## UNDERGRADUATE COURSES Description for the Degree of Bachelor of Science (B.Sc.) in *Horticultural Science.*

**36-14-235 Principles of Horticulture** 3 Cr. Introduction, history and economical value of horticultural crops, plant classification, plant growth and development, environmental factors in horticultural growing, plant propagation and nursery management, plant growth substances, pruning and training, marketing of horticultural crops.
**Prerequisite:** Botany I (Plant Anatomy & Physiology) 36-22-103.

**36-14-239 Plant Propagation** 3 Cr. Propagating structures and media, principles and procedures of propagation by seeds, physiological and anatomical aspects of asexual propagation, principles and techniques of cutting, budding, grafting, layering, separation and division, micropropagation and its general applications.
**Prerequisite:** Principles of Horticulture 36-14-235.

**36-14-353 Principles of Vegetable Crop Production** 2 Cr. Economic importance and nutritional value of vegetables, classifying vegetables, environmental factors on plant growth and development. Principles of : growing plants, hardening and transplanting, planting in the open, cultivating, rotating, irrigating, fertilizing, controlling insects and diseases, harvesting, handling, marketing and storage of vegetable crops.
**Prerequisite:** Principles of Horticulture 36-14-235.

**36-14-355 Vegetable Crops** 4 Cr. Plant Characteristics, selecting cultivars and seed, breeding and improvement, cultural practices, harvesting, handling and marketing of potherbs, salad crops, cole crops, root crops, bulb crops, solanaceous fruits, the cucurbits, perennial crops etc.
**Prerequisite:** Principles of Vegetable Crop Production 36-14-353.

**36-14-335 Temperate Zone Pomology** 4 Cr. Economic importance and nutritive value of fruits, classification of fruit species, cultivars, climatic requirements, cultural practices, orchard establishment, rootstocks, propagation, pruning and training, nutrition, flowering, pollination and fruit set, blossom and fruit thinning, harvesting, packing, transportation, storage, rejuvenation, breeding and improvement of major temperate fruits such as apple, pear, peach, apricot, plum, cherries, almond etc.
**Prerequisite:** Plant Propagation 36-14-239.

**36-14-439 Postharvest Physiology** 3 Cr. Introduction, physiology and biochemistry of fruits and vegetables, postharvest change and the loss of nutritive value, ripening and senescence of fruits and vegetables. Ethylene and postharvest physiology. Storage atmosphere, commodity treatments, packaging, transportation. Manipulation of postharvest physiology to extend storage life.
**Prerequisite:** Plant Physiology 36-14-238.

**36-14-445 Floriculture** 4 Cr. Bedding plant production, commercial flowering pot plants, planning or timing of major cut flower production under controlled conditions including; chrysanthemums, carnations, roses and gladioli. Foliage plants of commercial value, turfgrass culture and management, plant disorders related to the greenhouse environment.
**Prerequisite:** Plant Propagation 36-14-239.

**36-14-438 Small Fruits Production** 2 Cr. History, definitions and classification, botany, formation of reproductive structures, physiology of flowering, pollination and fruit set, fruit growth and development, cultural practices, propagation, nutrition, planting systems, pruning and training, harvesting, storage and application of growth regulators in quality and quantity of small fruit crops such as grapes, strawberries, raspberries, blueberries, currants, gooseberries and kiwifruit. **Prerequisite:** Principles of Horticulture 36-14-235.

**36-14-443 Flower and Vegetable Breeding and Seed Production** 3Cr.
Introduction, seed morphology and development, mode of reproduction, pollination systems and breeding techniques, flowering, its modification for hybrid seed production, bolting, seed setting, effect of environmental factors on seed quality, genetic purity, isolation requirements, rouging, selection procedure, release and multiplication of cultivar and hybrid seeds, seed quality control systems, seed certification rules and regulations, seed testing, seed storage and seed processing in flowers and vegetables.
**Prerequisite:** Principles of Plant Breeding 36-22-441.

**36-14-469 Tropical and Subtropical Fruits** 4 Cr. Origin, evaluation and distribution, botany and taxonomy, flowering, pollination and fruit set, climatic requirements, propagation, cultivars, nutrition, rootstocks, orchard management, blossom and fruit thinning, harvesting, grading, cooling, packing, storage and important pest and diseases related to the cultivation of major tropical and subtropical fruits such as date, banana, mango, papaya, pineapple, citrus, olive, fig, pomegranate and pistachio.
**Prerequisite:** Principles of Horticulture 36-14-235.

**36-14-238 Plant Physiology** 3 Cr. The organization of plant cells, water relation of the whole plant, plant and minerals, root and nutrient uptake, photosynthesis, respiration, translocation and distribution of photoassimilates, the physiology of plant under stress.
**Prerequisite:** Botany I 3622103, Botany II 36-22-105.

**36-14-490 Horticultural Training** 2 Cr. Students should spend an eight weeks training in a horticultural institute or industry in the summer before beginning the fourth year.

**36-14-475 Landscape Design** 3 Cr. History of landscape design, elements and principles of visual form, landscape design elements with emphasis on functional use of plants, landscape design process.
**Prerequisite:** Ornamental Trees and Shrubs 36-14-467.

**36-14-467 Ornamental Trees and Shrubs** 3 Cr. Plant growth and form with emphasis on the structural strength and taper development, plant selection for environmental use: adaptation and longevity, growth habit and quality, plant appearance, physical and chemical control of plants, planting in difficult sites, plants recommended for specific purposes.
**Prerequisite:** Principles of Horticulture 36-14-235, Botany II (Plant Morphology and Taxonomy) 36-22-105.

**36-14-360 Turfgrass and Cover Plans** 2 Cr. Introduction to turfgrass and cover plants, Different types of cover plants, culture and management of cover plants, Different methods in turfgrass production (Sexual, roll, sod), Turfgrass machinery, Irrigation, nutrition and pest control in turfgrass fields, introducing common cover plants and their application.
**Prerequisite:** Principles of Horticulture 36-14-235.

**36-14-470 Principles of Plant Tissue Culture and Biotechnology** 3cr. Plant tissue culture : introduction - definitions - benefits of plant tissue culture - general principles of plant tissue culture -the basic principles of laboratory design and construction - facilities and techniques for plant tissue culture - tissue culture media - media preparation - plant growth regulators in tissue culture - selection of suitable materials - establishments of aseptic cultures - types of plant tissue culture -protoplast isolation and culture - germplasm storage and cryopreservation - biotechnology : plant biotechnology and horticulture - genetic material - organization of DNA and gene expression - principles of gene cloning - molecular markers - polymerase chain reaction – the basics of plant transformation. labs will be used to support lectures.