LEARNING OUTCOME BASED VOCATIONAL CURRICULUM

Job Role: Millet Product Processor
(QUALIFICATION PACK: Ref. Id. FIC/Q1011)

SECTOR: Food Processing

Grade: 9th and 10th

NSQF Level: 3

PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION
(a constituent unit of NCERT, under Ministry of Education, 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, Millet Product Processor,

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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. The curriculum has been designed for the vocational education programme introduced under the Centrally Sponsored Scheme of Samagra Shiksha of the Ministry of Education (erstwhile, Ministry of Human Resource Development) and is aligned to the National Skill Qualifications Framework (NSQF). The curricula for vocational courses are being developed under the project approved by the Project Approval Board (PAB) of 'Samagra Shiksha', which is an overarching programme for the school education sector extending from pre-school to Grade 12.

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 Millet Product Processor. The curriculum has been developed for the students of Grades 9 and 10 which is aligned to the National Occupation Standards (NOSs) for the job role. 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 skill needs. The teaching-learning is to be done through interactive sessions in Grade rooms, practical activities in laboratories or workshops, projects, field visits, etc. and professional experience is to be provided through on-the-job training.

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.

Prof. Dinesh Prasad Saklani
Director
National Council of Education Research & Training

PREFACE

India today stands poised at a very exciting juncture in its saga. The potential for achieving inclusive growth is 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. In order to fulfil the growing aspirations of our youth and the demand of skilled human resource, the Ministry of Education (MoE), 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 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 with the responsibility of developing learning outcome-based curricula, student workbooks, teacher handbooks and e-learning materials for the job roles in various sectors.

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 fulfil the needs of 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, policymakers, 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.

The success of this curriculum depends upon its effective implementation, and it is expected that the managers of vocational education programmes, vocational educators, vocational teachers/trainers and other stakeholders will make earnest efforts to provide better facilities, develop linkages with the industry or world of work and foster a conducive learning environment for the students to effectively transact the curriculum and to achieve the learning outcomes as per the content of the curriculum document.

DR. DEEPAK PALIWAL
Joint Director
PSS Central Institute of Vocational Education

ABOUT THIS CURRICULUM

This curriculum has been developed to provide a comprehensive and practical learning experience for students aspiring to become Millet Product Processors in India. It is aligned with the National Skills Qualification Framework (NSQF) and based on the National Occupational Standards (NOS) for the role, ensuring that students acquire skills that are relevant and recognized by the food processing industry.

Purpose:

The primary purpose of this curriculum is to equip students with the knowledge, skills, and attitudes necessary to perform effectively as Millet Product Processors. It aims to bridge the gap between education and industry requirements, preparing students for immediate employment and long-term career growth in the food processing sector.

Scope:

This curriculum covers a wide range of topics, including:

- Introduction to millets and their importance
- Receiving, storing, cleaning, grading, and sorting of raw millets
- Pre-processing and processing techniques
- Food safety and hygiene practices
- Packaging, quality control, and marketing of millet products
- Maintenance and troubleshooting of processing equipment
- Employability skills for career success

Intended Audience:

This curriculum is designed for students in Grade 9 and 10 who are pursuing vocational education in the food processing sector. It is also valuable for educators, trainers, and industry professionals involved in millet processing and skill development.

Objectives:

Upon completion of this curriculum, students will be able to:

- Demonstrate competency in millet processing operations.
- Apply food safety and hygiene standards.
- Ensure the quality and safety of millet products.
- Contribute to the growth and sustainability of the millet industry.
- Pursue further education and career advancement opportunities in the food processing sector.

This curriculum is intended to serve as a guide for educators and trainers, providing a framework for delivering high-quality vocational education and training in millet processing. It is hoped that, the effective implementation of this curriculum will contribute to the development of a skilled and competent workforce for the growing millet industry in India.

- Coordinator

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 Samagrah Shiksha and the officials of the Ministry of Education (MoE), Government of India for the financial support to the project for the 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 National Council of Educational Research and Training (NCERT), Food Industry Capacity & Skill Initiative (FICSI) and Sector Skill Council for Management and Entrepreneurship and Professional Skills for their academic support and cooperation in the development of Qualification file and curriculum.

