discussion on different food processing sectors and presentations	6
3. Explain Value addition through Food Processing sector	Understanding value addition from raw materials to final product distribution	Mapping and illustrating the Value-added product in Food Processing sector	5
4. Identify regulatory bodies and quality standards in food processing	Overview of FSSAI, ISO, and other food safety and quality standards as BIS, AGMARK	Case study analysis on compliance of quality standards	8
<b>Total</b>			<b>25</b>

<b>UNIT 2: COMPONENT REQUIRED FOR LAB ANALYSIS</b>			
<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (30 hrs)</b>	<b>Duration (40 Hrs)</b>
1. Organize lab setup and resources effectively	Basics of lab setup and resource management	Setup of laboratory with suitable equipment placement	10
2. Manage inventory and maintain records	Inventory management techniques and stock maintenance	Hands-on inventory management and record-keeping for lab supplies	10
3. Follow lab safety protocols	Introduction to handling of chemicals, and emergency procedures	Conduct a simulated emergency protocols	10
4. Proper handling and maintenance of lab equipment	Maintenance and usage of pH meter, precision balance spectrophotometer etc.	Hands-on experience for using the equipments as, calibration, and maintenance	10

		exercises	
<b>Total</b>			<b>40</b>

<b>UNIT 3: TECHNIQUES FOR TESTING PROCESS</b>			
<b>Learning Outcome</b>	<b>Theory (15 hrs)</b>	<b>Practical (20 hrs)</b>	<b>Duration (35 Hrs)</b>
1. Explain the methodologies for food testing	Introduction to qualitative and quantitative testing	Case studies on testing methodologies in food processing.	8
2. Design a testing protocol	Steps for creating a protocol, including sampling and analysis steps	Creation of a testing protocol for different food samples	8
3. Plan resources for testing	Identifying equipment, chemicals, and other resources for testing	Resource planning and mock setup for specific tests	9
4. Practice documentation and record-keeping	Techniques for documenting and organizing test results	Appropriate data entry and record maintenance for test procedures	10
<b>Total</b>			<b>35</b>

<b>UNIT 4: PERFORM PHYSICAL AND CHEMICAL ANALYSIS</b>			
<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (25 hrs)</b>	<b>Duration (35 hrs)</b>
1. Perform physical analysis	Understanding tests for colour, texture, viscosity, and appearance	Practical exercises on texture and colour analysis using standard methods	14
2. Conduct basic chemical analyses	Calibration of glassware and equipments, Overview of titration, pH, testing and moisture analysis	Calibration of glassware and equipments, performing titration, pH, and moisture content analysis	7



3. Execute hands-on testing on different food products	Various testing procedures for food analysis	Application of chemical and physical analysis on different food items	7
4. Analyse and report data	Techniques for interpreting and reporting results	Data analysis and report writing on test findings	7
<b>Total</b>			<b>35</b>

<b>UNIT 5: FOOD SAFETY AND HYGIENE</b>			
<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (15 hrs)</b>	<b>Duration (25 Hrs)</b>
1. Maintain personal hygiene in lab setting.	Importance of personal hygiene in food labs	Practicing hygiene routines and safety protocols in the lab.	5
2. Follow sanitization procedures.	Techniques for cleaning lab spaces and equipment	Hands-on sanitization and disinfection of equipment and surfaces	5
3. Handle and dispose of food samples safely	Guidelines for labelling, handling, and disposing of samples	Practical exercises on safe disposal of samples and waste	5
4. Explain food safety regulations	Overview of FSSAI, food safety regulations, and International standards	Case study on food safety compliance	10
<b>Total</b>			<b>25</b>

## CLASS 12

### Part A: Employability Skills

<b>S.No.</b>	<b>Units</b>	<b>Duration (hrs)</b>
1.	Communication Skills- IV	25
2.	Self-management Skills – IV	25
3.	Information and Communication Technology Skills – IV	20
4.	Entrepreneurial Skills – IV	25
5.	Green Skills – IV	15
	<b>Total</b>	<b>110</b>

<b>UNIT 1: COMMUNICATION SKILLS – IV</b>			
<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (15 hrs)</b>	<b>Duration (25 hrs)</b>

