

**LEARNING OUTCOME
BASED
VOCATIONAL
CURRICULUM**

JOB ROLE: Packing Machine Worker

(QUALIFICATION PACK: Ref. Id. FIC/Q7002)

SECTOR: Food Processing

Classes 9 and 10

**PSS CENTRALINSTITUTE OF
VOCATIONAL EDUCATION**

(a constituent unit of NCERT, under MHRD, 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

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LEARNING OUTCOME BASED VOCATIONAL CURRICULUM

Food Processing- Packing Machine Worker

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FOREWORD

The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE) a constituent of the National Council of Educational Research and Training (NCERT) is spearheading the efforts of developing learning outcome based curricula and courseware aimed at integrating both vocational and general qualifications to open pathways of career progression for students. It is a part of Central y Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education (CSSVSHSE) launched by the Ministry of Human Resource Development, Government of India in 2012. The PSS Central Institute of Vocational Education (PSSCIVE) is developing curricula under the project approved by the Project Approval Board (PAB) of *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA).

The main purpose of the learning outcome based curriculum 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 Packing Machine Worker. 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.

Hrushikesh Senapaty

Director

National Council of Education Research and Training

(i)

PREFACE

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 fulfil 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 learning outcome 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 need 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 fulfil the needs of the society and the world of work. In order to honour 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 100 job roles in various sectors.

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 realising the objective of providing learning outcome based modular curricula and courseware to the States and other stakeholders under the PAB (Project Approval Board) approved project of *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) of MHRD.

(ii)

Finally, for transforming the proposed curriculum design into a vibrant reality of implementation, 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 the content of the curriculum document.

The PSSCIVE, Bhopal remains committed in bringing about reforms in the vocational education and training 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 21st century.

RAJESH P. KHAMBAYAT

Joint Director

PSS Central Institute of Vocational Education

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ACKNOWLEDGEMENTS

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 *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) and the officials of the Ministry of Human Resource Development (MHRD), Government of India for the financial support to the project for development of curricula.

We are grateful to the Director, NCERT for his support and guidance. We also acknowledge the contributions of our colleagues at the Technical Support Group of RMSA, MHRD, RMSA Cell at the National Council of Educational Research and Training (NCERT),

National Skill Development Agency (NSDA) and National Skill Development Corporation (NSDC) and Agriculture Skill Council of India (ASCI) for their academic support and cooperation.

We are grateful to the contributors for their earnest efforts and contributions in the development of this learning outcome based curriculum. Their names are acknowledged in the list of contributors. The contributions of the course coordinator Uadal Singh and the reviewer Shalini Chakraborty, Food Scientist, Fruit Research Station (RVSKVV, Gwalior) Entkhedi, Bhopal are thankful y acknowledged.

The contributions made by Vinay Swarup Mehrotra, Professor and Head, Curriculum Development and Evaluation Centre (CDEC), Vipin Kumar Jain, Associate Professor and Head, Programme Planning and Monitoring Cel (PPMC) and Dipak Shudhalwar, Associate Professor, Department of Engineering

& Technology, PSSCIVE in development of the curriculum for the employability skill s are duly acknowledged.

Special thanks are due to Sunil Prajapati, Consultant, Horticulture, Department of Agriculture & Animal Husbandry, PSSCIVE, Bhopal, for contribution in drafting and editing the document and bringing it in its present form.

PSSCIVE Team

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1. COURSE OVERVIEW

Food Processing- Packing Machine Worker

A Packing Machine Worker observes the packing machine, loads the packing material, removes the packed food items, checks the quality of the packing visually and segregates the pieces that are not properly packed. The Packing Machine Worker works under supervision.

Packing Machine Worker needs to be quality conscious, alert and physically active as well as capable to stand and work for long hours.

Should be able to work as per instructions given, be responsible for own outcomes and work in a team.

