Semester	**:**	**I**	
Course No.	**:**	**HORT-111**	**Credit Hrs. : 3(2+1)**
Course Title	**:**	**Fundamentals of Horticulture**	

SYLLABUS

Objectives:

(i) To provide knowledge on different branches of Horticulture *viz.*, Pomology, Olericulture, Floriculture and Landscaping, Spices and Medicinal plants,

(ii) To provide knowledge on orchard management, propagation methods, cultural operations and nutrient management of horticultural crops,

(iii) To provide knowledge on different physiological aspects of horticultural crops.

THEORY

Horticulture: Its different branches, importance and scope; Horticultural and Botanical classification; Soil and Climate for horticultural crops; Plant propagation: Methods and propagating structures; Seed dormancy and seed germination; Merits and demerits of sexual and asexual propagation; Stock-Scion relationship. Principles of orchard establishment; Principles and methods of training and pruning of fruit crops; Juvenility and flower bud differentiation; Unfruitfulness in horticultural crops; Pollination, pollinizers and pollinators; Fertilization and parthenocarpy; Medicinal and aromatic plants; Spices and condiments; Importance of plant bio-regulators in horticultural crops; Irrigation and its methods; Fertilizers application in horticultural crops; Principles, features and styles and types of garden; Types of vegetable gardening; Kitchen gardening.

PRACTICAL

Identification of garden tools; Identification and nomenclature of fruits; Layout of an orchard; Pit making and system of planting; Nursery raising techniques of fruit crops; Understanding of plant propagation structures; Propagation through seeds and plant parts, Propagation techniques for horticultural crops, Container, potting mixture, potting and repotting; Training and pruning methods on fruit crops; Preparation of fertilizer mixture and application, Preparation and application of PGR; Layout of different irrigation systems; Maturity studies and harvesting; Grading, packaging and storage.

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TEACHING SCHEDULE

THEORY [HORT-111]

Lecture No.	Topic	Subtopics/ Key Points	Weightage (%)
1-2	Scope and Importance of Horticulture	Definitions and Branches of Horticulture, Meaning; Role, Scope, Importance, - Areas with examples.	10
3-4	Classification of Horticultural crops	Basis of Classification, Horticultural and Botanical Classification, Types with suitable examples.	10
5-6	Soil and Climate for Horticultural crops	Meaning, Soil and Climatic requirement for Horticultural crops, Suitable examples.	
7-11	Plant Propagation Methods and Propagating Structures	Sexual and Asexual methods of Propagation, Its merits and demerits; Propagation by propagules, Propagating structures, Stock-Scion relationship.	15
12-13	Seed Dormancy and Seed Germination	Definitions, Types of Seed dormancy, Causes of seed dormancy and methods to break seed dormancy; Seed germination and changes in seed during germination.	10
14-15	Principles of Orchard Establishment	Site selection criteria, Principles, Preparation of land and layout, Planting systems.	
16-17	Training and Pruning of Fruit crops	Principles and methods of training and pruning of fruit crops and Canopy management.	10
18-19	Juvenility and Flower Bud Differentiation	Definitions, Maturation phase, Techniques to reduce juvenile phase, Ways for rejuvenation or reversion to juvenile stage.	10
20	Unfruitfulness in Horticultural crops	Definitions, Fruitfulness, Fruit setting, Unfruitfulness and factors responsible for it, Steps to overcome it, Suitable examples.	

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21-22	Pollination, Pollinizers and Pollinators	Definitions, Types of pollinations, Mechanisms to promote self and cross-pollination, Advantages and disadvantages, Important pollinators and pollinizers with examples.	05
23	Fertilization and Parthenocarpy	Definitions, Types of Parthenocarpy with examples.	

Continued...

24	Medicinal and Aromatic Plants	Scope, Importance and its Classification	05
25	Spices and Condiments	Scope, Importance and its Classification	
26	Importance of Plant Bio-regulators in Horticultural crops	Definition, Role of Bio-regulators and its uses in Horticulture with examples	05
27	Irrigation Methods in Horticultural crops	Irrigation methods and its advantages and disadvantages.	10
28	Fertilizers Application in Horticultural crops	Types of fertilizers; Methods of fertilizers application, their advantages and disadvantages	
29-30	Principles, Features and Styles and Types of Garden	Principles, Features and Styles and Types of Garden.	05
31	Types of Vegetable Gardening	Different types of Vegetable gardening	05
32	Kitchen Gardening	Explanation and Components of Kitchen gardening.	
		Total =	**100**

TEACHING SCHEDULE

PRACTICAL [HORT-111]

Exercise No.	Title
1	Identification of garden tools
2-3	Identification and Nomenclature of fruits
4	Layout of an orchard
5	Pit making and system of planting
6	Nursery raising techniques of fruit crops
7	Understanding of plant propagation structures
8	Propagation through seeds and plant parts

9	Propagation techniques for horticultural crops
10	Container, potting mixture, potting and repotting
11	Training and pruning methods on fruit crops
12	Preparation of fertilizer mixture and application
13	Preparation and application of PGR
14	Layout of different irrigation systems
15	Maturity studies and harvesting
16	Grading, packaging and storage

Suggested Readings:

1. Basics of Horticulture by Jitendra Singh
2. Introduction to Horticulture by N. Kumar
3. Handbook of Horticulture by K.L. Chadda
4. Jain, S.K. 1968. Medicinal Plants. National Book Trust New Delhi. Oxford & IBH, New Delhi.
5. Atal, E.K. and Kapur, B. 1982. Cultivation and Utilization of Medicinal and Aromatic Plants. CSIR, New Delhi.

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