We are especially thankful to Dr. R. Ravichandran, Department of Humanities, Sciences, Education & Research (DHSER), PSS Central Institute of Vocational Education (PSSCIVE), Bhopal, for his valuable guidance, encouragement, and continued support throughout the development of this learning outcome-based curriculum. Our heartfelt thanks go to Dr. Dipika Agrahar Murugkar, Principal Scientist, ICAR–Central Institute of Agricultural Engineering, Bhopal, Madhya Pradesh, for her expert insights on millet processing technologies and her contribution to ensuring the scientific relevance of the content. We are grateful to Dr. Preeti Dixit, Consultant, Madhya Pradesh Council of Science and Technology (MPCST), Bhopal, Madhya Pradesh, for her expert advice and technical contributions in the areas of nutrition and millet processing. We also acknowledge the valuable inputs of Dr. Alka Sharma, Director, Khadyot Naturals Pvt. Ltd., Bhopal, Madhya Pradesh, whose experience in millet-based enterprise development greatly enriched the entrepreneurial aspects of this curriculum. Their collective expertise and generous support have played a pivotal role in shaping this curriculum for the benefit of learners and practitioners in the field of millet product processing. Faculty and Staff of PSSCIVE are also duly appreciated and acknowledged for their suggestions and editorial support.

Team PSSCIVE

CONTENTS

1. COURSE OVERVIEW

COURSE TITLE: Millet Product Processor

DESCRIPTION:
This curriculum is designed to prepare students for the role of a Millet Product Processor within the food processing industry. It provides the knowledge and skills necessary to handle, process, and package various millet products, aligning with industry standards and best practices. The curriculum focuses on food safety, quality control, and efficient processing techniques.

COURSE OUTCOMES:
Upon successful completion of this course, students will be able to:

- Identify and Grade different types of millets.
- Understand the nutritional value and health benefits of millets.
- Operate machinery and equipment used in millet processing.
- Apply food safety and hygiene standards during millet processing.
- Perform cleaning, sorting, grading, and packaging of millet products.
- Ensure quality control at each stage of the processing cycle.
- Maintain a clean and organized work environment.
- Adhere to safety protocols and use personal protective equipment.
- Market and promote millet products effectively.
- Handle all food processing plant activities efficiently.

COURSE REQUIREMENTS:
A basic understanding of science (biology, chemistry) and mathematics is desirable.

COURSE LEVEL:
This is an Intermediate level course with NSQF Level 3. On completion of this course, a student can take up more advanced roles and certifications in the food processing sector.

COURSE DURATION: 400 hrs

Grade 9 :	200 hrs
Grade 10:	200 hrs
TOTAL:	**400 hrs**

2. SCHEME OF UNITS

This course is structured to provide a balanced mix of employability skills and vocational skills, preparing students for real-world entrepreneurship and job scenarios. The unit-wise distribution of hours and marks for Class 9 is as follows:

GRADE 9			
	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 Millets and Their Importance	10	30
	Unit 2: Prepare for Process Production	15	
	Unit 3: Primary Processing of Millets	25	
	Unit 4: Secondary Processing of Millets	25	
	Unit 5: Food Safety and Hygiene	20	
	Total	**95**	**30**
Part C	**Practical Work**		
	Practical Examination	6	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	**5**	**10**
	Grand Total	**200**	**100**

GRADE 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**	**10**
Part B	**Vocational Skills**		
	Unit 1: Millet-Based Bakery Products	20	30
	Unit 2: Millet-Based Ready-to-Cook (RTC) and Ready-to-Eat (RTE) Foods	30	
	Unit 3: Millet-Based Extruded Products	25	
	Unit 4: Marketing and Sales of Millet Products	20	
	Total	**95**	**30**
Part C	**Practical Work**		
	Practical Examination	6	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	**5**	**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. ASSESMENT 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 (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		**No. of Questions**			
S. No.	**Typology of Question**	**Very Short Answer (1 mark)**	**Short Answer (2 Marks)**	**Long Answer (3 Marks)**	**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,	1	2	2	11

	interpret, compare, contrast, explain, paraphrase, or interpret information)				
3.	Application – (Use abstract information in concrete situation, to apply knowledge to new situations: Use given content to interpret a situation, private 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 Question)**	

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.

