

**TEACHING PLAN: Fundamentals of Horticulture**

SCHOOL: (SOAS) SCHOOL OF AGRICULTURAL SCIENCES		ACADEMIC SESSION: 2023 – 2024		FOR STUDENTS’ BATCH: 2023-2027		
1	Course No.	AHR-T-101				
2	Course Title	Fundamentals of Horticulture				
3	Credits	1+1				
4	Learning Hours		Contact Hours	45		
			Assessment	9		
			Guided Study	9		
			Total hours	63		
5	Course Objective	<div>1. To educate concepts of horticulture, Importance and scope, botanical classification of horticultural crops, climate and soil, propagation methods of different horticultural crops etc.</div> <div>2. To describe various principles and methods of training and pruning, kitchen gardening, basic principles of orchard establishment, unfruitfulness etc.</div> <div>3. To evaluate the information related to horticulture as being scientifically based or opinion based and contributes to the knowledge-based information.</div> <div>4. To develop the ability to analyze the various problems with horticulture crops production.</div>				
6	Course Outcomes	<div>1. Students will be able to identify plant vegetative structure.</div> <div>2. Students will understand basic principles, processes and plant propagation methods.</div> <div>3. Students will understand how to propagate plant, manage and harvest a variety of plant.</div> <div>4. Students will learn how horticulture relates to the economy and environments, both currently and in the future.</div>				
7	Outline syllabus:					
7.01	Paper Code	Unit	Introduction	Page Numbers <sup>1</sup>	Lect ures	
7.02	AHR-T-101	Unit I	1.Horticulture- Itsdefinitionandbranches,importanceandscope; 2.Horticulturalandbotanical classification; 3.Climateandsoilforhorticulturalcrops.	2-7 8-20 21-28	2 3 2	
		Unit II	1.Plantpropagation-methodsandpropagating structures; 2.Seed dormancy, Seed germination,	29-47	2 1	

			3.principles of orchard establishment; 4.Principles and methods of training and pruning.	48-53 54-65 66-68	<b>2</b> <b>1</b>
		<b>Unit III</b>	1. Juvenility and flower bud differentiation; unfruitfulness; 2. Pollination,pollinizersandpollinators;fertilizatio nandparthenocarp	69-79 80-81	<b>2</b> <b>1</b>
		<b>Unit IV</b>	1.Medicinalandaromatic plants; Importance of plant bio-regulators in horticulture. 2. Irrigation methods 3.Fertilizer application in horticulturalcrops.	82-84 85-89 90-95	<b>2</b> <b>2</b> <b>2</b>
<b>8</b>	<b>Course Evaluation</b>				
<b>8.1</b>	<b>CA: 10%</b>				
<b>8.1.1</b>	<b>Attendan ce</b>	25 %			
<b>8.1.2</b>	<b>Homewor k</b>	2 Assignments, 50%			
<b>8.1.3</b>	<b>Quizzes</b>	2 Quizzes, 25%			
<b>8.1.4</b>	<b>Projects</b>	-			
<b>8.1.5</b>	<b>Presentat ion</b>	-			
<b>8.1.6</b>	<b>Any other</b>	Practical Examination- 30%			
<b>8.2</b>	<b>MTE</b>	10%			
<b>8.3</b>	<b>End-term examination: 50%</b>				
<b>9</b>	<b>Text Books &amp; References</b>				
<b>9.1</b>	<b>Text book</b>	1. Textbook Series Fundamentals of Horticulture (B.G. Chhipa, S.S Lakhawat)			
<b>9.2</b>	<b>References</b>	<b>1. Fundamentals of horticulture (Singh Bijendra), Instant Horticulture (S.N.Gupta), Glaustas Horticulture (Dr. P. Muthukumar et al.)</b>			
<b>9.3</b>	<b>Video References</b>	1.			

Outcome no. → Syllabus topic ↓	1	2	3	4	5
Paper Code. Unit I (1)	✓				✓
Paper Code. Unit I (2)	✓	✓	✓	✓	
Paper Code. Unit I (3)	✓	✓	✓	✓	
Paper Code. Unit II (1)	✓	✓	✓	✓	
Paper Code. Unit II (2)	✓	✓	✓	✓	
Paper Code. Unit II (3)	✓	✓	✓	✓	
Paper Code. Unit III (1)	✓	✓	✓	✓	
Paper Code. Unit III (2)	✓	✓	✓		
Paper Code. Unit IV (1)	✓	✓	✓		
Paper Code. Unit IV (2)	✓	✓	✓	✓	✓
Paper Code. Unit IV (3)	✓	✓	✓		✓
Paper Code. Unit IV (4)	✓	✓	✓		✓
Paper Code. Unit IV (5)	✓	✓	✓		
Paper Code. Unit IV (6)	✓	✓	✓		
Paper Code. Unit IV (7)	✓	✓	✓	✓	

## QUESTION BANK

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### UNIT 1 Section A

**1. Horticulture is the study that includes**

- a) Fruits, vegetables and flowers
- b) All food crops
- c) Vegetable gardens and lawns near hotels only
- d) Some bush crops and apples

**2. Root suckers are**

- a) Insects that suck nutrients from the roots of plants
- b) Shoots that arise from roots to form new plant
- c) New plant parts that arise from the branches of fruit trees
- d) Roots of neighboring plants that share water with the another plant

