## II Semester /HorticultureCore Course - 2 **Plant Propagation and Nursery Management** (Total hours of teaching -60 @ 04 Hrs./Week)

## **Theory** :

Learning Outcomes: On successful completion of this course, the students will be able to:

- Explain sexual and asexual propagation methods of plants.
- > Demonstrate skills on vegetative propagation of plants.
- > Demonstrate the techniques on raising of different types of nursery beds
- > Justify the role of various propagation structures used to raise horticulture plants.
- > Understand the regulation to establish a plant nursery and quality parameters to be maintained.
- Implement different routine/regular activities in a nursery.
- > Understand the economics of a plant nursery and can maintain necessary records.

# **Unit -1: Sexual propagation**

- 1. Sexual propagation advantages and disadvantages.
- 2. Seed germination, process of seed germination; factors affecting seed germination;
- 3. Pre-germination treatments and viability tests; sowing methods of seeds.
- 4. Polyembryony in propagation of *Opuntia*, trifoliate orange, mango and *Citrus*.

# Unit -2: Asexual propagation

- 1. Asexual propagation advantages and disadvantages.
- 2. Using bulbs, corms, tubers and rhizomes to raise nursery.
- 3. Stolons, runners and offsets in raising nursery.
- 4. Apomixis : Definition; role of apomictics in propagation of apple, mangosteen and Citrus.

# **Unit-3: Vegetative propagation techniques**

- 1. Cuttings: Definition, propagation by root, leaf and stem cuttings.
- 2. Layering : Definition, techniques of simple, serpentine, mound, trench and air layering.
- 3. Grafting : Definition; approach and detached scion (Veneer, whip, cleft, side and bark) grafting techniques.
- 4. Budding :Definition; techniquesofT-, patch and chip budding.

# 12 Hrs.

12 Hrs.

# 12 Hrs.

### Unit – 4 :Basic requirements of a nursery 12 Hrs.

- 1. Plant nursery: Definition, importance; Basic facilities for a nursery; layout and components of a good nursery.
- Nursery beds types, their merits and demerits; precautions to be taken during preparation.
- 3. Brief account of growing media; nursery tools and implements.
- 4. Containers for plant nursery.
- 5. Brief account of plant propagation structures.

### Unit -5: Nursery management

- 1. Bureau of Indian Standards (BIS-2008) related to nursery; guidelines for nursery raising.
- 2. Nursery accreditation and Certification.
- 3. Seasonal activities and routine operations in a nursery; watering, weeding and control of pests and diseases.
- 4. Common possible errors in nursery activities.
- 5. Economics of nursery development and record maintenance; online nursery information and sales systems.

# Practical syllabus of Horticulture Core Course -2/ Semester - II Plant Propagation and Nursery Management (Total hours of teaching – 30 @ 02 Hrs./Week)

- 1. Methods of breaking dormancy in seeds, tubers, vegetative buds and other vegetative propagules.
- 2. Media for propagation of plants in Nursery Beds, Pot and Mist chamber.
- 3. Preparation of nursery beds and sowing of seeds
- 4. Raising of root stock.
- 5. Seed treatments for breaking dormancy in seeds and vegetative organs of plants.
- 6. Preparation of plant material for potting.
- 7. Hardening of plants in the nursery.

8. Practicing different types of vegetative propagation techniques - cutting, layering grafting and budding.

9. Preparation of plant growth regulators for seed germination and vegetative propagation.

### 12 Hrs.