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

Apply effective oral and written communication skills to interact with people and customers;

Identify the principal components of a computer system;

Demonstrate the basic skills of using computer;

Demonstrate self-management skills;

Demonstrate the ability to provide a self-analysis of entrepreneurial skills and abilities;

Demonstrate the knowledge of the importance of green skills in meeting the challenges of sustainable development and environment protection

Identify and control hazards in the workplace that pose a danger or threat

Apply the quality control of processed food

Do Preparation and maintain work area and equipment;

Identify basic operations on the machine

Observe packing machines for various processed food product;

Apply good manufacturing process

Demonstrate waste utilization and its management;

Demonstrate the work effectively with others;

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

COURSE OUTCOMES: This is a beginner level course. On completion of this course, a student can take up an Intermediate level course for a job role in Food Processing Sector, such as Jam, Jelly and Ketchup Processing Technician or Fruit Pulp Processing Technician in Class XI and Class XII.

COURSE DURATION: 400 hrs

Class 9 : 200 hrs

Class 10 : 200 hrs

Total : 400 hrs

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 9 and 10 opting for vocational subject along with general education subjects. The unit-wise distribution of hours and marks for Class 9 is as follows:

CLASS 9

CURRICULUM: FOOD PROCESSING – PACKING MACHINE WORKER

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Units		No. of Hours for Theory and Practical 200	Max. Marks for Theory and Practical 100
Part A	Employability Skills		
	Unit 1: Communication Skills-I	20	10
	Unit 2: Self-management Skills-I	10	
	Unit 3: Information and Communication Technology Skills-I	20	
	Unit 4: Entrepreneurial Skills-I	15	
	Unit 5: Green Skills-I	10	
	Total	75	10
Part B	Vocational Skills		
	Unit 1: Introduction to the Food Processing	20	30
	Unit 2: Quality control of processed food	20	
	Unit 3: Prepare and maintain work area and equipment	30	
	Unit 4: Basic operations on the machines	25	
	Total	95	30
Part C	Practical Work		
	Practical Examination	06	15
	Written Test	01	10
	Viva Voce	03	10
	Total	10	35
Part D	Project Work/Field Visit		
	Practical File/Student Portfolio	10	10
	Viva Voce	05	05
	Total	15	15
Part E	Continuous and Comprehensive Evaluation (CCE)		
	Total	05	10
	Grand Total	200	100

The unit-wise distribution of hours and marks for Class 10 is as follows:

CLASS 10			
	Units	No. of Hours for Theory and Practical 200	Max. Marks for Theory and Practical 100
Part A	Employability Skills		
	Unit 1: Communication Skills – II	20	10
	Unit 2: Self-management Skills – II	10	
	Unit 3: Information and Communication Technology Skills – II	20	
	Unit 4: Entrepreneurial Skills – II	15	
	Unit 5: Green Skills – II	10	
	Total	75	
Part B	Vocational Skills		
	Unit 1: Observe packing machines for various processed food product	20	30
	Unit 2: Introduction to Good Manufacturing Process	20	
	Unit 3: Waste utilization and its management	25	
	Unit 4: Work effectively with others	15	
	Unit 5: Occupational Health, Hygiene and	15	

	First Aid Practices		
		95	30
Part C	Practical Work		
	Practical Examination	06	15
	Written Test	01	10
	Viva Voce	03	10
	Total	10	35
Part D	Project Work/Field Visit		
	Practical File/Student Portfolio	10	10
	Viva Voce	05	05
	Total	15	15
Part E	Continuous and Comprehensive Evaluation (CCE)		
	Total	05	10
	Grand Total	200	100

3. TEACHING/TRAINING ACTIVITIES

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, colour 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

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 (NOSs), 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:

Classes 9 and 10

Duration: 3 hrs

Maximum Marks: 30

	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
	Total	3x1=3	6x2=12	5x3=15	30 (14 questions)

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 (NOSs) 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 a certain 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 organised 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.

CONTINUOUS AND COMPREHENSIVE EVALUATION

Continuous and Comprehensive Evaluation (CCE) refers to a system of school-based evaluation of students that covers all aspects of student's development. In this scheme, the term 'continuous' is meant to emphasize that evaluation of identified aspects of students 'growth and development' is a continuous process rather than an event, built into the total teaching-learning process and spread over the entire span of academic session. The second term 'comprehensive' means that the scheme attempts to cover both the scholastic and the co-scholastic aspects of students' growth and development. For details, the CCE manual of Central Board of Secondary Education (CBSE) or the guidelines issued by the State Boards on the procedure for CCE should be followed by the Institutions.