1. Demonstrate active listening skills	1. Active listening - listening skill, stages of active listening 2. Overcoming barriers to active listening	1. Demonstration of the factors affecting active listening 2. Preparing posters of steps for active listening 3. Role-play on negative effects of not listening actively	10
2. Identify the parts of speech	1. Parts of speech – using capitals, punctuation, basic parts of speech, supporting parts of speech	1. Group practice on identifying parts of speech 2. Group practice on constructing sentences	10
3. Write sentences	1. Writing skills to the following: <ul style="list-style-type: none"> <li>● Simple sentence</li> <li>● Complex sentence</li> <li>● Types of object</li> </ul> 2. Types of sentences <ul style="list-style-type: none"> <li>- Active and Passive sentences</li> <li>- Statement/Declarative sentence</li> <li>- Question/Interrogative sentence</li> <li>- Emotion/Reaction or Exclamatory sentence</li> <li>- Order or Imperative sentence</li> </ul> 3. Paragraph writing	1. Group work on writing sentences and paragraphs 2. Practice writing sentences in the active or passive voice 3. Writing different types of sentences	5
<b>Total</b>			<b>25</b>

#### **UNIT 2: SELF-MANAGEMENT SKILLS – IV**

<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (15 hrs)</b>	<b>Duration (25 hrs)</b>
1. Describe the various factors influencing motivation and positive attitude	1. Motivation and positive attitude 2. Intrinsic and extrinsic motivation 3. Positive attitude – ways to maintain positive attitude 4. Stress and stress management - ways to manage stress	1. Role-play on avoiding stressful situations 2. Activity on self-reflection	10

2. Describe how to become result oriented	<ol style="list-style-type: none"> <li>How to become result oriented?</li> <li>Goal setting – examples of result-oriented goals</li> </ol>	1. Pair and share activities on the aim of life	5
3. Describe the importance of self-awareness and the basic personality traits, types and disorders	<ol style="list-style-type: none"> <li>Steps towards self-awareness</li> <li>Personality and basic personality traits</li> <li>Common personality disorders- <ul style="list-style-type: none"> <li>Suspicious</li> <li>Emotional and impulsive</li> <li>Anxious</li> </ul> </li> <li>Steps to overcome personality disorders</li> </ol>	1. Group discussion on self-awareness	10
<b>Total</b>			<b>25</b>

### UNIT 3: INFORMATION AND COMMUNICATION TECHNOLOGY SKILLS – IV

<b>Learning Outcome</b>	<b>Theory (06 hrs)</b>	<b>Practical (14 hrs)</b>	<b>Duration (20 hrs)</b>
1. Identify the components of a spreadsheet application	1. Introduction to spreadsheet application - types of a spreadsheet, creating a new worksheet, components of a worksheet.	1. Group practice on working with LibreOffice	02
2. Perform basic operations in a spreadsheet	<ol style="list-style-type: none"> <li>Opening workbook and entering data – types of data, steps to enter data, editing and deleting data in a cell</li> <li>Selecting multiple cells</li> <li>Saving the spreadsheet in various formats</li> <li>Closing the spreadsheet</li> <li>Opening the spreadsheet.</li> <li>Printing the spreadsheet.</li> </ol>	1. Group practice on working with data on LibreOffice Calc.	03

