

A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited by NAAC with 'B')

KAKINADA 533002, EASTGODAVARI, ANDHRA PRADESH

HORTICULTURE SYLLABUS

2020 – 2021



DEPARTMENT OF HORTICULTURE

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I B.Sc HORTICULTURE THEORY SYLLABUS for the Academic Year 2020-2021

SEMESTER - I, COURSE – I

FUNDAMENTALS OF HORTICULTURE AND SOIL SCIENCE

Unit I : Introduction to Horticulture

12 Hrs.

1. Horticulture: Definition, importance of horticulture in terms of economy, production, employment generation, environmental protection and human resource development.
2. Divisions of horticulture with suitable examples and their importance.
3. Area, production of Horticultural crops in A.P. and India.
4. Fruit and vegetable zones of India and Andhra Pradesh.
5. Export scenario and scope for Horticulture in India.

Unit II : Classification Horticulture Crops

12 Hrs.

1. Classification of horticultural crops based on soil and climatic requirements.
2. Vegetable crop gardens – Nutrition and kitchen garden – tracer garden – vegetable forcing – market garden – roof garden.
3. Gardens in floriculture – flower gardens – soil and mixed gardens; land scape Horticulture.

Unit III : Characteristics of Orchards

12 Hrs.

1. Orchard: Definition, different systems of planting orchards – square, rectangular Quincunx, hexagonal and contour.
2. Calculation of planting densities in different systems of planting.
3. Different types and methods of pruning.
4. Training: Definition, principles and objectives; merits and demerits of open and close centered, and modified leader systems.

Unit IV : Physico-chemical characteristics of Soil

12 Hrs.

1. Soil: Definition, minerals and weathering to form soils; factors of soil formation.
2. Soil taxonomy; soil color, texture and structure; other physical properties and stability.
3. Soil colloids and charges; ion adsorption and exchange; soil temperature and soil air.
4. Soil pH and acidity; soil alkalinity and salinity

Unit V :Soil as a living matter

12 Hrs.

1. Soil organic matter – composition and decomposability.
2. Humus – fractionation of organic matter.
3. Soil biology: Soil microorganisms and fauna –beneficial and harmful roles.
4. Integrated nutrient management and soil tests

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I B.Sc HORTICULTURE PRACTICAL SYLLABUS for the Academic Year 2020-2021

SEMESTER - I, COURSE – I

FUNDAMENTALS OF HORTICULTURE AND SOIL SCIENCE

Course Outcomes : On successful completion of this course, the students shall be able to :

- Make a layout of an orchard in a given area.
- Use various tools and implements to raise nursery and cultivate a horticulture crop.
- Prepare fertilizer mixtures and PGRs for plants.

1. Study of features of orchard planning and layout orchard.
2. Study of tools and implements in Horticulture.
3. Identification of various Horticulture crops.
4. Lay out of nutrition garden.
5. Preparation of nursery beds to sow vegetable seeds.
6. Digging of pits for fruit plants.
7. Layout of different Planting systems.
8. Study of different methods of training.
9. Study of different methods of pruning.
10. Preparation of fertilizer mixtures and field application.
11. Preparation and application of growth regulators.
12. Layout of different irrigation systems.
13. Identification and management of nutritional disorders in important fruit, vegetable and flower crops.

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SEMESTER - II, COURSE – II

PLANT PROPAGATION AND NURSERY MANAGEMENT _____

Unit -1: Sexual Propagation

12 Hrs.

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

12 Hrs.

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

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; techniques of T- , patch and chip budding.

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 – 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.

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, H.T. and D.E. Kester 1976** Plant propagation. Principles and Practices, Prentice Hall of India Pvt. Limited, Mumbai
- **Ratha Krishnan, P. 2014.** Plant Nursery Management: Principles and Practices. Central Arid Zone Research Institute (ICAR), Jodhpur

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SEMESTER - II, COURSE – II

PLANT PROPAGATION AND NURSERY MANAGEMENT

Course outcomes : On successful completion of this course, the students shall be able to :

- Practice a suitable propagation method for a given horticulture plant species.
- Perform skills to remove dormancy in seeds and other propagules of horticulture plants.
- Prepare media to raise nursery and to cultivate various horticulture plants.
- Demonstrate skill of various vegetative propagation technics used in Horticulture

1. Observations on causes for dormancy in seeds and vegetative propagules.
2. Methods of breaking dormancy in seeds, tubers, vegetative buds and other vegetative propagules.
3. Media for propagation of plants in nursery beds, pots and Mist chamber.
4. Preparation of nursery beds and sowing of seeds
5. Raising of root stock.
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.