

Name of Programme: M.Sc. (Ag.) Horticulture

Academic eligibility for admission: - B.Sc. (Ag.)/B.Sc. Horticulture

Curriculum and Syllabus

Semester	Course Code & No.	Course Title	Credit Hrs.	Mid Exam.	Final Exam		Total	
					Theory	Practical		
Ist Sem.	HOR-6411	Systematic Horticulture	3 (2+1)	20	40	40	100	
	HOR-6412	Plant Propagation & Nursery Husbandry	3 (2+1)	20	40	40	100	
	HOR-6413	Vegetable Crops	3 (2+1)	20	40	40	100	
	AST-6414	Statistical Methods	3 (2+1)	20	40	40	100	
	Total			12				
IInd Sem	HOR-6415	Orchard Management	3 (2+1)	20	40	40	100	
	HOR-6416	Spices and Plantation Crops	3(2+1)	20	40	40	100	
	HOR-6417	Tropical and Subtropical Fruits	3 (2+1)	20	40	40	100	
	AST-6418	Design of Experiments	3(2+1)	20	40	40	100	
	Total			12				
IIIrd Sem	HOR-7411	Temperate Fruits	3(2+1)	20	40	40	100	
	HOR-7412	Minor Fruits	3(2+1)	20	40	40	100	
	HOR-7413	Medicinal and Aromatic Plants	3(2+1)	20	40	40	100	
	HOR-7414	Post harvest Technology of Horticultural Crops	3(2+1)	20	40	40	100	
	Total			12				
IVth Sem	HOR-7415	Floriculture and Landscaping	3(2+1)	20	40	40	100	
	HOR-7416	Breeding of Horticultural crops	3(2+1)	20	40	40	100	
	HOR-599	Seminar	1	Satisfactory/Unsatisfactory				
	Optional (any one from two)							
	HOR-6417	Marketing and Quality control of Fruits, Vegetables and Flowers	12 (9+3)	20	40	40	100	
	or							
	HOR-598	Thesis Research	12	40 % Internal +60% External)				100
	Total			19				
Grand Total			55					

Course Programme for M. Sc.(Ag.) HORTICULTURE

Semester-Ist

HOR-6411: SYSTEMATIC HORTICULTURE

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Introduction, scope and importance of systematic horticulture, familiarization with botanical terminology and definition, plant classification: history and system, importance and salient features of nomenclature, botanical description of families, genera and species of important horticultural plants.

Practical: Related with the course.

HOR-6412: PLANT PROPAGATION AND NURSERY HUSBANDRY

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Basic concept and principles of plant propagation, recent development in vegetative propagation, equipments and techniques for propagation, Role of mother plants, etc seed dormancy and methods of overcoming it. apomixis, parthenocarpy and unfruitfulness, Reciprocal influence of stock and scion. Rootstocks for fruits and ornamental plant, polyembryony and its importance in horticulture, use of growth regulators, mist propagation and micropropagation. Role of nurseries in horticulture development, recent trends in nursery practices in India. Nursery act. layout and management of commercial nurseries,. Essential of a commercial nursery, structures, media, mixtures and plant growing structures.

Practical: Related with the course.

HOR- 6413 : VEGETABLE CROPS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Types of vegetable production, classification, marketing, grading and storage, hydroponics. Origin, history, plant taxonomy, nutritive value, climatic requirements, propagation, cultivars, manures and fertilizers, irrigation practices, crop rotation, mixed cropping, plant protection measures, harvesting and storage of vegetable crops viz., Cauliflower, Cabbage, Khol-khol, Radish, Turnip, Potato, Sweet Potato, Tomato, Brinjal, Okra, Bottle gourd. Bitter gourd, Sponge gourd, Pumpkin, Muskmelon, Watermelon, Tinda, Pointed gourd. Snake gourd and Arbi.

Practical: related with the course.

AST-6364: EXPERIMENTAL STATISTICS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Frequency distribution, classification and tabulation of data, graphical and diagrammatic representation of data, measures of central tendency, measures of dispersion, coefficient of variance, standard error, skewness & kurtosis. Census & sample survey, population and sample, probability, concept of random sampling, simple random sample, stratified sample systematic & cluster sampling parameter & sample value. Testing of hypothesis, test of significance based on Z , t and F test X²-test for goodness of fit and independence of attributes. Scattered diagram. Linear regression & correlation, regression and correlation coefficient.

Practical: related with the course.

