

ANDHRA KESARI UNIVERSITY



B. Voc., Honours in Horticulture: Minor

w.e.f AY 2023-24 onwards

Semester - III

COURSE STRUCTURE

Year	Semester	Course	Title	No. Hrs./ Week	No. of Credits
Second Year	III	2	Plant Propagation and Nursery Management Theory	3	3
			Plant Propagation and Nursery Management Practical	2	1

A. Phamara

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Semester-III
Horticulture Core Course – 2
Plant Propagation and Nursery Management 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

12 Hrs.

1. Sexual propagation ñ 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

12 Hrs.

1. Asexual propagation ñ advantages and disadvantages.
2. Using bulbs, corms, tubers and rhizomes to raise nursery.
3. Stolon's, runners and offsets in raising nursery.
4. Apomixis: Definition; role of apomictic in propagation of apple, mangosteen and *Citrus*.

Unit- 3: Vegetative propagation techniques

12 Hrs.

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; technique soft-, patch and chip budding.


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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.
2. Nursery beds ñ 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**12 Hrs.**

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.



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Practical syllabus of Horticulture Core Course -2/ Semester - III

Plant Propagation and Nursery Management

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.



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b. Student Study Projects:

1. Demonstrate on different methods of Cuttings
2. Demonstrate on different methods of Layering
3. Demonstrate on different methods of Grafting
4. Demonstrate on different methods of Budding
5. Collection of data on disease symptoms in a local nursery.
6. Preparation of different media used in Nursery
7. Preparation of different plant growing containers
8. Preparation of different models of Propagation structures.

c. Assignments: Written assignment at home / during 1 hour at college; preparation of

charts with drawings, making models etc., on topics included in syllabus.

B. General:

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to Horticulture Nursery.



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Model Question Paper for Practical Examination

III Semester /Horticulture Core Course - 2

Plant Propagation and Nursery Management

Max. Time: 3 Hrs.

Max. Marks: 50

- | | |
|--|---------------|
| 1. Demonstrate methods to break seed dormancy. | 8 M |
| 2. Demonstrate a method of vegetative propagation. | 8 M |
| 3. Demonstrate routine practices in a nursery | 8 M |
| 4. Identify the tool/ equipment used in horticulture | 3 × 4 = 12M |
| 5. Record + viva voice | 10 + 4 = 14 M |

Text books:

- **Sadhu. M. K 1996.** Plant propagation, New Age International Publishers, New Delhi
- **Sarma. R. R 2002** Propagation of Horticultural crops: Principles and practices Kalyani Publishers, New Delhi
- **Hartman. HT and Kester. D.E 1976** Plant propagation. Principles and Practices, Prentice Hall of India Pvt. Limited, Mumbai

Suggested co-curricular activities for Horticulture Core Course – 2 in Semester- III:

A. Measurable:

a. Student seminars:

1. Types of propagation methods (Asexual and sexual)
2. Cuttings ñ Types of cuttings
3. Layering ñ Types of Layering
4. Grafting ñ Types of grafting
5. Budding ñ Types of Budding
6. Raising and management of nursery
7. Plant propagation structures - care and maintenance
8. Apomixis ñ Role of Apomixis in propagation
9. Nursery certification
10. Pest and Disease Management in nursery

H. V. Ramana

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