



CVM UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2022-23

Programme: Master of Technology (Food Technology)

Semester: 3

Course Code: 202380301

Course Title: Advances in Fruit and Vegetable Technology

Course Group: Program Elective V

Course Objectives:

1. To impart the knowledge of various aspects of fruits and vegetable processing.
2. To know the concepts of value addition of fruits and vegetables, preservation and its commercialization

Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				Internal	External	Internal	External	
3	0	2	4	50/20	50/20	25/10	25/10	150/60

* J: Jury; V: Viva; P: Practical

Detailed Syllabus

Sr.	Contents	Hours
1	Post Harvest Technology Post-harvest management of fruits and vegetables, Harvesting indices, Biochemical and physical changes during ripening of fruits & vegetables, respiration and factors affecting it, role of ethylene in accelerated ripening, post-harvest treatments for extension of shelf-life of fresh produce, Strategic interventions to minimize postharvest losses including vapour heat treatment, wax coating, chemicals, etc.	07
2	Fruit and vegetable based RTE Technology for fruit and vegetable based snacks: chips, wafers, papads etc. Technology for fruit and vegetable based intermediate moisture food products: Jam, jelly and marmalade.	07
3	Canning of fruits and vegetables Processing of fruits and vegetables by canning, unit operations of canning, factors affecting the canning process, spoilage of canned products.	10



CVM
UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

4	Fruit juice and beverages Role of the enzymes in fruit juice production, enzymatic clarification of fruit juices, factors affecting the clarity of fruit juices. Application of ultrafiltration and nano filtration in fruit juices.	09
5	Pickles and chutneys Preparation of various types of pickles- theory and practice; preparation of sauces and chutneys; problems relating to the shelf life of pickles and chutneys; quality control. Tomato products: preparation of various tomato products, food standards and quality control.	07

List of Practicals / Tutorials:

1	Preparation of fruit jam
2	Preparation of fruit jelly
3	Preparation of fruit toffee
4	Preparation of squash
	Preparation of ready to serve (RTS) fruit drink
5	Preparation of pickle
6	Preparation of fruit candies
7	Cut out analysis of canned products
8	Preparation of fruit chutneys
9	Preparation tomato ketch up
10	Preparation of potato wafers

Reference Books:

1	Preservation of Fruits and Vegetables. By Girdharilal, Sidhappa G.S. and G.L. Tondon. ICAR.
2	Postharvest Physiology Perishable Plant Products, <u>Kays S.J. CBS Publishers.</u>
3	Commercial Fruits and Vegetables Products, By Cruess W.V. McGraw-Hill Book Company, Inc., New York.
4	Fruit and Vegetable Juice Processing Technology, <u>Donald K. Tressler , Maynard Alexander Joslyn ,</u> Avi Publishing Co Inc.

Supplementary learning Material:

1	www.apeda.gov.in
2	www.fruitandvegetable.ucdavis.edu/UC_Resources_for_Fruit_-_Vegetable_Processing



CVM
UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

3 | www.fao.org

Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Industrial/ Field visits
- Course Projects

Internal Evaluation:

The internal evaluation comprised of written exam (40% weightage) along with combination of various components such as Certification courses, Assignments, Mini Project, Simulation, Model making, Case study, Group activity, Seminar, Poster Presentation, Unit test, Quiz, Class Participation, Attendance, Achievements etc. where individual component weightage should not exceed 20%.

Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks						R: Remembering; U: Understanding; A: Application, N: Analyze; E: Evaluate; C: Create
R	U	A	N	E	C	
15%	40%	25%	15%	05%	15%	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
CO-1	Understand the morphology and post harvest physiology of the fruits and vegetables along with maturity indices, post harvest losses and physicochemical changes during ripening.	15
CO-2	Understand the process of manufacturing of fruit and vegetable based snacks and intermediate moisture foods.	25
CO-3	Understanding the various unit operations of canning, factors affecting the canning process, spoilage of canned products.	25
CO-4	Understand the process of fruit juice clarification, beverages manufacturing and preservation.	20
CO-5	Understand the pickling process and manufacture of chutneys.	15



CVM
UNIVERSITY

Aegis: Charutar Vidya Mandal (Estd.1945)

Curriculum Revision:	
Version:	2.0
Drafted on (Month-Year):	June-2022
Last Reviewed on (Month-Year):	-
Next Review on (Month-Year):	June-2025