3. Demonstrate the knowledge of working with data and formatting text	<ol style="list-style-type: none"> <li>Using a spreadsheet for addition – adding value directly, adding by using cell address, using a mouse to select values in a formula, using sum function, copying and moving formula</li> <li>Need to format cell and content</li> <li>Changing text style and font size</li> <li>Align text in a cell</li> <li>Highlight text</li> </ol>	<ol style="list-style-type: none"> <li>Demonstration of basic calculations in LibreOffice Calc.</li> <li>Group practice on formatting a spreadsheet in LibreOffice Calc.</li> </ol>	02
4. Demonstrate the knowledge of using advanced features in spreadsheet	<ol style="list-style-type: none"> <li>Sorting data</li> <li>Filtering data</li> <li>Protecting spreadsheet with password</li> </ol>	<ol style="list-style-type: none"> <li>Group practice on sorting data in LibreOffice Calc</li> </ol>	03
5. Make use of the software used for making slide presentations	<ol style="list-style-type: none"> <li>Available software presentation</li> <li>Steps to start LibreOffice Impress</li> <li>Adding text to a presentation</li> </ol>	<ol style="list-style-type: none"> <li>Group practice on working with LibreOffice Impress tools</li> <li>Group practice on creating a presentation in LibreOffice Impress</li> </ol>	02
6. Open, close and save slide presentations	<ol style="list-style-type: none"> <li>Open, Close, Save and Print a slide presentation</li> </ol>	<ol style="list-style-type: none"> <li>Practice exercises on steps to save, close, open and save a presentation</li> </ol>	01
7. Demonstrate the operations related to slides and texts in the presentation	<ol style="list-style-type: none"> <li>Working with slides and text in a presentation- adding slides to a presentation, deleting slides, adding and formatting text, highlighting text, aligning text, changing text colour</li> </ol>	<ol style="list-style-type: none"> <li>Group practice on working with font styles and types in LibreOffice Impress</li> </ol>	04
8. Demonstrate the use of advanced features in a presentation	<ol style="list-style-type: none"> <li>Advanced features used in a presentation</li> <li>Inserting shapes in the presentation</li> <li>Inserting clipart and images in a presentation</li> <li>Changing slide layout</li> </ol>	<ol style="list-style-type: none"> <li>Group practice on working with slides in LibreOffice Impress</li> </ol>	03
<b>Total</b>			<b>20</b>

#### **UNIT 4: ENTREPRENEURIAL SKILLS-IV**

<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (15 hrs)</b>	<b>Duration (25 hrs)</b>
1. Describe the concept of entrepreneurship and the types and roles and functions entrepreneur	<ol style="list-style-type: none"> <li>1. Entrepreneurship and entrepreneur</li> <li>2. Characteristics of entrepreneurship</li> <li>3. Entrepreneurship-art and science</li> <li>4. Qualities of a successful entrepreneur</li> <li>5. Types of entrepreneurs</li> <li>6. Roles and functions of an entrepreneur</li> <li>7. What motivates an entrepreneur</li> <li>8. Identifying opportunities and risk-taking</li> <li>9. Startups</li> </ol>	<ol style="list-style-type: none"> <li>1. Group discussion on the topic "An entrepreneur is not born but created".</li> <li>2. Quiz on various aspects of entrepreneurship.</li> </ol>	10
2. Identify the barriers to entrepreneurship	<ol style="list-style-type: none"> <li>1. Barriers to entrepreneurship</li> <li>2. Environmental barriers</li> <li>3. No or faulty business plan</li> <li>4. Personal barriers</li> </ol>	<ol style="list-style-type: none"> <li>1. Fishbowl of fears- group discussion about what we fear about entrepreneurship</li> <li>2. Facing an Interview.</li> </ol>	05
3. Demonstrate the knowledge of entrepreneurial attitude and competencies	<ol style="list-style-type: none"> <li>1. Entrepreneurial attitude</li> <li>2. Entrepreneurial competencies</li> <li>3. Decisiveness,</li> <li>4. Initiative</li> <li>5. Interpersonal skills- positive attitude, stress management</li> <li>6. Perseverance</li> <li>7. Organisational skills- time management, goal setting, efficiency, managing quality.</li> </ol>	<ol style="list-style-type: none"> <li>1. Group discussion on business ideas</li> <li>2. Group practice on best out of waste</li> <li>3. Group discussion on the topic of lets grow together</li> <li>4. Group practice on a snowball fight.</li> <li>5. Activity on rating friends and self for entrepreneurial qualities.</li> <li>6. Playing games, such as "Who am I".</li> </ol>	10
<b>Total</b>			<b>25</b>

<b>UNIT 5: GREEN SKILLS-IV</b>			
<b>Learning Outcome</b>	<b>Theory (05 hrs)</b>	<b>Practical (10 hrs)</b>	<b>Duration (15 hrs)</b>
1. Identify the benefits of the green jobs	<ol style="list-style-type: none"> <li>1. Green jobs</li> <li>2. Benefits of green jobs</li> <li>3. Green jobs in different sectors: <ul style="list-style-type: none"> <li>● Agriculture</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. Group discussion on the importance of green job.</li> </ol>	