5. UNIT CONTENTS

CLASS 9

Part A: Employability Skills

Unit 1: Communication Skills – I			
Learning Outcome	Theory (08 hrs)	Practical (12 hrs)	Duration (20 Hrs)
1. Demonstrate knowledge of various methods of communication	1. Methods of communication <ul style="list-style-type: none"> - Verbal - Non-verbal - Visual 	1. Writing pros and cons of written, verbal and non-verbal communication 2. Listing do's and don'ts for avoiding common body language mistakes	05
2. Identify elements of communication cycle	1. Meaning of communication 2. Importance of communication skills 3. Elements of communication cycle– (i) sender, (ii) ideas, (iii) encoding, (iv) communication channel, (v) receiver, (vi) decoding, and (vii) feedback	1. Draw a diagram of communication cycle 2. Role plays on communication process related to the sector/job role	05
3. Identify the factors affecting our perspectives in communication	1. Perspectives in communication 2. Factors affecting perspectives in communication <ul style="list-style-type: none"> - Visual perception - Language - Past experience - Prejudices - Feelings - Environment 	1. Group discussion on factors affecting perspectives in communication 2. Sharing of experiences on factors affecting perspectives 3. Sharing experiences on factors affecting communication at workplace	05
4. Demonstrate the knowledge of basic writing skills	1. Writing skills related to the following: <ul style="list-style-type: none"> • Phrases • Kinds of sentences • Parts of sentence • Parts of speech • Use of articles • Construction of a paragraph 	1. Demonstration and practice of writing sentences and paragraphs on topics related to the subject	05

Unit 2: Self-management Skills – I			
Learning Outcome	Theory (07 hrs)	Practical (03 hrs)	Duration (10 Hrs)
1. Describe the meaning and importance of self-	1. Meaning of self-management 2. Positive results of self-management 3. Self-management skills	1. Identification of self-management skills 2. Strength and	05

		and other peripheral devices 5. Drawing diagram of computer system and labelling it	
4. Demonstrate basic computer skills	1. Primary operations on a computer system – input, process, storage, output, communication networking, etc.	1. Identification of the various input and output units and explanation of their purposes	04

Unit 4: Entrepreneurial Skills - I

Learning Outcome	Theory (06 hrs)	Practical (09 hrs)	Duration (15 Hrs)
1. Identify various types of business activities	1. Types of businesses – service, manufacturing, hybrid 2. Types of businesses found in our community 3. Business activities around us	1. Prepare posters of business activities found in cities/villages, using pictures 2. Discuss the various types of activities, generally adopted by small businesses in a local community 3. Best out of waste 4. Costing of the product made out of waste 5. Selling of items made from waste materials 6. Prepare list of businesses that provides goods and services in exchange for money	09
2. Demonstrate the knowledge of distinguishing characteristics of entrepreneurship	1. Meaning of entrepreneurship development 2. Distinguishing characteristics of entrepreneurship 3. Role and rewards of entrepreneurship	1. Prepare charts showing advantages of entrepreneurship over wages 2. Group discussions on role and features of entrepreneurship 3. Lectures/presentations by entrepreneurs on their experiences and success stories 4. Identify core skills of successful entrepreneur	06

Unit 5: Green Skills – I			
Learning Outcome	Theory (07 hrs)	Practical (03 hrs)	Duration (10 Hrs)
1. Demonstrated the knowledge of the factors influencing natural resource conservation	1. Introduction to environment, 2. Relationship between society and environment, ecosystem and factors causing imbalance 3. Natural resource conservation 4. Environment protection and conservation	1. Group discussion on hazards of deteriorating environment 2. Prepare posters showing environment conservation 3. Discussion on various factors that influence our environment	05
2. Describe the importance of green economy and green skills	1. Definition of green economy 2. Importance of green economy	1. Discussion on the benefits of green skills and importance of green economy 2. Prepare a Poster showing the importance of green economy with the help of newspaper/magazine cuttings	05
Total	34	41	75

Part B: Vocational Skills

Sino.	Units	Duration (Hrs)
1.	Introduction to the Food Processing	20
2.	Quality control of Processed Food	20
3.	Prepare and maintain work area and equipment	30
4.	Feed or load stacking equipment into the machine	25
	Total	95

