

Course Title: Developments in Post-Harvest Technology

Course code:

Credit Units: 4

Level: Doctoral

L	T	P/S	SW/FW	Total credit units
4	0	0	0	4

Course Objectives:

To make students familiar with different aspects of post-harvest technology and recent developments that have taken place in this field. Student will be made aware of the technological changes that are occurring in this field along with pre and post-harvest technology, physiology and biochemistry, cooling and storage systems, waste management, advances in processing, nutraceuticals and functional foods.

Prerequisites:

Basic knowledge of horticulture and post-harvest technology is required

Student Learning Outcomes:

On completion of course the students will be able to

Understand technologies of post-harvest technology and its role in providing better quality produce to the consumer

Understand importance of prevention of losses

Understand functional foods and nutraceuticals

Understand utilization of the produce and methods for shelf-life extension

Learn storage and cold chain management

Learn quality control and various standards required for domestic and export market

S.No.	Course Title	Weightage
1.	Module 1: Pre and Post-harvest technologies for extension of shelf life	25 %
	Pre-harvest factors related to quality deterioration of horticultural commodities after harvest and their management. Maturity indices and harvesting of horticultural crops. Harvesting, handling and pack house operations for horticultural produce. Post-harvest commodity treatments for quality control & Quarantine management	
2.	Module 2: Post-harvest biology: physiology and biochemistry	25 %
	Physiological and biochemical aspects of development of horticultural produce. Manipulation and regulation of postharvest physiology, ripening and senescence to extend storage life of fruits and vegetables. Respiration and Ethylene in post-harvest biology. Technology of artificial ripening and de-greening	
3	Module 3: Storage and cold chain management	25 %
	Principles of storage, storage considerations-temperature, relative humidity and atmospheric composition. Storage systems; low cost storage techniques-zero energy cool chambers;	

	high cost storage techniques- Refrigerated storage, controlled/modified atmospheric storage and hypobaric storage. Chilling injuries and other physiological disorder in storage Types of Packaging	
4	Module 4: Processing and Marketing	25 %
	Principles of preservation, Preservatives - Class-I & II preservatives, their mode of action, different methods of preservation. Advances in processing of fruits and vegetables Recent developments in utilization of horticultural waste for value addition and processing. Importance of Marketing linkage for fresh produce and processed products	

Examination Scheme:

Components	V	S	CT	A	EE
Weight age (%)	5	5	15	5	70

Abbreviations:

CT – Class Test, S- Seminar, V- Viva, EE- External Evaluation

Text & References:

1. Postharvest Management of Fruit and Vegetables in the Asia-Pacific Region. 2006. Asian Productivity Organization and Food and Agriculture Organisation, UN
2. Crop Management and Postharvest Handling of Horticultural Products - Fruits and Vegetables. 2003. Eds. Dr. Ramdane Dris and Raina Niskanen:World Food Ltd., Meri-Rastilantie, Helsinki, Finland.
3. A Handbook on Post-Harvest Management of Fruits and Vegetables.2008. P Jacob John, Daya Publishing House.
4. Postharvest Management and Processing of Fruits and Vegetables: Instant Notes. 2010. S.K. Sharma. New India Publishers
5. Color Atlas of Postharvest Quality of Fruits and Vegetables. 2008. Maria Cecilia do Nascimento Nunes. Wiley-Blackwell Publisher
6. Post- Harvest Pathogens and Disease Management. 2006. P. Narayanaswamy. A John Willey and Sons Publications.
7. Post-Harvest Physiology and Quality Managment of fruits and vegetables. P.S. Kumar.. 2009. Prashant Book Agency.
8. Post-Harvest Handling. 2009. Florkowski, W.J. Prashant Book Agency.
9. Post-Harvest Management of Horticultural Produce: Recent Trends. 2009. R.T. Patil. Prashant Book Agency.
10. Post-Harvest Technology of Horticultural Crops. 2009. S.K Sharma. Prashant Book Agency.