**3. Horticulture is derived from which word**

- a). Latin
- b). Greek
- c). Arabic
- d). None of the above

**4. Olericulture is the study of**

- a). Vegetable
- b). Fruit
- c). Seed
- d). Flower

**5. Pomology is the study of**

- a). Vegetable
- b). Fruit
- c). Seed
- d). flower

### Section B

1. What is horticulture
2. Define vegetable

3. Define fruit
4. Define seed
5. Write the branches of horticulture

### Section C

1. Division of horticulture and also define the all division.
2. What is floriculture and their types with definition.
3. Write the Classification of horticulture based on life span of plants and also define all with their suitable examples.
4. Write the Classification of horticulture based on climatic requirement of plants and also define all with their suitable examples.
5. Write the Classification of horticulture based on season of plants and also define all with their suitable examples

### Section D

1. Write the importance and scope of horticulture in national economy.
2. Role of horticultural crops in human nutrition
3. Write the Classification of horticulture based on use of horticultural plants and based on longevity and also define all with their suitable examples
4. Write about the Climate for horticultural crops
5. Write about the soil for horticultural crops

## UNIT 2

### Section A

1. **Multiplication of plant is called**
  - a). Propagation
  - b). Orchard establishment
  - c). Both
  - d). None of the above
2. **The seed which can be dried to low moisture level (5-8%) and lose their viability with the increase of moisture are called as**
  - a). Orthodox seed
  - b). Recalcitrant seed
  - c). Both
  - d). None of the above
3. **The seed which can be dried to moisture level (8-15%) and donot lose their viability with the increase of moisture are called as**
  - a). Orthodox seed
  - b). Recalcitrant seed
  - c). Both
  - d). None of the above
4. **Removal of unwanted plant part is called**
  - a). Pruning
  - b). Training
  - c). Both
  - d). None of the above
5. **Treatment given to the young plants to get a suitable or desired shape with strong framework is called**
  - a). Pruning
  - b). Training
  - c). Both
  - d). None of the above

### **Section B**

1. Define orthodox seed
2. Define recalcitrant seed
3. Define vegetative propagation
4. Define orchard establishment
5. Define sexual propagation

### **Section C**

1. Methods of propagation
2. Write the classification of layering
3. Write about hardening?
4. Advantage of plant propagation by layering
5. Disadvantage of plant propagation by layering

### **Section D**

6. What is propagation and methods of propagation and also mention the advantage and disadvantage of methods of propagation
7. Write about seed dormancy and categories of seed dormancy and methods of breaking dormancy.
8. Write about the stages of germination process and also write about the environmental condition affecting seed germination.
9. Write about the principles and methods of vegetative propagation by cutting?
10. Differentiate between the sexual and asexual propagation

## **UNIT 3**

### **Section A**

#### **1. Transfer of pollen grain from anther to stigma is called**

- a). Pollination
- b). fertilization
- c). Fertigation
- d). None of the above

#### **2. How many types of pollination**

- a). 1
- b). 2
- c). 3
- d). 4

#### **3. Transfer of pollen grain from anther to stigma from one plant to another is called**

- a). Self Pollination
- b). Cross Pollination
- c). Both
- d). None of the above

#### **4. Transfer of pollen grain from anther to stigma within same flower is called**

- a). Self Pollination
- b). Cross Pollination
- c). Both
- d). None of the above

#### **5. The process of combining the male and female gamete is called**

- a). Pollination
- b). fertilization

- c). Fertigation
- d). None of the above

#### Section B

1. What is pollination
2. What is fertilization
3. What is parthenocarpy
4. What is apomixes.
5. What is male sterility

#### Section C

6. What is pollination and their types
7. Responses of plant to pruning
8. Objectives of pruning
9. Reasons for pruning
10. Principles of training

#### Section D

11. Causes and remedies of unfruitfulness in fruit tree.
12. What is pollination and their types and also mention the factors which influence self and cross pollination
13. Write about the use of plant growth regulators in fruit production and also mention the types of PGR
14. Write about the methods of pruning in brief.
15. Write about the system of training in brief

### UNIT 4

#### Section A

#### **1. Application of fertilizer with irrigation is called**

- a). Propagation
- b). Orchard establishment
- c). Fertigation
- d). None of the above

#### **2. Technique of covering of soil surface around the plants is called**

- a). Soil mulching
- b). Recalcitrant seed
- c). Both
- d). None of the above

#### **3. The waste material from animals that is put on the ground in order to make plants grow better is called**

- a). Orthodox seed
- b). Fertilizer
- c). Manure
- d). None of the above

#### **4. Disadvantages of natural vegetative propagation includes**

- a) Lack of dispersal mechanisms
- b) No fertilization is involved
- c) Area is quickly colonized
- d) Daughter plants can grow quickly

#### **5. Onion and garlic are examples of**

- a) Rhizome
- b) corm

- c) stem tuber
- d) bulb

#### **Section B**

1. What is fertigation
2. What is soil mulching
3. What is intercropping
4. What is mixed cropping
5. What is micro irrigation

#### **Section C**

1. Please discuss graft incompatibility?
2. Mention about soil mulching and their advantages?
3. Mention different packaging materials used for packing mango?
4. Mention the maturity indices of mango?
5. Mention the maturity indices of sapota

#### **Section D**

1. Write the name of different irrigation system and elaborate the special irrigation methods?
2. Write the advantage of micro irrigation and also mention about fertigation?
3. Define green house and their advantages and also mention the methods of cooling in green house?
4. Mention different types of green house and write the difference between a shade net house and green house?
5. Mention different flower bearing habits in horticultural crops and also mention how flower drop can be prevented?
6. Mention different preharvest sprays in horticultural crops? How the post-harvest diseases in mango can be controlled?