Unit 1: Introduction to Food Processing			
Learning Outcome	Theory (10 hrs)	Practical (10 hrs)	Duration (20 Hrs)
1. Describe food processing	1. Define food processing 2. Importance and scope of food processing and preservation 3. Fruit and vegetable in human nutrition 4. Factors responsible for post harvest losses	1. Identification of the processed product from fruit and vegetable	20

Unit 1: Introduction to Food Processing			
Learning Outcome	Theory (10 hrs)	Practical (10 hrs)	Duration (20 Hrs)
	5. Constraint in food preservation and processing		

Unit 2: Quality control of processed food			
Learning Outcome	Theory (08 hrs)	Practical (12 hrs)	Duration (20 Hrs)
1. Describe quality control in processed food	1. Importance of quality management 2. Importance of quality parameters for processed foods 3. FPO specifications for processed products 4. Methods of evaluation of quality parameters 5. Tools and equipment used 6. Hedonic scale 7. What are the various quality standards- Agmark, HACCP, ISO, BIS and PFA	1. Enlist the quality parameters for processed food products 2. Identification of tools and equipment used	20

Unit 3: Prepare and Maintain Work Area and Equipment			
Learning Outcome	Theory (12 hrs)	Practical (18 hrs)	Duration (30 Hrs)
1. Prepare the work area	1. Understand types of machineries used in packing and packaging material 2. Maintenance of machinery 3. Precaution in packaging	1. Demonstration the cleaning and maintaining of the work area	15
2. Maintain packaging machineries and tools	1. Types of chemicals, materials and equipment required for the cleaning and maintenance 2. Cleaning process to disinfect equipment/ tools 3. supplier/manufacturer's instructions related to cleaning	1. Demonstration of the cleaning of machineries and tools used with approved sanitizers	15

Unit 4: Basic Operations on the Machines			
Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 Hrs)
1. Perform basic operations on the machines	1. Various equipment, tools and machines used in processed food production units and	1. Identification of regulatory keys of the machine and key functions	25

Unit 4: Basic Operations on the Machines			
Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 Hrs)
	their functions 2. Methods used to avoid contamination while handling food items 3. Different factors that affect result of measurement of ingredients and the relevant corrective steps taken to control them	2. Inspect/check machines prior to operation for any mechanical inefficiency and technical problem 3. Identify and report if technical maintenance is required 4. Monitoring of the various stages of processing operation to maintain quality standards	
Total	40	55	95

CLASS 10

Part A - Employability Skills

S.No.	Units	Duration (Hrs)
1.	Communication Skills – II	20
2.	Self-management Skills - II	10
3.	Information and Communication Technology Skills – II	20
4.	Entrepreneurial Skills – II	15
5.	Green Skills - II	10
	Total	75

Unit 1: Communication Skills – II			
Learning Outcome	Theory (12 hrs)	Practical (08 hrs)	Duration (20 Hrs)
1. Demonstrate knowledge of various methods of communication	1. Methods of communication - Verbal - Non-verbal - Visual	1. Writing pros and cons of written, verbal and non-verbal communication 2. Listing do's and don'ts for avoiding common body language mistakes	05
3. Provide descriptive and specific feedback	1. Communication cycle and importance of feedback 2. Meaning and importance of feedback 3. Descriptive feedback - written comments or conversations	1. Constructing sentences for providing descriptive and specific feedback	03

	4. Specific and non-specific feedback		
3. Apply measures to overcome barriers in communication	<ol style="list-style-type: none"> 1. Barriers to effective communication – types and factors 2. Measures to overcome barriers in effective communication 	<ol style="list-style-type: none"> 1. Enlisting barriers to effective communication 2. Applying measures to overcome barriers in communication 	04
4. Apply principles of communication	<ol style="list-style-type: none"> 1. Principles of effective communication 2. 7 Cs of effective communication 	<ol style="list-style-type: none"> 1. Constructing sentences that convey all facts required by the receiver 2. Expressing in a manner that shows respect to the receiver of the message 3. Exercises and games on applying 7Cs of effective communication 	03
5. Demonstrate basic writing skills	<ol style="list-style-type: none"> 2. Writing skills to the following: <ul style="list-style-type: none"> • Sentence • Phrase • Kinds of Sentences • Parts of Sentence • Parts of Speech • Articles • Construction of a Paragraph 	<ol style="list-style-type: none"> 1. Demonstration and practice of writing sentences and paragraphs on topics related to the subject 	05