	<ul style="list-style-type: none"> <li>• Transportation</li> <li>• Water conservation</li> <li>• Solar and wind energy</li> <li>• Eco-tourism</li> <li>• Building and construction</li> <li>• Solid waste management</li> <li>• Appropriate technology</li> </ul>		8
2. State the importance of green jobs	1. Importance of green jobs in <ul style="list-style-type: none"> <li>• Limiting greenhouse gas emissions</li> <li>• Minimizing waste and pollution</li> <li>• Protecting and restoring ecosystems</li> <li>• Adapting to the effects of climate change</li> </ul>	1. Preparing posters on green jobs. 2. Activities on tree plantation.	7
<b>Total</b>			<b>15</b>

### Part B–Vocational Skills- Class 12

S. No.	Units	Duration (Hrs)
1.	Unit 1: Food Safety and Personal Hygiene	45
2.	Unit 2: Food Standards	40
3.	Unit 3: Sensory, Microbiological and Statistical Analysis	25
4.	Unit 4: Post Test Analysis	20
5.	Unit 5: Results, Discussion and Preparation of Certificate of Analysis	35
	<b>Total</b>	<b>165</b>

<b>UNIT 1: FOOD SAFETY AND PERSONAL HYGIENE</b>			
Learning Outcome	Theory (8)	Practical (12)	Total (20 hrs)
1. Practice daily personal hygiene in labs	Importance and techniques for personal hygiene in labs	Practical demonstrations and exercises on hygiene protocols	<b>5</b>
2. Control contamination in lab settings	Methods to prevent contamination during lab activities	Hands-on exercises on contamination control	<b>5</b>
3. Follow lab safety and hygiene protocols consistently	Importance of adherence to protocols for lab safety	Practical adherence to lab protocols in routine activities	<b>5</b>

4. Ensure quality assurance in food processing	HACCP, principles and practices of quality assurance in food labs	Quality checks on food samples and reporting outcomes	<b>5</b>
<b>Total</b>			<b>25</b>

## UNIT 2: FOOD STANDARDS

<b>Learning Outcome</b>	<b>Theory (15)</b>	<b>Practical (20)</b>	<b>Duration (35)</b>
1. Compliance with food safety regulations	Detailed study of regulatory bodies- FSSAI, standards: FSSR, BIS, ISO and Compliances	Case study on food safety regulation implementation	<b>18</b>
2. Apply FSSAI and ISO requirements in testing.	In-depth study of specific requirements in FSSAI and ISO	Practical application of standards in testing and documentation	<b>10</b>
3. Implement food standards in sample testing	Techniques for standard application in sample analysis	Conducting analysis using standard procedures	<b>7</b>
<b>Total</b>			<b>35</b>

## UNIT 3: SENSORY, MICROBIOLOGICAL AND STATISTICAL ANALYSIS

<b>Learning Outcome</b>	<b>Theory (15)</b>	<b>Practical (30)</b>	<b>Duration (45 Hrs)</b>
1. Conduct sensory evaluation.	Techniques for sensory evaluation based on Color, Odor, Taste and Texture	Conducting sensory tests and recording data for analysis	<b>10</b>
2. Conduct microbiological analysis on food samples.	Basics of microbial contamination, growth, and analysis methods	Evaluation of different food products for microbiological analysis.	<b>15</b>
3. Perform statistical analysis of food data	Introduction to statistical tools for food data analysis	Application of basic statistics on sensory and microbial data	<b>10</b>

4. Record and interpret test results.	Methods for data interpretation and documentation	Recording findings and interpreting data from sensory tests.	10
<b>Total</b>			<b>45</b>

<b>UNIT 4: POST TEST ANALYSIS</b>			
<b>Learning Outcome</b>	<b>Theory (15)</b>	<b>Practical (25)</b>	<b>Duration (40 Hrs)</b>
1. Maintain accurate data logging	Techniques for data logging and record-keeping	Hands-on data logging and digital record-keeping	10
2. Dispose of tested samples safely	Methods for safe disposal of samples and waste management	Practical disposal of tested samples and lab clean-up	10
4. Clean and place equipment properly	Procedures for equipment cleaning and maintenance	Cleaning and sanitization of lab and safely placing lab equipment	10
5. Maintain lab records systematically	Techniques for organizing and keeping lab documents	Organizing lab records and creating an accessible data	10
<b>Total</b>			<b>40</b>

