



Anekant Education Society's

Tuljaram Chaturchand College, Baramati

(Autonomous)

**Two Year M.Voc Degree Program in
Food Technology & Research**

(Faculty of Food Technology & Research)

**SY M.Voc (Food Technology) Semester –IV
For Department Food Technology & Research**

Tuljaram Chaturchand College, Baramati

To be implemented from Academic Year 2022-2023

Title of the Programme: SY M.Voc (Food Technology & Research)

**Proposed subjects / papers for the General Education & Skill component
Food Processing Technology (M. Voc. Programme)**

First year: Semester I

Sr. No.	Subject Name	No. of Credits	Marks
Theory (General Education Component)			
PMFP111	Food Microbiology	4	100
PMFP112	Food Chemistry and Analysis	4	100
PMFP113	Nutrition Science	4	100
Practicals (Skill Component)			
PMFP114	Food Microbiology	6	150
PMFP115	Food Chemistry and Analysis	6	150
PMFP116	Bakery and Confectionery Technology	6	150

Semester II

Sr. No.	Subject Name	No. of Credits	Marks
Theory (General Education Component)			
PMFP121	Beverage and Snack Food Technology	4	100
PMFP122	Food Additives, Contaminants and Toxicology	4	100
PMFP123	Advances in Food Processing & Packaging	4	100
Practicals (Skill Component)			
PMFP124	Beverage and Snack Food Technology	6	150
PMFP125	Processing of Fruits and Vegetables	6	150
PMFP126	Advances in Food Processing & Packaging	6	150

Second year: Semester III

Sr. No.	Subject Name	No. of Credits	Marks
Theory (General Education Component)			
FPT- 301	Elective-1: Dairy Processing Technology Elective-2: Meat Processing Technology	4	100
FPT- 302	Post-Harvest Technology	4	100
FPT-303	Food Safety and Quality Management	4	100
Practicals (Skill Component)			
FPT- 3.1	Dairy Processing Technology	6	150
FPT- 3.2	Post-Harvest Technology	6	150
FPT- 3.3	Statistics and Research Methodology	4	100
FPT- 3.4	Industrial training/Dissertation part-I	2	50

Semester IV

Sr. No.	Subject Name	No. of Credits	Marks
Practicals (Skill Component)			
FPT-4.1	Seminar based on case study	6	150
FPT-4.2	Industrial Visit	6	150
FPT-4.2	Industrial training/Dissertation Part-2	18	450

Note:

- One compulsory visit to field/industry/institute for practical papers in all semesters
- Report Submission and PPT presentation of visit report is mandatory
- Seminar Report preparation and PPT presentation mandatory for each theory papers.
- Group discussion/case study based on local/regional/national social economic aspects.

Title of the Course: M. Voc. (Food Processing Technology)
(To be implemented from Academic Year - 2022-2023)

Course Structure:

- M. Voc. is two year post graduate programme with three general education courses and three skill components courses in each semester
- Each general education course will be of four credits and each credit is of 15 periods.
- Each skill component course will be of six credits and each credit is of 15 periods.
- Each period is of one clock hour.
- In each skill component course there will be one visit to the relevant industry/ institute.
- In addition to the regular practical are based on the theory course, special emphasis will be on communications and soft skills development of the students.

Eligibility:

- 1) First Year M.Voc. (Post Graduate Diploma): A student who has passed the graduation degree (10+2+3) in any stream or its equivalent examination.
- 2) Second Year M.Voc. (Post Graduate Degree): Satisfactorily keeping terms of First Year of M. Voc. and if they fulfill the eligibility conditions.

Note: Admissions will be given as per the selection procedure / policies adopted by the college, in accordance with conditions laid down by the SavitribhaiPhule Pune University, Pune.