Unit 2: Self-management Skills – II

Learning Outcome	Theory (05 hrs)	Practical (05 hrs)	Duration (10 Hrs)
1. Apply stress management techniques	<ol style="list-style-type: none"> 1. Meaning and importance of stress management 2. Stress management techniques – physical exercise, yoga, meditation 3. Enjoying, going to vacations and holidays with family and friends 4. Taking nature walks 	<ol style="list-style-type: none"> 1. Exercises on stress management techniques – yoga, meditation, physical exercises 2. Preparing a write-up on an essay on experiences during a holiday trip 	06
3. Demonstrate the ability to work independently	<ol style="list-style-type: none"> 1. Importance of the ability to work independently 2. Describe the types of self-awareness 3. Describe the meaning of self-motivation and self-regulation 	<ol style="list-style-type: none"> 1. Demonstration on working independently 2. goals 3. Planning of an activity 4. Executing tasks in a specific period, with no help or directives 5. Demonstration on the qualities required for working independently 	04

Outcome	(07 hrs)	(03 hrs)	(10 hrs)
1. Demonstrate the knowledge of importance, problems and solutions related to sustainable development	1. Definition of sustainable development 2. Importance of sustainable development 3. Problems related to sustainable development	1. Identify the problem related to sustainable development in the community 2. Group discussion on the importance of respecting and conserving indigenous knowledge and cultural heritage 3. Discussion on the responsibilities and benefits of environmental citizenship, including the conservation and protection of environmental values 4. Preparing models on rain water harvesting, drip / sprinkler irrigation, vermin-compost, solar energy, solar cooker, etc.	10
Total	38	37	75

Part B–Vocational Skills

Sino.	Units	Duration (Hrs)
1.	Observe packing machines for various processed food product	20
2.	Introduction to Good Manufacturing Process	20
3.	Waste utilization and its management	25
4.	Work effectively with others	15
5.	Occupational Health, Hygiene and First Aid Practices	15
	Total	95

Unit 1: Observe Packing Machines for Various Processed Food Products			
Learning Outcome	Theory (08 hrs)	Practical (12 hrs)	Duration (20 Hrs)
1. Observe packing production line	<ol style="list-style-type: none"> 1. Monitor and maintain the levels of materials 2. Packing specification for various packing machine 	1. Visit to a packaging industries and observe packaging lines	10
2. Carry out process compliances	<ol style="list-style-type: none"> 1. Emergence and routine shutdowns, when and how to perform the same on the packaging machine 2. The condition in which the area should be left 	1. Enlist the relevant legislation for food processing and packaging norms	10

Unit 2: Introduction to Good Manufacturing Process			
Learning Outcome	Theory (08 hrs)	Practical (12 hrs)	Duration (20 Hrs)
1. Recognize fruit and vegetable waste	<ol style="list-style-type: none"> 1. Define waste 2. Identify various waste material from food industry 3. Merits of waste utilization 	1. Visit a food industry and Identification of waste material from food industry	10
1. Recognize and adopt strategies for Good manufacturing process in food processing	<ol style="list-style-type: none"> 1. Procedure to maintain Good manufacturing process 2. Components of Good manufacturing process 	1. Visit to a food processing industry and observe the Good manufacturing process	10

Unit 3: Waste Utilization and its Management			
Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 Hrs)
1. Waste Utilization	<ol style="list-style-type: none"> 1. Define waste 2. Types of waste 3. Utilization of waste 4. How to extract the crude pectin from fruits waste 5. Extraction of oil from citrus peel 6. Prepare of mango/jamun kernel powder 7. Vinegar production 	<ol style="list-style-type: none"> 1. Identification of different types of waste 2. Select the waste as per the by product 	10
2. Waste Disposal	<ol style="list-style-type: none"> 1. Importance of waste disposal 2. Waste disposal 3. Prepare waste for disposal 	<ol style="list-style-type: none"> 1. Identify the waste for disposal 2. Prepare waste for disposal 3. Visit the processing industry and prepare report on waste treatment 	10

