

**Open course 2 Code: BO5OPT02**  
**HORTICULTURE AND NURSERY MANAGEMENT**  
**(Theory 72 hrs; Credits 3)**

**Objectives:**

- Understand the importance of horticulture in human welfare.
- Understand the propagation and cultural practices of useful vegetable, fruit and garden plants.
- Understand the impact of modern technologies in biology on horticultural plants.
- Understand the basic concepts of landscaping and garden designing.
- Inculcate interest in landscaping, gardening and flower and fruit culture.

**HORTICULTURE (48 hrs)**

**Module 1: Introduction (10 hrs)** Introduction to horticulture: definition, history; classification of horticultural plants, disciplines of horticulture. Soil: formation, composition, types, texture, pH and conductivity. Garden tools and implements. Preparation of nursery bed; manures and fertilizers - farm yard manure, compost, vermicompost, biofertilizers; chemical fertilizers - NPK; time and application of manures and fertilizers, foliar spray. Irrigation methods - surface, sub, drip and spray irrigations - advantages and disadvantages - periodicity of irrigation.

**Module 2: Propagation of plants (10 hrs)** Propagation of horticultural plants - by seeds; seed development and viability, seed dormancy, seed health, seed testing and certification. Growing seedlings in indoor containers and field nurseries, seed bed preparation, seedling transplanting; advantages and disadvantages of seed propagation. Vegetative propagation - organs used in propagation - natural and artificial vegetative propagation; methods - cutting, layering, grafting and budding; advantages and disadvantages of vegetative propagation; micropropagation.

**Module 3: Gardening (10 hrs)**

Gardening - ornamental gardens, indoor gardens, kitchen gardens- terrestrial and aquatic gardens - garden adornments; garden designing; garden components - lawns, shrubs and trees, borders, hedges, edges, drives, walks, topiary, trophy, rockery; famous gardens of India. Landscape architecture - home landscape design, urban planning, parks, landscaping and public buildings, industrial and highway landscaping. Physical control of plant growth - training and pruning - selection of plant, bonsai containers and method of bonsai formation.

**Module 4: Floriculture (6 hrs)** Introduction, commercial floriculture - jasmine, orchid, anthurium, rose, gladiolus; production of cut flowers, quality maintenance, packing, marketing. Flower arrangements - basic styles - upright and slanting - japanese Ikebana, dry flower arrangement.

**Module 5: Olericulture (4 hrs)** Olericulture - types of vegetable growing - home gardens and market gardens; cultivation practices of leafy vegetable (Amaranthus), tuber (Potato), fruit (Tomato), flower (Cauliflower).

**Module 6: Pomology (4 hrs)** Pomology - cultivation of fruit crops - mango, banana and pine apple - preparation of land, spacing, planting, irrigation, hormones, harvest and storage. Factors affecting duration of storage. Principles of preservation - temporary and permanent - agents for fruit preservation. Preparation of pickles, jams, jellies and squashes using locally available fruits.

**Module 7: Gardening – additional features (4 hrs)** Garden friends - honey bees, ladybirds, frogs, spiders, earthworms, centipedes and millipedes. Garden foes - pests, pathogenic fungi, bacteria, virus. Control measures - pesticides and fungicides; neem tobacco decoction. Hazards of chemical pesticides; equipments used in controlling horticultural pests - sprayers, dusting equipments - sterilization, fumigation. Weeds - annual, perennial; weed control - prevention, eradication - hand weeding, tillage, burning, mowing, biological control, use of herbicides - selective and non selective - mechanisms involved in herbicidal actions.

### **NURSERY MANAGEMENT (6 hrs)**

**Module 1: Nurseries (6 hrs)** Nursery: definition, types; management strategies - planning, layout, budgeting - production unit, sales unit. Plant growing structures - green houses, fernery, orchidarium, arboretum.

### **ON HAND TRAINING (18 hrs)**

1. Preparation of potting mixture of known combination and potting in earthen pots/poly bags.
2. Preparation of nursery beds.
3. Preparation of compost/vermicompost using different substrates.
4. Working knowledge and identification of garden tools and implements.
5. Practical knowledge in different plant propagation techniques listed in syllabus.
6. Cultivation of a vegetable/ornamental plant/fruit crop listed in the syllabus.
7. Practice of different pruning operations (top dressing, shaping and topiary) in the following plants: (1) Bougainvillea (2) Phyllanthus.
8. Visit a well established nursery and submit report.

### **REFERENCES.**

1. Adams C R, Early M P, 2004. *Principles of Horticulture*. Elsevier, N. Delhi.
2. Barton West R, 1999. *Practical Gardening in India*. Discovery Pub. House, New Delhi.
3. Edmond J B, Senn T L, Andrews F S, Halfacre P G, 1975. *Fundamentals of Horticulture* (IV Edn). TMH, New Delhi.
4. John Weathers, 1993. *Encyclopaedia of Horticulture*. Discovery Pub. House. New Delhi
5. Jules Janick, 1979. *Horticultural Science*. Surjeet publications, Delhi
6. Kumar N, 1994. *Introduction to Horticulture*. Rajalakshmi Pub. Nagarcoil
7. Manibhushan Rao K, 1991. *Text Book of Horticulture*. Macmillan India Ltd.
8. Randhawa G S, Mukhopadhyay A, 1986. *Floriculture in India*. Allied Publishers Pvt. Ltd. Ahamedabad.
9. Sadhu M K, 1996. Plant Propagation. New age International publishers, N. Delhi
10. Schilleter J C, Richey H W, 1999. Text Book of General Horticulture. Biotech Books, New Delhi
11. Mazundar B C, P M Mukhopadhyay, 2006. Principles & Practices of Herbal Garden. Daya Publishing House, Delhi.
12. Vishnu Swarup, 1997. Ornamental Horticulture. MacMillan India Ltd.
13. Linda William, 2005. Ornamental Science Demystified. Tata Mc Graw hill Co.
14. Percy Lancasher, 2004. Gardening in India. Oxford IBH Publishing Co. Pvt. Ltd.

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