Semester Lecture Plan (Theory)

Name of the college: Government College of Arts, Science and Commerce, Sanquelim		
Name of Faculty: Dr. Tanvi Nitin Prabhu	**Subject:** Botany	
Paper code: BOT 322 (Post-harvest Technology of Fruits and Vegetables)	**Program/Course: B.Sc (Botany)**	**Division: A**
Academic Year: 2025-26	**Semester: VI**	**Total Lectures: 30**

Course Objectives:

1. Provide an overview of the various harvesting, handling, storage, packaging and preservation techniques used for post-harvest processing of fruits and vegetables.
1. Impart practical skills in preparation of various value-added food products using fruits and vegetables.

Expected Course Outcome:

1. Recall post-harvest processes and factors influencing post-harvest quality.
2. Identify microbial spoilage of fruits and vegetables and use effective methods for preservation and maintaining the quality of fruits and vegetables.
3. Utilize effective harvesting, handling and storage strategies for marketing of fruits and vegetables ensuring minimal post-harvest losses
4. Develop skills in processing and preparation of different value-added products using fruits and vegetables.

Student Learning Outcome:

1. Recall post-harvest processes and factors influencing post-harvest quality.

2. Identify microbial spoilage of fruits and vegetables and use effective methods for preservation and maintaining the quality of fruits and vegetables.
3. Utilize effective harvesting, handling and storage strategies for marketing of fruits and vegetables ensuring minimal post-harvest losses
4. Develop skills in processing and preparation of different value-added products using fruits and vegetables

Month	**Lectures**		**No. of lectures allotted**	**Topic, Subtopic to be covered**	**Exercise/ Assignment**	**ICT Tools**	**Reference books**
	From:	**To:**					
December 2025	01.12.2025	06.12.2025	03	Definition, scope and importance of post-harvest technology Physiology and biochemistry of fruit ripening Textural changes seen in fruits and vegetables due to over-ripening		Chalk and Board/PPT	Ahiduzzaman, MD (2022). Postharvest Technology: Recent Advances, New Perspectives and Applications. CBS Publishers & Distributors Pvt. Ltd., New Delhi.
December 2025	08.12.2025	13.12.2025	03	Ethylene evolution and its management Factors influencing post-harvest quality (temperature and humidity). Harvesting methods for different fruits and vegetables		Chalk and Board/PPT	
December 2025	15.12.2025	20.12.2025	00	**Tarang 2025, Liberation day, Elections**			

December 2025	22.12.2025	27.12.2025	02	Influence of pre-harvest practices on post-harvest quality Handling practices to minimize damage; sorting, grading and packing techniques		Chalk and Board/PPT	
December 2025 – January 2026	29.12.2025	03.01.2026	01	Field containers for collection; transport from field to storage area;		Chalk and Board/PPT	
January 2026	05.01.2026	10.01.2026	03	Treatment of fruits and vegetables (washing, sanitization, waxing and curing) Pre-cooling methods Packaging and shipment methods.		Chalk and Board/PPT	
January 2026	12.01.2026	17.01.2026	03	Methods for storage (cold storage, controlled atmosphere storage and modified atmosphere packaging). **ISA 01** Methods for storage (cold storage, controlled atmosphere storage and modified atmosphere packaging).		Chalk and Board/PPT	
January 2026	19.01.2026	24.01.2026	03	Causes of spoilage of fruits and vegetables Identification and management of common diseases of fruits and vegetables. Identification and management of common diseases of fruits and vegetables.		Chalk and Board/PPT	
January 2026	26.01.2026	31.01.2026	02	Integrated pest management in post-harvest handling			

				Quarantine measures and regulations		Chalk and Board/PPT	
February 2026	02.02.2026	07.02.2026	03	Principles of preservation (asepsis and removal of microorganisms) Principles of preservation (asepsis and removal of microorganisms) Methods of preservation - chemical preservation (use of preservatives)		Chalk and Board/PPT	Rahman, MS (2020). Handbook of Food Preservation. 3rd edition. CRC-Press, United States.
February 2026	09.02.2026	14.02.2026	03	Methods of preservation - physical preservation (irradiation, low temperature, heat treatment, dehydration) **ISA 02** Methods of preservation - physical preservation (irradiation, low temperature, heat treatment, dehydration)		Chalk and Board/PPT	Rahman, MS (2020). Handbook of Food Preservation. 3rd edition. CRC-Press, United States.
February 2026	16.02.2026	21.02.2026	03	Canning and bottling Aseptic packaging Monitoring and control of environmental conditions		Chalk and Board/PPT	
February 2026	23.02.2026	28.02.2026	03	Pest and disease management during storage Quality assessment techniques Quality standards and certifications		Chalk and Board/PPT	
March 2026	02.03.2026	07.03.2026	02	Monitoring and controlling post-harvest losses.			

				Principles and scope of processing; methods of processing fruits and vegetables by freezing, dehydration		Chalk and Board/PPT	
March 2026	09.03.2026	14.03.2026	03	Principles and scope of processing; methods of processing fruits and vegetables by freezing, dehydration Principles and scope of processing; methods of processing fruits and vegetables by pickling, preservation using sugar and salt ISA 03		Chalk and Board/PPT	
March 2026	16.03.2026	21.03.2026	02	Principles and scope of processing; methods of processing fruits and vegetables by pickling, preservation using sugar and salt Principles and scope of processing; methods of processing fruits and vegetables - canning and fermentation		Chalk and Board/PPT	
March 2026	23.03.2026	28.03.2026	03	Principles and scope of processing; methods of processing fruits and vegetables - canning and fermentation Preparation of value-added food products - juice, squash Preparation of value-added food products - jam, marmalade		Chalk and Board/PPT	
March 2026-April 2026	30.03.2026	04.04.2026	02	Preparation of value-added food products - sauce and ketchup Revision		Chalk and Board/PPT	

Assessment Rubrics

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
ISA 3	7.5
Practical	25
Project	NA
Semester End Exam	60