Unit 3: Waste Utilization and its Management			
Learning Outcome	Theory (10 hrs)	Practical (15 hrs)	Duration (25 Hrs)
3. Undertake physical and biological methods of treating waste materials	1. Procedure for treating waste materials using physical and biological methods	1. Disposing waste safely and correctly in a designated area	05

Unit 4: Work Effectively with Others			
Learning Outcome	Theory (06 hrs)	Practical (09 hrs)	Duration (15 Hrs)
1. Work effectively with others	<ol style="list-style-type: none"> 1. Importance of teamwork in organizational and individual success 2. Importance of ethics for professional success 3. Importance of discipline for professional success 4. Common reasons for interpersonal conflict and Importance of ways of managing 5. Importance of developing effective working relationships for professional success 6. Expressing and addressing grievances appropriately and effectively 	1. Role play of receive information and instructions from the supervisor and fellow workers, getting clarification where required	15

Unit 5: Occupation Health, Hygiene and First Aid Practices			
Learning Outcome	Theory (06 hrs)	Practical (09 hrs)	Duration (15 Hrs)
1. Recognize and adopt strategies for preventing hazardous conditions and work practices	<ol style="list-style-type: none"> 1. Types of hazards 2. Common hazards at packing machine lines 3. Principles of safety and health 4. Procedure and steps to be taken to report any accident, incident or problem without delay to an appropriate person 5. Applicable hygiene and safety standards, regulations, and codes for packing machine 	<ol style="list-style-type: none"> 1. Reading of the manuals for tools, equipment and materials used in packing machine lines 2. Demonstration of the correct and safe use of tools, equipment and materials 3. Demonstration of the correct and safe storage of tools, equipment and materials 4. Discussion on the procedure for reporting any accident, incident or problem without delay to an appropriate person and taking action to reduce further danger 	5
2. Administer first aid or undertake most important action in a	1. Procedure for providing first aid in case of medical	1. Demonstration of basic first aid practices adopted for cut, burns,	5

6. ORGANISATION OF FIELD VISITS

In a year, at least 3 field visits/educational tours should be organised for the students to expose them to the activities in the workplace.

Visit a Food processing industry and observe the following: Location, Site, Office building, Store, Washing chamber, weighing room, Grading machines, packaging material, Packing Yard, storage chamber etc. During the visit, students should obtain the following information from the owner or the supervisor of the industry/processing unit:

- 1.Types of processed foods packed at the industry
- 2.Types of packaging machines and packaging material used
- 3.Total number of packing machines
- 4.Total input and output handled annually
- 5.Manpower engaged
- 6.Total expenditure of the packhouse
- 7.Total annual income
- 8.Profit/Loss (Annual)
- 9.Any other information

7.LIST OF EQUIPMENT AND MATERIALS

The 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 Institution so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience.

a.i.1. Packaging Materials: Bamboo baskets, gunny bags, corrugated film board, (CFQ) boxes, card board dividers, wooden boxes with strapping machine, hammer and nails, cushioning materials for packaging (tissue paper, paper shreds), plastic crates, polyethylene bags, polypropylene bags and labels.

a.i.2. Weighing balances

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

Qualification 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:

S.No	Qualification	Minimum Competencies	Age Limit
1.	B. Sc/B. Tech/BE in Food Technology or Food Engineering from a recognized Institute /University, with at least 1 year work/teaching experience	<ul style="list-style-type: none"> • Effective communication skills (oral and written) • Basic computing skills. 	18-37 years (as on Jan. 01 (year)) Age relaxation to be provided as per Govt. rules.

Vocational Teachers/Trainers form the backbone of Vocational Education being imparted as an integral part of Rashtriya Madhyamik Shiksha *Abhiyan* (RMSA). They are directly involved in teaching of vocational subjects and also serve as a link between the

industry and the schools for arranging industry visits, On-the-Job Training (OJT) and placement.

These guidelines have been prepared with an aim to help and guide the States in engaging quality Vocational Teachers/Trainers in the schools. Various parameters that need to be looked into while engaging the Vocational Teachers/Trainers are mode and procedure of selection of Vocational Teachers/Trainers, Educational Qualifications, Industry Experience, and Certification/Accreditation.

