HORTICULTURE
(P.G. DEGREE STANDARD)

SUBJECT CODE: 279

UNIT- I: PRINCIPLES OF HORTICULTURE


UNIT - II: PROPAGATION AND NURSERY TECHNIQUES OF HORTICULTURAL CROPS


UNIT - III: GROWTH AND DEVELOPMENT OF HORTICULTURAL CROPS

Important phases of growth and development – Definitions, photosynthetic productivity, leaf area index (LAI) – optimum LAI in horticultural crops. Canopy development: Different stages of growth, growth curves, growth analysis in horticultural crops. Plant bio-regulators – Auxin, gibberellin, cytokinin, ethylene, inhibitors and retardants, basic functions, biosynthesis, role in crop growth and development, propagation, flowering, fruit setting, fruit thinning, fruit development, fruit drop and fruit ripening. physiological basis of training and pruning, source and sink relationship. Seed development and maturation, seed dormancy and bud dormancy, causes and breaking methods in horticultural crops. factors affecting flowering, physiology of flowering, photoperiodism in horticultural crops. Physiology of fruit growth and development, fruit setting, ripening- study of chemical manipulations on growth and development, understanding stress impact on growth and development.

UNIT - IV: BREEDING OF HORTICULTURAL CROPS


UNIT – V: PRODUCTION TECHNOLOGY OF FRUIT CROPS


UNIT - VI: PRODUCTION TECHNOLOGY OF VEGETABLE CROPS

Scope and importance of warm, cool and under exploited vegetable crops -Current scenario on national and international level of production and trade of vegetable crops - Types of vegetable farming - Commercial varieties / hybrids - Climatic and soil requirements – Seasons - Seed rate and seed treatment - Nursery management - Protray nursery - Sowing/planting - Cropping systems – Nutrient management – Fertigation - Irrigation management – Plant growth regulators - Intercultural operations, weed management – Mulching - Biotic and abiotic stresses and their management - Nutrient deficiency and physiological disorder and its corrective measures - Maturity standards – Harvesting - Post harvest management -Protected cultivation – Precision farming - Seed production techniques of vegetable crops: Tomato, Brinjal, Chilli and Capsicum (Sweet pepper), Bhendi, Leguminous
Vegetables (Beans, Peas, Cluster beans - Cowpea - Dolichos bean); Bulbous vegetables (onion); Tuber crops - (Potato, Tapioca, Sweet potato, Elephant footyam, Colacassia); Cucurbitaceous Vegetables (Cucumber, Bittergourd, Snakegourd, Ridgegourd, Ashgourd, Musk melon, Watermelon, Pumpkin) - Cruciferous vegetables (Cabbage, Cauliflower and Knolkhol); Root vegetables (Carrot, Radish, Beetroots, Turnip) - Leafy vegetables (Spinach, Lettuce, Palak, Amaranthus) – Perennial vegetables (Drumstick, Coccinea) – Underexploited vegetables.

UNIT - VII: PRODUCTION TECHNOLOGY OF COMMERCIAL FLOWER CROPS AND LANDSCAPING

Scope and importance of floriculture industry - Loose flower production and trade - National and international status – Commercial varieties/ hybrids - Climatic and soil requirements - Field preparation – Season - Systems of planting, transplanting techniques - Precision farming techniques - Water and nutrient management, Weed management - Training and pruning, Special horticultural practices - Pinching, disbudding, use of growth regulators - Physiological disorders and remedies – Biotic and abiotic stress management - Harvest indices, harvesting techniques - Post-harvest handling and grading, pre-cooling, packing and storage, transportation and marketing, value addition - Dry flowers - Pigment extraction - Concrete and essential oil extraction of important loose flower crops – Jasmine, Scented Rose, Chrysanthemum, Tuberose, Marigold, Crossandra, Celosia, Gomphrena, Nerium.

Scope and importance of cut flowers - Production and trade - Global and National scenario - Special nursery practices, growing environment, open cultivation, protected cultivation, soil requirements, soil decontamination techniques, planting methods, influence of environmental parameters, light, temperature, moisture, humidity and CO₂ on growth and flowering - Water and nutrient management, Fertigation, weed management, ratooning, training and pruning, special horticultural practices - Use of growth regulators, flower forcing and year round flowering through physiological interventions, chemical regulation, physiological disorders and remedies, environmental manipulation – Biotic and abiotic stress management - Cut flower standards and grades, harvest indices, harvesting techniques, post-harvest...
handling of cut Rose, cut Chrysanthemum, carnation, gerbera, anthurium, orchids, gladiolus, cut foliages and fillers.


UNIT - VIII: PRODUCTION TECHNOLOGY OF SPICES AND PLANTATION CROPS

UNIT - IX: PRODUCTION TECHNOLOGY OF MEDICINAL AND AROMATIC CROPS

Scope and importance of medicinal and aromatic plants. - Production and trade - National and International scenario of herbal and perfumery industry, WTO - Export and import status, Indian system of medicine, in situ and ex situ conservation.

UNIT - X: POST- HARVEST TECHNOLOGY OF HORTICULTURAL CROPS