Continuous And Comprehensive Evaluation

Continuous and Comprehensive Evaluation (CCE) refers to a system of schoolbased 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

GRADE 9

Part A: Employability Skills

S. No.	Units	Duration (hrs)
1.	Unit 1: Communication Skills-I	20
2.	Unit 2: Self-management Skills-I	10
3.	Unit 3: Information and Communication Technology Skills-I	20
4.	Unit 4: Entrepreneurial Skills-I	15
5.	Unit 5: Green Skills-I	10
	Total	**75**

UNIT 1: COMMUNICATION SKILLS-I			
Learning Outcome	**Theory (08 hours)**	**Practical (12 hrs)**	**Total 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 3. 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, receiver, decoding, and 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 aVisual perception • Language • Past experience • Prejudices • Feelings • Environment	1. Group discussion on factors affecting perspectives in communication 2. Sharing of 3. experiences on factors affecting perspectives 4. Sharing experiences on factors affecting 5. communication at workplace	05
4. Demonstrate the knowledge of basic writing skills	1. Writing skills related to the following: • 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
Total			**20**

UNIT 2: SELF-MANAGEMENT-I			
Learning Outcome	**Theory (07 hrs)**	**Practical (03 hrs)**	**Total Duration (10 Hrs)**
1. Describe the meaning and importance of self-management	1. Meaning of self-management 2. Positive results of self- management 3. Self-management skills	1. Identification of self- management skills 2. Strength and weakness analysis	05
2. Identify the factors that helps in building self confidence	1. Factors that help in building self-confidence – social, cultural, and physical factors 2. Self-confidence building tips -	1. Role play exercises on building self confidence 2. Use of positive metaphors/ words	05

	getting rid of the negative thoughts, thinking positively, staying happy with small things, staying clean, hygienic and smart, chatting with positive people, etc.	3. Positive stroking on wakeup and before going bed 4. Helping others and working for community	
Total			**10**

UNIT 3: INFORMATION AND COMMUNICATION TECHNOLOGY-II			
Learning Outcome	**Theory (06 hrs)**	**Practical (14 hrs)**	**Duration (20 hrs)**
1. Describe the role of Information and Communication Technology (ICT) in day-to-day life and workplace	1. Introduction to ICT 2. Role and 3. importance of ICT in personal life and at workplace 4. ICT in our daily life (examples) 5. ICT tools - Mobile, tab, radio, TV, email, etc.	1. Discussion on the role and importance of ICT in personal life and at workplace. 2. Preparing posters /collages for showing the role of ICT at workplace	04
1. Identify components of basic computer system and their functions	1. Computer system - Central Processing Unit (CPU), memory, motherboard, storage devices 2. Hardware and software of a computer system 3. Role and functions of Random Access Memory (RAM) and Read Only Memory (ROM) 4. Role and functions of Central Processing Unit	1. Connecting the cables and peripherals to the Central Processing Unit 2. Starting and shutting down a computer 3. Group discussion on the various aspects of hardware and software	07

	5. Procedure for starting and shutting down a computer		
3. Demonstrate use of various components and peripherals of computer system	1. Peripherals devices and their uses – mouse, keyboard, scanner, webcam, etc. of a computer system	1. Identification of various parts and peripherals of a computer 2. Demonstration and practice on the use of mouse 3. Demonstration and practice on the use of keyboard 4. Demonstration of the uses of printers, webcams, scanner and other peripheral devices 5. Drawing diagram of computer system and labelling it	05
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
Total			**20**

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, manufacturin, hybrid 2. Types of businesses found in our community 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	09

		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	
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/presentation s by entrepreneurs on their experiences and success stories 4. Identify core skills of successful entrepreneur	03
Total			**15**

