DEPARTMENT OF HORTICULTURE

FACULTY OF AGRICULTURAL SCIENCES

University of the Punjab, Lahore

Programme	B.Sc. (Hort) Agriculture	Course Code	Hort 401	Credit Hours	3
Course Title	**WINTER VEGETABLES**				

Course Introduction

This course explores winter vegetables, from production and management to culinary uses and nutritional benefits. Students will learn about the unique characteristics, growth requirements, and cultural practices for a variety of winter vegetables, including brassicas, root vegetables, and alliums. Winter vegetables are a group of crops that thrive in the cooler temperatures of winter, typically from late fall to early spring. These vegetables are more resilient and can tolerate frost, making them perfect for gardens in temperate climates. Winter vegetables also offer a practical benefit: they can be harvested during a time when other crops are dormant. This means that gardeners can enjoy a continuous supply of fresh produce throughout the year, even in the dead of winter

Learning Outcomes

On the completion of the course, the students will:

1. Identify and describe the different types of winter vegetables, their growth requirements, and cultural practices:
2. Design and manage a winter vegetable garden or production system, considering factors such as soil, climate, and pest management

	Course Content	Assignments/Readings
Week 1	**Unit-I** 1.1 Introduction of winter vegetable	
	1.2 Difficulties and issues	
Week 2	**Unit-II** 2.1 Types of vegetable farming	
	2.2 Cultivation of winter vegetable with reference to their acreage.	
Week 3	**Unit-III** 3.1 types of production 3.2 types of botany.	
	3.3 types of cultivars.	
Week 4	**Unit-IV** 4.1 types of climates	

	4.2 types of soil.	
Week 5	**Unit-V** 5.1 types of culture practices	
	5.2Maturity indices	
Week 6	**Unit-VI** 6.1 Harvesting of winter vegetable.	
Week 7	**Unit-VII** 7.1 Grading	
Week 8	**Unit-VIII** 8.1 packing of winter vegetables.	
Week 9	**Unit-IX** 9.1Quality assurance	
Week 10	**Unit-X** 10.1 marketing of winter vegetables	
Week 11	**Unit-XI** 11.1 production problems	
Week 12	**Unit-XII** 12.1 Importance weeds	
Week 13	**Unit-XIII** 13.1 insects-pests	
Week 14	**Unit-XIV**	

	14.1 Diseases in vegetables	
Week 15	**Unit-XV** 15.1 controls of their effects	
Week 16	**Unit-XVI** 16.1 Economics importance of winter vegetables.	
PRACTICAL		
Week 1	Practices in raising of winter vegetables	
Week 2	Experiment in raising of winter vegetables including mushrooms	
Week 3	Determination of eradication of weeds.	
Week 4	Determination of control measure of insects.	
Week 5	Determination of control measure of insects	
Week 6	Determination of diseases	
Week 7	Determination of diseases	
Week 8	Experiment in winter vegetable harvesting	
Week 9	Experiment in winter vegetable harvesting	
Week 10	Experiment in grading	
Week 11	Experiment in grading	
Week 12	Study in packing of vegetables	
Week 13	Study in packing of vegetables	
Week 14	Experiments in economics of winter vegetables production.	
Week 15	Visits to experiments farms and markets	
Week 16	Visits to experiments farms and markets.	

Textbooks and Reading Material

• Bose, T.K., M.G. Som and J. Kabir. 1993. Vegetable Crops. Naya Prokash, Calcutta-Six, India.
• Biswas, S., M. Datta and S.V. Ngachan. 2011. Mushrooms: A Manual For Cultivation. PHI learning private Ltd., New Delhi, India.
• Libner, N.S. 2006. Vegetable Production. Vedams Books Pvt. Ltd. New Delhi, India.
• Rana, M.K. 2008. Scientific Cultivation of Vegetables. Kalyani Publishers, Ludhiana, New Delhi, India.
• Decoteau, D.R. 2002. Vegetable Crops. Prentice-Hall of India, New Delhi, India.

• Dhaliwal, M.S. 2008. Handbook of Vegetable Crops. Kalyani Publishers, Ludhiana, New Delhi, India.
• Maynard, D.N. and G.J. Hochmuth. 2007. Knott's Handbook of Vegetable Growers (5th Ed.). John Willey and Sons Inc., New York.
• Swaider, J.M., G.W. Ware and J.P. McCollum. 2002. Producing Vegetable Crops (5th Ed.), Interstate Publishers Printers and Publishers Inc., Danville, Illinois.
• Das, P.C. 2003. Vegetable Crops of India. Kalyani Publishers, New Delhi.
• Singh, A.P. 2002. Vegetable Growing in India. Kalyani Publishers, New Delhi.
• Singh, D.K. 2007. Modern Vegetable Varieties and Production Technology. International Book Distributing Co. (Publishing Division), Lucknow, India.

Maynard, D.N. and G.J. Hochmuth. 2007. Knott's Handbook of Vegetable Growers (5th Ed.). John Willey and Sons Inc., New Yor

Teaching Learning Strategies

1. Lectures
2. Discussions
3. Presentations
4. Quiz
5. Assignments

Assignments: Types and Number with Calendar

1. Research and present on 3-5 winter vegetable crops, including their growth habits, climate requirements, and market demand.
2. Design a crop rotation plan for a winter vegetable farm, including crop selection, rotation sequence, and benefits for soil health and pest management.Hidden huger solutions

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.