ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

B.SC.(HONORS) AGRICULTURE AND RURAL DEVELOPMENT WITH SINGLE MAJOR

# II SEMESTER AGRICULTURE AND RURAL DEVELOPMENT Time:4hrs/week

HORD181(1)  **FUNDAMENTALS OF HORTICULTURE** Marks:100

w.e.f AK 2023-2024 (Admitted batch)  **SYLLABUS**

**OBJECTIVES:**

* To identify garden tools.
* To identify horticultural crops.
* To prepare different types nursery beds.

**Course Outcomes**

At the end of the course, students will be able to

**CO1:** Define, classify and outline the climate and soil conditions for horticultural crops.

**CO2:** Explain principles and methods of plant propagation, training and pruning.

**CO3:** Summarize principles and steps in establishment of various orchards and types and purposes of gardens.

**CO4:** Discuss unfruitfulness, pollination and fertilization.

**CO5:** List medicinal and aromatic plants, spices and condiments and explain the role of plant bio regulators, irrigation and fertilizers in horticulture crops.

**UNIT – I:**

1. Definition of Horticulture - Division of Horticulture - Pomology, Olericulture, Floriculture, spices & Condiments, Medicinal and Aromatic plants, Ornamental and Landscape architecture and Post-Harvest Technology etc. Importance of horticulture in national economy and in human nutrition. Scope of Horticulture
2. Horticultural & Botanical classification – Fruits, Vegetables, Ornamental plants, Spices and Plantation crops
3. Climate and soil for horticultural crops – Temperature, Rainfall, Relative humidity, Wind, Soil organic matter, Soil pH, Soil air, soil Water etc.

**UNIT – II:**

1. Plant propagation methods - sexual asexual and micro propagation. Plant Propagation structures – Polyhouses, Net houses, Plastic tunnels and Mist chambers
2. Principles of orchard establishment – selection of site – Steps in establishment of orchard

– clearing of the land – leveling – fencing – purpose of raising fence – live and non-live fences – good fence plant characters – examples of live and non-live fences – wind breaks – roads – drains – tillage – sowing green manure crops – marking plant positions – digging and filling of pits – selection of plants from the nursery – lifting and packing of plants – season of planting – planting and healing inn

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1. Principles and Methods of training and pruning – training – definition – objectives of training fruit trees – reasons for training – methods of training – central leader, open center and modified leader systems with merits and demerits
2. Pruning – definition – reasons for pruning – objectives of pruning – responses of plants to pruning – activation of buds, dwarfing response, production of water shoots and delay in bearing – methods of pruning – thinning out, trimming, heading back, pollarding, pinching, disbudding and deblossoming – seasons of pruning – pruning and manuring – care of pruned woods – Juvenility and flower bud differentiation

**UNIT – III:**

1. Unfruitfulness in fruit trees – causes – environmental causes, nutritional causes, inherent causes, biological causes and cultural causes and their remedies
2. Pollination, pollinizers, and pollinators
3. Fertilization and parthenocarpy

**UNIT – IV:**

1. Kitchen gardening
2. Garden types and parts

    3. Lawn making

**UNIT – V:**

1. Medicinal & Aromatic plants
2. Spices and Condiments
3. Plant bio regulators - growth regulators and plant hormones – types of growth regulating substances – use of growth regulators in propagation – rooting of cuttings, induction of rooting in layering, union of rootstock and scion in grafting and budding, control of flowering, fruit set, fruit drop, parthenocarpy, fruit ripening, fruit size, quality and sex expression – preparation of growth regulators – powder, solution and lanolinpaste
4. Irrigation & fertilizers application – method and quantity

**REFERENCES TEXT BOOKS:**

1. Adams, C.R. and M. P. Early. 2004. Principles of horticulture. Butterworth – Heinemam, Oxford University Press.
2. Prasad and Kumar. 2014, Principles of Horticulture 2ndEdn. Agro bios (India)
3. Kumar, N.1997. Introduction to Horticulture, Rajalakshmi Publication,Nagercoil.

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