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	2. Introduction to environment, Relationship between society and environment, ecosystem and	1. Group discussion on hazards of deteriorating environment 2. Prepare posters showing	05

	factors causing imbalance 3. Natural resource conservation 4. Environment protection and conservation	environment conservation 3. Discussion on various factors that influence our environment	
2. Describe the importance of green economy and green skills	1. Definition of green economy 2. mportance 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

S.No.	Units	Duration (hrs)
1.	Unit 1: Introduction to Millets and Their Importance	10
2.	Unit 2: Prepare Millets for Process Production	15
3.	Unit 3: Primary Processing of Millets	25
4.	Unit 4: Secondary Processing of Millets	25
5.	Unit 5: Food Safety and Hygiene	20
	Total	**95**

UNIT 1: INTRODUCTION TO MILLETS AND THEIR IMPORTANCE			
Learning Outcome	**Theory (04 hrs)**	**Practical (06 hrs)**	**Duration (10 Hrs)**
1. Significance of Millets: Nature, Farmer and Consumer	1. Millets- • About millets • Millets & Nature • Utilization of millets	1. Prepare a chart on different types of millets	02
2. Overview of Types of Millets	1. Types of millets 2. Place of Origin 3. Production and Consumption 4. Utilization of Millets	1. Field visit to local Millet farms to acquaint students with various types of millets	06

3. Millets & Consumers: Health in Every Bite	1. Nutritional composition of millets 2. Health benefits of millets	1. Prepare and present a short report on the nutritional values of each type of Millet	02
Total			**10**

UNIT 2: PREPARE FOR PROCESSING			
Learning Outcome	**Theory (05 hrs)**	**Practical (10 hrs)**	**Duration (35 Hrs)**
1. Plan for Processing	1. Identification of work requirements of the Unit 2. Estimation of manpower and raw material and packaging material requirements	1. Create a flow diagram showing the sequence of tasks to be performed in the unit along with details on required manpower, type of products to be manufactured and required raw material and packaging material.	03
2. Perform Procurement of Raw Materials	1. Sourcing quality raw materials (ingredients, packaging materials) as per specifications 2. Receiving raw materials as per SOP	1. Practice verifying types of millets, quantities and quality of received ingredients as per organization standard.	05
3. Store food/ food ingredients in hygienic manner	1. Storage of procured raw materials under specified conditions.	1. Practice cleaning and sanitizing receiving area before commencement of work	04
4. Clean and maintain work area, machineries,	1. Getting ready the work area 2. Tools, equipment and machinery of millet processing	1. Perform cleaning and sanitization of work area 2. Inspect tools, machines and	03

and tools for production	3. Maintenance and troubleshooting of the equipment and machinery used in millets processing	equipment for cleanliness, any faults and report to concerned authority	
Total			**15**

UNIT 3: PRIMARY PROCESSING OF MILLETS			
Learning Outcome	**Theory (10 hrs)**	**Practical (15 hrs)**	**Duration (35 Hrs)**
1. Perform Primary Processing of Millets	1. Primary processing of millets: • Cleaning (Sieving, Winnowing, Use of aspirators or blowers, Magnetic separation) • Grading • Destoning • Dehusking (Dehulling) • Separation • Soaking and Parboiling • Milling and Grinding • Drying and Storage	1. Perform cleaning, grading, soaking, milling, grinding, drying and storage activities for processing millets grains	10
2. Identify and prepare primary processed products of millets	1. Value added products obtained after primary processing of millets grains Semolina Grits Flour 2. Examine the physical characteristics of the finished items	1. Prepare millet's semolina and composite flour and examine listed quality parameters 2. Pack label and store the composite flour	15
Total			**25**