Examination Pattern:

Pattern of Examination: Semester:

- General education courses (Theory paper) - I, II, and III Semester.
- Skill Component (Practical Course): Practical examination will be conducted.
- Weight-age of marks in each course: Internal continues assessment (50%) and end semester examination (50%)

Theory Examination: -

i) Continuous Internal Assessment: 50 Marks (Unit Test I & II, Assignment-2No., Attendance) for each course of programme.

ii) Semester End Examination: 50 Marks on the basis of Answer Sheet Evaluation for each course

Practical Examination: -

i) Continuous Internal Assessment: 75 Marks (Written exams, Visit Report, Journal, Viva Voce, Seminar/Presentation, Group Discussion and Attendance) for each course.

ii) Semester End Examination: 75 Marks on the basis of Answer Sheet Evaluation with performance in practical examination which will be evaluated by external examiner for each course.

Programme Specific Outcomes (PSOs)

PO-1	Disciplinary Knowledge	Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and food technology & engineering and its other fields related to the program.
PO-2	Communication Skills	Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.
PO-3	Critical Thinking	Propose novel ideas in explaining the scientific data, facts and figures related to science and technology.
PO-4	Analytical Reasoning and Problem Solving	To enable the students with good scientific and engineering knowledge so as to comprehend, design, and create food products and devices for the food industry and provide solutions for the challenges in the food industry as well as in agriculture.
PO-5	Sense of Inquiry	Curiously ask relevant questions for better understanding of fundamental concepts and principles, scientific theories and applications related to the study.
PO-6	Use of Modern Tools	Operate modern tools, equipment, instruments and laboratory techniques to perform the experiments and write the programs in different languages.
PO-7	Research Skills	Understand how to design, collect, analyze, interpret and evaluate information/data that is relevant to food technology.
PO-8	Application of Knowledge	Develop a scientific outlook and apply the knowledge with respect to food technology.
PO-9	Ethical Awareness	To train students in professional and ethical attitude, effective communication skills, teamwork skills and multidisciplinary approaches related to food technology and engineering.
PO-10	Teamwork	Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and food technology & engineering and its other fields related to the program.
PO-11	Environment and Sustainability	Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.
PO-12	Lifelong Learning	Propose novel ideas in explaining the scientific data, facts and figures related to science and technology.

Second Year

Semester IV

Seminar based on case study

Practical

Maximum Marks: 150

Teaching Period: 6/week

Paper No. – FPT-4.1

Credits: 6

**Teaching Load: 10 Practicals Period/
Semester (4 Period each)**

Learning Objectives:

- To understand the working of food processing industry.
- To impart knowledge and skills related to food processing industries
- To understand about the marketing survey of food product.
- To understand the operations used in food processing industry.
- To study about the different food standards used in food industry.
- To learn about the maintenance of personal hygiene & food safety in food processing industry.

Course Outcomes:

On completion of the course, students will be able to:

- CO1: Understand the working of food processing industry.
- CO2: Impart knowledge and skills related to food processing industries
- CO3: understand about the marketing survey of food product.
- CO4: Understand the operations used in food processing industry.
- CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.
- CO6: Study about the different food standards used in food industry.
- CO7: Learn about the maintenance of personal hygiene & food safety in food processing industry.

TOPIC

The seminar, on any topic pertaining to food technology, would involve:

- a) Exhaustive literature review, comprising of at least 100 references, based on various reputed journals (peer reviewed), conference proceedings, latest books, etc.
- b) Preparation, submission and presentation of a review paper (1 Hard copy of paper and a soft copy of paper and presentation)
- c) Secondary data analysis and its interpretation to bring out the finding.
- d) Preparation, submission and presentation of the seminar report (3 Hard copies of seminar report and a soft copy of seminar report and presentation)

Viva-Voce:

It shall consist of a PPT presentation by the examinee on his work in the presence of examiners.

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	2	1	-	4	-	-	2	-	1	2	1
CO2	3	-	1	-	2	-	-	4	-	3	-	1
CO3	-	-	-	2	3	-	-	-	-	-	-	-
CO4	-	1	-	4	-	5	3	-	-	-	1	-
CO5	2	2	1	-	-	2	-	-	-	2	2	1
CO6	-	-	1	4	-	-	1	-	-	-	-	1
CO7	-	-	-	-	-	-	-	-	-	-	-	-

Justification for the mapping

PO1:- Disciplinary Knowledge - Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and Food technology & engineering and its other fields related to the program.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry.