The State may engage Vocational Teachers/Trainers in schools approved under the component of Vocationalisation of Secondary and Higher Secondary Education under RMSA in the following ways:

(i) Directly as per the prescribed qualifications and industry experience suggested by the PSS Central Institute of Vocational Education(PSSCIVE), NCERT or the respective Sector Skill Council(SSC)

OR

(ii) Through accredited Vocational Training Providers accredited under the National Quality Assurance Framework (NQAF*) approved by the National Skill Qualification Committee on 21.07.2016. If the State is engaging Vocational Teachers/Trainers through the Vocational Training Provider (VTP), it should ensure that VTP should have been accredited at NQAF Level 2 or higher.

The educational qualifications required for being a Vocational Teacher/Trainer for a particular job role are clearly mentioned in the curriculum for the particular NSQF compliant job role. The State should ensure that teachers / trainers deployed in the schools have

relevant technical competencies for the NSQF qualification being delivered. The Vocational Teachers/Trainers preferably should be certified by the concerned Sector Skill Council for the particular Qualification Pack/Job role which he will be teaching. Copies of relevant certificates and/or record of experience of the teacher/trainer in the industry should be kept as record.

To ensure the quality of the Vocational Teachers/Trainers, the State should ensure that a standardized procedure for selection of Vocational Teachers/Trainers is followed. The selection procedure should consist of the following:

- (i) Written test for the technical/domain specific knowledge related to the sector;
- (ii) Interview for assessing the knowledge, interests and aptitude of trainer through a panel of experts from the field and state representatives; and
- (iii) Practical test/mock test in classroom/workshop/laboratory.

In case of appointment through VTPs, the selection may be done based on the above procedure by a committee having representatives of both the State Government and the VTP.

The State should ensure that the Vocational Teachers/Trainers who are recruited should undergo induction training of 20 days for understanding the scheme, NSQF framework and Vocational Pedagogy before being deployed in the schools.

The State should ensure that the existing trainers undergo in-service training of 5 days every year to make them aware of the relevant and

new techniques/approaches in their sector and understand the latest trends and policy reforms in vocational education.

The Head Master/Principal of the school where the scheme is being implemented should facilitate and ensure that the Vocational Teachers/Trainers:

- (i) Prepare session plans and deliver sessions which have a clear and relevant purpose and which engage the students;
- (ii) Deliver education and training activities to students, based on the curriculum to achieve the learning outcomes;
- (iii) Make effective use of learning aids and ICT tools during the classroom sessions;
- (iv) Engage students in learning activities, which include a mix of different methodologies, such as project based work, team work, practical and simulation based learning experiences;
- (v) Work with the institution's management to organise skill demonstrations, site visits, on-job trainings, and presentations for students in cooperation with industry, enterprises and other workplaces;
- (vi) Identify the weaknesses of students and assist them in upgradation of competency;
- (vii) Cater to different learning styles and level of ability of students;
- (viii) Assess the learning needs and abilities, when working with students with different abilities
- (ix) Identify any additional support the student may need and help to make special arrangements for that support;

(x) Provide placement assistance

Assessment and evaluation of Vocational Teachers/Trainers is very critical for making them aware of their performance and for suggesting corrective actions. The States/UTs should ensure that the performance of the Vocational Teachers/Trainers is appraised annually. Performance based appraisal in relation to certain pre-established criteria and objectives should be done periodically to ensure the quality of the Vocational Teachers/Trainers. Following parameters may be considered during the appraisal process:

1. Participation in guidance and counselling activities conducted at Institutional, District and State level;
2. Adoption of innovative teaching and training methods;
3. Improvement in result of vocational students of Class X or Class XII;
4. Continuous upgradation of knowledge and skills related to the vocational pedagogy, communication skills and vocational subject;
5. Membership of professional society at District, State, Regional, National and International level;
6. Development of teaching-learning materials in the subject area;
7. Efforts made in developing linkages with the Industry/Establishments;
8. Efforts made towards involving the local community in Vocational Education
9. Publication of papers in National and International Journals;
10. Organisation of activities for promotion of vocational subjects;

11. Involvement in placement of students/student support services.

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