UNIT 4: SECONDARY PROCESSING OF MILLETS			
Learning Outcome	**Theory (10 hrs)**	**Practical (15 hrs)**	**Duration (25 Hrs)**
1. Understand the concept of secondary processing	1. Concept and importance of secondary processing	1. Observe and document secondary processing stages	05

and product categories	2. Techniques Employed in Secondary Processing of Millets 3. Secondary Processed Millet-Based Products: Ready-to-Cook (RTC) Millet-Based Products (Instant Mixes, Fermented Millet Products, Ready-to-Drink (RTD) Millet-Based Beverages)	through video/virtual/field demonstration	
2. Prepare few millet-based products	1. Preparation of Finger Millet (Ragi) Malt 2. Proso Millet Khichdi: 3. Jowar Besan Chilla 4. Foxtail Millet Kheer	1. Hands-on preparation of 2–3 value-added millet-based products 2. Record ingredients, steps, tools used, shelf life	15
3. Package and label millet products	1. Packaging and labelling of millet products: Importance of packaging, packaging types for different products 2. Food labelling norms (FSSAI)	1. Practice packaging of prepared products and prepare mock labels (with name, ingredients, date, etc.)	05
Total			**25**

UNIT 5: FOOD SAFETY AND HYGIENE			
Learning Outcome	**Theory (15 hrs)**	**Practical (10 hrs)**	**Duration (20 Hrs)**
1. Maintain personal and workplace hygiene	1. Importance of personal hygiene in food handling 2. Workplace hygiene protocols: cleaning, sanitizing surfaces and tools 3. Cross-contamination risks	1. Demonstrate personal hygiene practices (gloves, head cap, nails, uniform) 2. Perform step-by-step cleaning and sanitization of	08

	and preventive steps	workstations, tools, equipment	
2. Follow food safety protocols during processing	1. Principles of food safety (HACCP, basic GMPs) 2. Food hazards: biological, physical, and chemical 3. Handling food safely throughout processing stages	1. Conduct a food safety risk assessment on millet-based processing activity 2. Practice safe handling and disposal of waste materials	08
3. Understand regulatory compliance and documentation	1. 1. Overview of FSSAI and its role in food safety regulation 2. Key requirements for food business operators: registration, labelling, hygiene standards, FSSAI Schedule IV 3. Introduction to basic documentation: batch records, cleaning logs, temperature records	1. Fill a sample FSSAI registration form for a millet processing unit 2. Create a hygiene checklist/logbook and maintain it during processing sessions	04
Total			**20**

GRADE 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 – IV			
Learning Outcome	**Theory (10 hrs)**	**Practical (15 hrs)**	**Duration (25 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 Listing do's and don'ts for avoiding common body language mistakes	05
2. Provide descriptive and specific feedback	1. Communication cycle and importance of feedback 2. Meaning and importance of feedback 3. Descriptive feedback a. written comments or conversations 4. Specific and nonspecific feedback	1. Constructing sentences for providing descriptive and specific feedback	03
3. Apply measures to overcome barriers in communication	1. Barriers to effective communication – types and factors 2. Measures to overcome barriers in effective communication	1. Enlisting barriers to effective communication 2. Applying measures to overcome barriers in communication	04
4. Apply principles of communication	1. Principles of effective communication 7 Cs of effective communication	1. Constructing sentences that convey all facts required by the receiver 2. Expressing in a manner that shows respect to the	03

		receiver of the message 3. Exercises and games on applying 7Cs of effective communication	
5. Demonstrate basic writing skills	1. Writing skills to the following: • Sentence • Phrase • Kinds of Sentences • Parts of Sentence • Parts of Speech • Articles • Construction of a Paragraph	1. Demonstration and practice of writing sentences and paragraphs on topics related to the subject	05
Total			**20**

Unit 2: Self-management Skills - II			
Learning Outcome	**Theory (05 hrs)**	**Practical (05 hrs)**	**Total Duration (10 Hrs)**
1. Apply stress management techniques	1. Meaning and importance of stress management 2. Stress management techniques – physical exercise, yoga, meditation, enjoying, going to vacations and holidays with family and friends, taking nature walks	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
2. Demonstrate the ability to work independently	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	1. Demonstration on working independently goals 2. Planning of an activity 3. Executing tasks in a specific period, with no help or directives	04