CO2: Impart knowledge and skills related to food processing industries Understand the basic concepts, fundamental principles of food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO2:- Communication Skills:- Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry and develop various communication skills such as reading and express ideas and views clearly and effectively.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO3- Critical Thinking :- Propose novel ideas in explaining the scientific data, facts and figures related to Science and technology.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry.

CO2: Impart knowledge and skills related to food processing industries Understand the basic concepts, fundamental principles of food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

CO6: Study about the different food standards used in food industry propose novel ideas in explaining the scientific data.

PO4- Analytical Reasoning and Problem Solving- To enable the students with good scientific and engineering knowledge so as to comprehend, design, and create food products and devices for the food industry and provide solutions for the challenges in the food industry as well as in agriculture.

CO3: understand about the marketing survey of food product and enable the good scientific and engineering knowledge so as to comprehend, design, and create food products .

CO4: Understand the operations used in food processing industry.

CO6: Study about the different food standards used in food industry propose novel ideas in explaining the scientific data.

PO5- Sense of Inquiry:- Curiously ask relevant questions for better understanding of fundamental concepts and principles, scientific theories and applications related to the study.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry.

CO2: Impart knowledge and skills related to food processing industries Understand the basic concepts, fundamental principles of food processing industry.

CO3: understand about the marketing survey of food product and enable the good scientific and engineering knowledge so as to comprehend, design, and create food products.

PO6- Use of Modern Tools:- Operate modern tools, equipment, instruments and laboratory techniques to perform the experiments and write the programs in different languages.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO7- Research Skills:- Understand how to design, collect, analyze, interpret and evaluate information/data that is relevant to food technology.

CO4: Understand the operations used in food processing industry and also to understand how to design, collect, analyze, interpret and evaluate information/data that is relevant to food technology.

CO6: Study about the different food standards used in food industry propose novel ideas in explaining the scientific data.

PO8- Application of Knowledge:- Develop a scientific outlook and apply the knowledge with respect to food technology.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry.

CO2: Impart knowledge and skills related to food processing industries Understand the basic concepts, fundamental principles of food processing industry.

PO9- Ethical Awareness- To train students in professional and ethical attitude, effective communication skills, team work skills and multidisciplinary approaches related to food technology and engineering.

PO10:- Team Work - Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and Food technology & engineering and its other fields related to the program.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry.

CO2: Impart knowledge and skills related to food processing industries Understand the basic concepts, fundamental principles of food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO11:- Environment and Sustainability:- Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry and develop various communication skills such as reading and express ideas and views clearly and effectively.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

Po12:- Lifelong Learning:- Propose novel ideas in explaining the scientific data, facts and figures related to Science and technology.

CO1: Understand the working of food processing industry Understand the basic concepts of food processing industry.

CO2: Impart knowledge and skills related to food processing industries Understand the basic concepts, fundamental principles of food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

CO6: Study about the different food standards used in food industry propose novel ideas in explaining the scientific data.

Second Year

Semester IV

Industrial Visit

Practical

Paper No. – FPT-4.2

Maximum Marks: 150

Credits: 6

Teaching Period: 6/week

**Teaching Load: 10 Practicals Period/
Semester (4 Period each)**

Learning Objectives:

- To understand the working of food processing industry.
- To impart knowledge and skills related to food processing industries
- To understand about the marketing survey of food product.
- To understand the operations used in food processing industry.
- To study about the different food standards used in food industry.
- To learn about the maintenance of personal hygiene & food safety in food processing industry.

Course Outcomes:

On completion of the course, students will be able to:

CO1: Understand the working of food processing industry.

CO2: Impart knowledge and skills related to food processing industries

CO3: understand about the marketing survey of food product.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

CO6: Study about the different food standards used in food industry.

CO7: Learn about the maintenance of personal hygiene & food safety in food processing industry.

TOPIC-

- Educational tour of one to two weeks to various industries within and outside the state of the university and submission of report on industrial tour carrying a weightage of 6 credit hours.
- Preparation, submission and presentation of the industrial visit report (3 Hard copies of report and a soft copy of report and presentation).

Viva-Voce:

It shall consist of a PPT presentation by the examinee on his work in the presence of examiners.