<b>UNIT 5: RESULTS, DISCUSSION AND PREPARATION OF CERTIFICATE OF ANALYSIS</b>			
<b>Learning Outcome</b>	<b>Theory (10)</b>	<b>Practical (15)</b>	<b>Duration (25 Hrs)</b>
1. Compile and interpret test results	Techniques for compiling and interpreting test data	Compiling test data and interpretation of results	7
2. Discuss findings and insights	Guidelines for analysing and discussing findings	Peer discussion and presentation on test outcomes	7
3. Prepare a Certificate of Analysis (COA)	Format and content of a COA, including legal and quality standards	Drafting and reviewing a COA based on lab findings	7
4. Validate COA and ensure accuracy	Importance of accuracy and cross-checking data	Reviewing COA, validating findings, and ensuring accuracy	4
<b>Total</b>			<b>25</b>



## 6. ORGANISATION OF FIELD VISITS

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In a year, at least 4 visits to a nearby food processing industry/ organizations/ educational tours should be organized for the students to expose them to the various routine activities undertaken at a soybean processing unit/ industry.

1. Exposure to NABL-accredited, ISO-certified laboratories handling chemical, microbiological, and sensory analysis.
2. Visits to dairy, meat, bakery, beverages, and snacks etc industries to observe raw material testing and finished product analysis.
3. Interaction with government bodies responsible for food inspections, safety monitoring, and compliance.
4. Exposure to advanced food analysis techniques and research institution working in the area of food safety, adulteration and functional foods.
5. Understanding of instrument calibration, validation, and traceability in food testing
6. Study of packaging interactions, migration studies, and food contact material regulations.
7. Assessing water quality used in food processing for compliance with potable water standards.
8. Hands-on training in detecting adulterants, mislabeling, and economic fraud in food products
9. Observing compliance with global food safety standards like Codex, HACCP, and WTO regulations.
10. Understanding organoleptic testing and its role in food quality assessment.
11. Exposure to temperature-controlled storage and logistics for perishable foods.
12. Studying HACCP and Good Laboratory Practices (GLP) implementation in food analysis.
13. Observing third-party food certification (ISO 22000, BRC, HALAL, etc.).
14. Learning about food safety incident handling and recall management.
15. Familiarization with analytical instruments (HPLC, GC, MS, FTIR, etc.) used in food testing.

## 7. LIST OF EQUIPMENT AND MATERIALS

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**T**he list given below is suggestive and an exhaustive list should be prepared by the vocational teacher. Only basic tools, equipment and accessories should be procured by the schools so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience

1. pH Meter
2. Refractometer
3. Viscometer
4. Autoclave
5. Laminar Air Flow (LAF) Cabinet
6. Incubators (BOD and Microbiological)
7. Weighing Balance (Analytical and Precision)
8. Centrifuge
9. Microscope
10. Water Bath
11. Hot Air Oven
12. Glassware (Beakers, Pipettes, Flasks, Burettes)
13. Filtration System (Membrane Filters, Filter Papers)

## **8. VOCATIONAL TEACHER'S/ TRAINER'S QUALIFICATION AND GUIDELINES**

**Q**ualification and other requirements for appointment of vocational teachers/trainers on contractual basis should be decided by the State/UT. The suggestive qualifications and minimum competencies for the vocational teacher should be as follows:

<b>S. No.</b>	<b>Qualification</b>	<b>Minimum Competencies</b>	<b>Age Limit</b>
1.	Post-graduation in food processing/ food technology/ food science/ nutrition/ Food safety and Quality Analysis or equivalent from a recognized Institute /University, with at least 1 year work experience/or training in any reputed/ NABL authorized food analytical laboratory	<ul style="list-style-type: none"><li>• Effective communication skills (oral and written)</li><li>• Basic computing Skills</li></ul>	22- 37 years (as on Jan. 01 (year)) Age relaxation to be provided as per Govt. rules

## **9. LIST OF CONTRIBUTORS**

### **Course Coordinators**

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## **10. REVIEWED AND APPROVED BY:**

1. Dr. Dinesh Kumar, Head, Food Science & Post Harvest Technology, ICAR-IARI, Delhi
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