		4. Demonstration on the qualities required for working independently	
Total			**10**

UNIT 3: INFORMATION AND COMMUNICATION TECHNOLOGY SKILLS– II			
Learning Outcome	**Theory (08 hrs)**	**Practical (12 hrs)**	**Total Duration (20 Hrs)**
1. Distinguish between different operating systems	1. Classes of operating systems 2. Menu, icons and task bar on the desktop 3. File concept, file operations, file organization, directory structures, and filesystem structures 4. Creating and managing files and folders	1. Identification of task bar, icons, menu, etc. 2. Demonstration and practicing of creating, renaming and deleting files and folders, saving files in folders and subfolders, restoring files and folders from recycle bin	17
2. Apply basic skills for care and maintenance of computer	1. Importance and need of care and maintenance of computer 2. Cleaning computer components 3. Preparing maintenance schedule 4. Protecting computer against viruses Scanning and cleaning viruses and removing SPAM files, temporary files and folders	1. Demonstration of the procedures to be followed for cleaning, care and maintenance of hardware and software	03
Total			**20**

UNIT 4: ENTREPRENEURIAL SKILLS - II			
Learning Outcome	**Theory (06 hrs)**	**Practical (09 hrs)**	**Total Duration (15 Hrs)**
1. List the characteristics of successful entrepreneur	1. Entrepreneurship and society 2. Qualities and functions of an entrepreneur 3. Role and importance of an entrepreneur 4. Myth about entrepreneurship 5. Entrepreneurship as a career option	1. Writing a note on entrepreneurship as career option 2. Collecting success stories of first generation and local entrepreneurs 3. Listing the entrepreneurial qualities • analysis of strength and weaknesses 4. Group discussion of self- qualities that students feel are needed to become successful entrepreneur 5. Collect information and related data for a business 6. Plan in team for setting up a business	15
Total			**15**

UNIT 5: GREEN SKILLS - II			
Learning Outcome	**Theory (07 hrs)**	**Practical (03hrs)**	**Total Duration (10 Hrs)**
1. Demonstrate the knowledge of	1. Definition of sustainable development	1. Identify the problem related to sustainable	10

importance, problems and solutions related to sustainable development	2. Importance of sustainable development 3. Problems related to sustainable development	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, vermicompost, solar energy, solar cooker, etc.	
Total			**10**

Part B: Vocational Skills

S. No.	Units	Duration (Hrs)
1.	Unit 1: Millet-Based Bakery Products	20
2.	Unit 2: Millet-Based Ready-to-Cook (RTC) and Ready-to-Eat (RTE) Foods	30
3.	Unit 3: Millet-Based Extruded Products	25
4.	Unit 4: Marketing and Sales of Millet Products	20
	Total	**95**

UNIT 1: MILLET-BASED BAKERY PRODUCTS *(Aligned to FIC/N9204)*			
Learning Outcome	**Theory (08 hrs)**	**Practical (12 hrs)**	**Duration (20 Hrs)**
1. Understand the basics of bakery science	1. Essentials of Baking: 2. Ingredients Tools, Appliances & Equipment Used in Baking 3. Techniques used in baking 4. Weight and Measure Equivalents 5. Terms commonly used in baking	1. Observe and discuss the structure, texture, and behaviour of baked millet products	02
2. Identify suitable millets and ingredients for bakery products	1. Understanding Structure in Baked Products 2. Overview of suitable millets for baking	1. Identify and select appropriate millets and ingredients for given product types	02
3. Understand recipe formulation and ratios	1. Principles of Millet-Based Baking 2. Recipe formulation	1. Prepare sample dough/batter mixtures using correct ratios and note consistency and variations	04
4. Prepare millet-based muffins, cookies and cakes	1. Preparing millet-based baked products 2. Muffins 3. Cookies/ biscuits 4. Cakes	1. Practice preparation of millet-based bakery items following recipes and SOPs	05
5. Practice quality check and sensory evaluation of bakery products	1. Quality Check and Sensory Evaluation—texture, aroma, taste, shelf life, 2. Balancing Taste & Texture	1. Conduct sensory evaluation and record feedback on prepared products using score sheets	04
6. Package, label, and present millet bakery products	1. Packaging materials for bakery items, shelf-life considerations, FSSAI labelling requirements	1. Practice hygienic packaging, apply correct labels and display finished millet products for presentation	03
Total			**20**