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	2	1	-	4	-	-	2	-	1	2	1
CO2	-	-	1	-	-	-	-	4	-	-	-	1
CO3	-	-	-	2	3	-	-	-	-	-	-	-
CO4	-	1	-	4	-	-	3	-	-	-	1	-
CO5	2	2	-	-	-	-	-	-	-	2	2	-
CO6	-	-	1	4	-	-	1	-	-	-	-	1
CO7	-	-	-	-	-	-	-	-	-	-	-	-

Justification for the mapping

PO1:- Disciplinary Knowledge - Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and Food technology & engineering and its other fields related to the program.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO2:- Communication Skills:- Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO4: Understand the operations used in food processing industry Develop various communication skills.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO3- Critical Thinking :- Propose novel ideas in explaining the scientific data, facts and figures related to Science and technology.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO2: Impart knowledge and skills related to food processing industries and propose novel ideas in explaining the scientific data

PO4- Analytical Reasoning and Problem Solving- To enable the students with good scientific and engineering knowledge so as to comprehend, design, and create food products and devices for the food industry and provide solutions for the challenges in the food industry as well as in agriculture.

CO3: understand about the marketing survey of food product and enable the good scientific and engineering knowledge so as to comprehend, design, and create food products .

CO4: Understand the operations used in food processing industry.

CO6: Study about the different food standards used in food industry propose novel ideas in explaining the scientific data.

PO5- Sense of Inquiry:- Curiously ask relevant questions for better understanding of fundamental concepts and principles, scientific theories and applications related to the study.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO3: understand about the marketing survey of food product and curiously ask relevant questions for better understanding.

PO6- Use of Modern Tools:- Operate modern tools, equipment, instruments and laboratory techniques to perform the experiments and write the programs in different languages.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO7- Research Skills:- Understand how to design, collect, analyze, interpret and evaluate information/data that is relevant to food technology.

CO4: Understand the operations used in food processing industry understand how to design, collect, analyze data that is relevant to food technology.

CO6: Study about the different food standards used in food industry Understand how to design, collect, analyze, interpret and evaluate information/data that is relevant to food technology.

PO8- Application of Knowledge:- Develop a scientific outlook and apply the knowledge with respect to food technology.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO2: Impart knowledge and skills related to food processing industries and propose novel ideas in explaining the scientific data

PO9- Ethical Awareness- To train students in professional and ethical attitude, effective communication skills, team work skills and multidisciplinary approaches related to food technology and engineering.

PO10:- Team Work - Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and Food technology & engineering and its other fields related to the program.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO11:- Environment and Sustainability:- Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO4: Understand the operations used in food processing industry Develop various communication skills.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO12:- Lifelong Learning:- Propose novel ideas in explaining the scientific data, facts and figures related to Science and technology.

CO1: Understand the working of food processing industry and the scientific theories related to food technology.

CO2: Impart knowledge and skills related to food processing industries and propose novel ideas in explaining the scientific data

Second Year

Semester IV

Dissertation Part-II

Practical

Paper No. – FPT-4.3

Maximum Marks: 600

Credits: 18

Teaching Period: 24/week

**Teaching Load: 120 Practicals Period/
Semester (4 Period each)**

Learning Objectives:

- To understand the importance of Product Development.
- To learn about the new product development
- To study about the perform market survey about new product.
- To learn about to analysis of new product.
- To understand the working of food processing industry.
- To impart knowledge and skills related to food processing industries

Course Outcomes:

On completion of the course, students will be able to:

CO1: Understand the working of food processing industry.

CO2: Impart knowledge and skills related to food processing industries

CO3: understand about the marketing survey of food product.

CO4: Understand the operations used in food processing industry.

CO5: Study about the Preparation of project report

CO6: learn about the publication of research paper into national & international journal.

CO7: understand the process of launching a new product.

TOPIC

The dissertation part-II will be in continuation of dissertation part-I and shall consist of a report on the research work done by the candidate or a detailed report of the project work consisting of a design and /or development work that the candidate has executed. The examinee shall submit the dissertation in five copies to the head of the department duly certified by the guide, head of department and the Principal that the work has been satisfactorily completed. If candidates performed work in other institute, they have to submit separate copies of dissertation as per the requirement to the institute.

