

**CBCS / Semester System (w.e.f. 2020-'21 Admitted Batch)**

**I Semester /HorticultureCoreCourse - 1**

**Fundamentals of Horticulture and Soil Science**

(Total hours of teaching – 60 @ 04 Hrs./Week)

**Theory :**

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

- Understand the scope and potential of horticulture products in India and Andhra Pradesh.
- Classify the horticulture plants based on soil and climate.
- Illustrate different systems of planting in orchard and predict the number of plants in a given land.
- Demonstrate the methods and types of training and pruning.
- Explain the basics of soil science and justify the role of soil as a medium for plant growth.
- Explain about integrated nutrient management and demonstrate the skills of soil testing.

**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; landscape 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.

**Text books:**

- **Prasad and Kumar ,2014.:** Principles of Horticulture 2<sup>nd</sup> Edition Agribios India
- **Kumar, N., 1990** Introduction to Horticulture. Rajyalakshmi Publications, Nagarkoil, Tamilnadu
- **Jithendra Singh, 2002.** Basic Horticulture. Kalyani Publishers, Hyderabad
- **KausalkumarMisra and Rajesh Kumar, 2014** Fundamentals of Horticulture Biotech books
- **Brady Nyle C and Ray R Well 2014** Nature and Properties of Soil Pearson Educational Inc , New Delhi
- Indian society of Soil Science IARI, New Delhi

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**Practical syllabus of Horticulture Core Course – 1/ Semester – I**  
**Fundamentals of Horticulture and Soil Science**  
(Total hours of teaching – 30 @ 02 Hrs./Week)

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- 1.Study of features orchard planning and layout orchard.
- 2.Study of tools and implements in Horticulture.
- 3.Identification of various Horticulture crops.
- 4.Lay out of nutrition of garden.
- 5.Preparation of nursery beds for sowing of 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 fruits, vegetables and flowers.