UNIT 2: MILLET-BASED READY-TO-COOK (RTC) AND READY-TO-EAT (RTE) FOODS *(Aligned to FIC/N9301)*			
Learning Outcome	**Theory (12 hrs)**	**Practical (18 hrs)**	**Duration (30 Hrs)**
1. Explain about Millet based to Ready-to-Cook (RTC) and RTE Foods	1. Millet-Based Ready-to-Cook (RTC) and Ready-to-Eat (RTE) Foods 2. Future Market Trends in RTC & RTE Millet-Based Foods in India	1. Observe different fermented products; discuss texture, aroma, and functionality of fermented batters	03
2. Production of Millets based RTC	1. Idli Mix (Instant) 2. Dosa Mix 3. Instant Millet Upma Mix 4. Millet Dhokla Mix	1. Identify, sort, and select appropriate millet and ingredient combinations for dosa/idli	03
3. Preparation of Millet-Based Fermented Foods	1. Proportions of millet to pulses, soaking time, water ratios, fermentation conditions (temp, time, hygiene)	1. Measure, soak, grind and ferment batter using traditional and mechanical methods	05
4. Prepare millet-based Idli and Dosa mixes	1. Steps in preparation of instant mix and wet fermented batter; adding natural souring agents or fermentation starters Equipment	1. Practice preparation of Idli/Dosa batter, and making instant mix powders for dry packaging	15
5. Conduct quality checks and sensory evaluation	1. Quality indicators—fermentation smell, batter consistency, volume, taste, cooking behavior	1. Evaluate prepared idli/dosa for texture, fluffiness, tanginess, and customer acceptability	02
6. Package, label, and store millet Idli/Dosa mixes	1. Packaging materials for wet and dry mixes, FSSAI labeling norms, shelf-life guidelines, moisture-proof packaging	1. Practice sealing, labeling, and storing fermented or instant millet-based mixes	02
Total			**30**

UNIT 3: MILLET-BASED EXTRUDED PRODUCTS			
Learning Outcome	**Theory (10 hrs)**	**Practical (15 hrs)**	**Duration (25 Hrs)**
1. Understand extrusion technology and its relevance in millet processing	1. Introduction to extrusion, 2. Raw Materials and Their Functions in Extrusion 3. Types of Extrusion	1. Observe extruders in use; identify parts and working of an extruder	04
2. Explain cold extrusion and prepare cold extruded products	1. Cold Extruder: Structure and Operation 2. Cold Extruded Products: Millet based Chakli, Noodles, Vermicelli and Pasta	1. Sort and prepare suitable ingredients; pre-condition raw material for extrusion	06
3. Explain Hot Extrusion and various extruded products	1. Hot Extrusion Process 2. Key factors that influence the final product 3. Parts of a Food Extruder and Their Functions 4. Key Extrusion Parameters to Monitor 5. Products of Hot Extrusion: Millet-based Puffs, Curls and Flakes 6. Quality Evaluation	1. Measure and mix ingredients with proper moisture levels; test consistency	15
Total			**25**

UNIT 4: MARKETING AND SALES OF MILLET PRODUCTS			
Learning Outcome	**Theory (07 hrs)**	**Practical (13 hrs)**	**Duration (20 Hrs)**
1. Understand the basics of marketing in the food industry	1. Introduction to marketing concepts – 4Ps (Product, Price, Place, Promotion); value proposition for millet products	1. Identify millet products in the market; analyze packaging and promotion strategies used	01