If the company will provide in plant training to the candidates then they have to submit monthly progress report along with attendance report to the department duly signed by the Factory manager/HR manager.

Term work:

The dissertation will be assessed by examination panel with two with minimum two examiners (External Examiners and senior faculty member from the department).

Viva-Voce:

It shall consist of a PPT presentation by the examinee on his work in the presence of examination panels.

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	-	-	-	4	-	-	3	4	2	-	-
CO2	-	-	2	-	-	-	-	-	-	-	-	2
CO3	3	-	-	2	-	-	-	1	2	3	-	-
CO4	-	1	1	-	2	2	1	-	-	-	1	1
CO5	-	2	-	-	-	2	-	-	-	-	2	-
CO6	-	-	-	4	-	-	1	-	1	-	-	-
CO7	3	-	1	-	-	-	-	-	-	3	-	1

Justification for the mapping

PO1:- Disciplinary Knowledge - Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and Food technology & engineering and its other fields related to the program.

CO1: Understand the working of food processing industry and their rules.

CO3: Student will understand about the marketing survey of food product and learn about marketing.

CO7: Learn about the maintenance of personal hygiene & food safety in food processing industry.

PO2:- Communication Skills:- Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO3- Critical Thinking :- Propose novel ideas in explaining the scientific data, facts and figures related to Science and technology.

CO2: Impart knowledge and skills related to food processing industries will learn about effect of advance processing techniques on food product.

CO4: Understand the operations used in food processing industry.

CO7: Learn about the maintenance of personal hygiene & food safety in food processing industry.

PO4- Analytical Reasoning and Problem Solving- To enable the students with good scientific and engineering knowledge so as to comprehend, design, and create food products and devices for the food industry and provide solutions for the challenges in the food industry as well as in agriculture.

CO3: Student will understand about the marketing survey of food product and learn about marketing.

CO6: Study about the different food standards used in food industry and learn their advantages and disadvantages.

PO5- Sense of Inquiry:- Curiously ask relevant questions for better understanding of fundamental concepts and principles, scientific theories and applications related to the study.

CO1: Understand the working of food processing industry and their rules.

CO4: Understand the operations used in food processing industry.

PO6- Use of Modern Tools:- Operate modern tools, equipment, instruments and laboratory techniques to perform the experiments and write the programs in different languages.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO7- Research Skills:- Understand how to design, collect, analyze, interpret and evaluate information/data that is relevant to food technology.

CO4: Understand the operations used in food processing industry.

CO6: Study about the different food standards used in food industry and learn their advantages and disadvantages.

PO8- Application of Knowledge:- Develop a scientific outlook and apply the knowledge with respect to food

technology.

CO1: Understand the working of food processing industry and their rules.

CO3: Student will understand about the marketing survey of food product and learn about marketing.

PO9- Ethical Awareness- To train students in professional and ethical attitude, effective communication skills, team work skills and multidisciplinary approaches related to food technology and engineering.

CO1: Understand the working of food processing industry and their rules.

CO3: Student will understand about the marketing survey of food product and learn about marketing.

PO10:- Team Work - Understand the basic concepts, fundamental principles and experimental findings and the scientific theories related to food technology, food science and

Food technology & engineering and its other fields related to the program.

CO1: Understand the working of food processing industry and their rules.

CO3: Student will understand about the marketing survey of food product and learn about marketing.

PO11:- Environment and Sustainability:- Develop various communication skills such as reading, listening and speaking skills to express ideas and views clearly and effectively.

CO4: Understand the operations used in food processing industry.

CO5: Explain knowledge of the legal, environmental, quality aspects associated with operations used in the food industry.

PO12:- Lifelong Learning:- Propose novel ideas in explaining the scientific data, facts and figures related to Science and technology.

CO2: Impart knowledge and skills related to food processing industries will learn about effect of advance processing techniques on food product.

CO4: Understand the operations used in food processing industry.

CO7: Learn about the maintenance of personal hygiene & food safety in food processing industry.