2. Identify target consumers and study market trends for millet products	1. Demographic segmentation, emerging health trends, millet as a functional food	1. Create buyer personas; conduct peer surveys to identify customer preferences	03
3. Develop effective branding, labelling, and packaging strategies	1. Branding principles; millet product labelling norms (FSSAI); packaging for appeal and shelf-life	1. Design a mock brand logo, create product labels, and package sample millet items for display	03
4. Apply pricing strategies and cost analysis techniques	1. Cost components, pricing models (cost-based, value-based, competitor analysis)	1. Prepare costing sheets and decide pricing for selected millet products	03
5. Promote millet products using traditional and digital marketing tools	1. Offline channels (local shops, fairs), digital tools (social media, reels, WhatsApp Business), storytelling in marketing	1. Create posters, brochures, or video reels to promote millet products	02
6. Learn customer interaction and selling techniques	1. Features vs benefits, persuasive sales talk, handling objections and feedback, sales etiquette	1. Role-play customer interaction at a millet product stall; practice live sales pitches	05
7. Organize and participate in a millet marketing and sales event	1. Planning sales events, team roles, budgeting, stall setup, live sales execution	1. Set up and run a mock millet food stall; collect customer feedback and reflect on experience	03
Total			**20**

6. ORGANISATION OF FIELD VISITS

To organize a field visit to a millet product processing plant, first identify a suitable facility that specializes in millet-based products such as flour, ready-to-eat snacks,

or health foods. Coordinate with the plant management to schedule a guided tour covering key processing stages, including cleaning, dehulling, milling, extrusion, and packaging. Ensure participants gain insights into machinery, quality control, food safety measures, and value addition. Arrange for an interactive session with experts to discuss processing challenges, market trends, and career opportunities in millet-based industries. Logistics like transportation, safety protocols, and permissions should be managed in advance for a smooth visit.

7. LIST OF EQUIPMENT AND MATERIALS

S. No.	Equipment Name	Capacity	Approx. Cost (INR)
Primary Processing			
1	Millet Cleaning Machine	100–200 kg/hr	₹60,000–₹1,00,000
2	Dehulling Machine	80–150 kg/hr	₹90,000–₹1,50,000
3	Grading Machine	100–300 kg/hr	₹70,000–₹1,20,000
4	Washing and Soaking Tanks	30- 50 kg/ batch	₹16000- ₹ 22000
Milling and Grinding			
4	Hammer Mill / Pulverizer	25–100 kg/hr	₹50,000–₹1,00,000
5	Stone Mill / Roller Mill	20–60 kg/hr	₹70,000–₹1,30,000
Processing and Extrusion			
6	Roaster / Dryer	30–100 kg/hr	₹80,000–₹1,50,000
7	Hot Extruder Machine	25–50 kg/hr	₹1,50,000–₹3,00,000
8	Cold Extrusion Machine	20–40 kg/hr	₹1,00,000–₹2,50,000
9	Flaking / Puffing Machine	30–60 kg/hr	₹1,00,000–₹2,00,000
Mixing and Forming			
10	Dough Mixer / Blender	10–30 kg/batch	₹40,000–₹80,000
11	Sheeter / Cutter	20–50 kg/hr	₹30,000–₹70,000
12	Cookie Depositor / Moulds	1000–2000 pcs/hr	₹25,000–₹60,000
Baking Equipment			

13	Commercial Oven (Deck/Convection)	5–15 kg/batch	₹80,000–₹2,00,000
14	Bread Proofer (Optional)	10–20 trays	₹60,000–₹1,20,000
15	Baking Trays, Moulds, Pans	–	₹10,000–₹25,000
Packaging and Storage			
16	Weighing and Filling Machine	10–30 packs/min	₹40,000–₹1,00,000
17	Sealing Machine	10–20 seals/min	₹15,000–₹50,000
18	Storage Bins / Silos	100–500 kg	₹10,000–₹50,000
23	Cleaning & Maintenance Tools	–	₹5,000–₹15,000
24	Packaging Materials	Starter Pack (Labels, Pouches)	₹5,000–₹20,000

**Procure machinery as per your production capacity.*

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.	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 Desirable: Experience in millet processing	• Effective communication skills (oral and written) • Basic computing Skills	22- 37 years (as on Jan. 01 (year)) Age relaxation to be provided as per Govt. rules

9. LIST OF CONTRIBUTORS

Curriculum Development Team

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