Semester IInd

HOR-6415: ORCHARD MANAGEMENT

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance of orchard management, selection of site and location, planning, selection of planting material, preparation of soil, layout of pits and planting, care and protection of young plants. Water requirement of fruit trees, disorder due to excess and deficiency of moisture. Various factors affecting moisture supply to plants, methods and time of irrigation for different fruit crops. Essential nutrients elements and their role in fruit production, disorder due to excess and deficiency of nutrients elements in fruits crops, method of diagnosis and correction methods, time and amount of fertilizer application for different fruit crops. Principles, methods and effects of pruning and training on regulation of plant growth and flowering in different fruit crops. Bending, ringing, thinning and root pruning. Protection against adverse weather conditions, weed control in orchards and protection against important diseases and pests.

Practical: related with the course.

HOR-6416: SPICES AND PLANTATION CROPS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance, present status and scope of spices and plantation crops, studies on description, origin and distribution, composition, climate and soil, cultural practices, yield, etc. of important spices viz., Black pepper. Clove, Cinnamon, Cardamom, Turmeric, Ginger, Chilli, Garlic and Onion and plantation crops viz, Cashewnut, Coconut, Arecanut, Coffee, Cocoa etc.

Practical: related with the course.

HOR-6417: TROPICAL AND SUB TROPICAL FRUITS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance, present status and future scope of tropical and subtropical fruits in India. Practices involved in the production of Mango, Banana, Citrus, Grape, Guava, Litchi, Sapota, Papaya, Pomegranate, Loquat, Pineapple and Jackfruit with special reference to origin, composition and uses, climatic requirement, varieties, planting, nutrition, irrigation, flowering and fruiting, fruit drop, maturity, harvesting, insect pests and diseases, storage and marketing.

Practical: related with the course.

AST-6368: DESIGN OF EXPERIMENTS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Analysis of variance, Basic principals of experimental design, CRD, RBD, LSD with their analysis mission plot techniques in R.B.D and L.S.D. Factorial experiments its concepts and analysis of 2^3 , factorial confounding in symmetrical factorial (in 2^3 experiments), split plot design, strip plot design, uniformity trials. Progeny row trials. Complect family block design, with over trails and simple rotational experiments. Statistical organization, statistics of livestock & filstricks. Source of livestock and agriculture in general. Sources of official statisticion, crop cutting experiments.

Semester- IIIrd

HOR-7411: TEMPERATE FRUITS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance and scope of temperate fruits in India. Practices involve in the production of Apple, Pear, Peach, Plum, Apricot, Cherry, Almond and Walnut with special reference to origin, composition and uses, soil, climatic requirements, varieties, planting, nutrition, training and pruning, irrigation, flowering and fruiting, fruit drop, maturity, harvesting, insect- pest and disease control, storage and marketing.

Practical: related with the course.

HOR-7412: MINOR FRUITS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance and scope of minor fruits in India with special reference to Bundelkhand region. Practices involve in the production of Karonda, Strawberry, Bael, Jamun, Phalsa, Fig, Annona and Shahtoot, with special reference to origin, composition and uses, soil, climatic requirements, varieties, planting, nutrition, training and pruning, irrigation, flowering and fruiting, fruit drop, maturity, harvesting, insect- pest and disease control, storage and marketing.

Practical: related with the course

HOR-7413: MEDICINAL AND AROMATIC PLANTS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance of medicinal and aromatic plants in human health, national economy and related industries, classification of medicinal and aromatic plants according to botanical characteristics and uses; climate and soil requirements; cultural practices; yield and constituents of important medicinal plants viz *Dioscorea spp*, Periwinkle, Cinchona, Datura, Belladonna, Gloriosa, Poppy, Rauwolfia, Digitalis, Aloe, Senna, Isabgol, Ginseng, Pyrethrum, Neem. Herbal Medicinal Plants like Harar, Bael, Satavar, Brahmi, Punarnava and aromatic plants viz Citronella, Palmarosa, Lemon grass, *Mentha Spp.*, Ocimum, Vetiver, Sandal Wood, Geranium, Jasmine, Roses, Tuberose, Dill, etc.

Practical: related with the course.

HOR-510-7414: POST HARVEST TECHNOLOGY OF HORTICULTURAL CROPS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

History, present position and future scope of fruit, vegetable and flower preservation industry in India, principles and methods of fruits and vegetables preservation, canning of important fruit and vegetables, spoilage in canned products. Modern methods of drying and dehydration of fruits, vegetables and flowers. Preparation and preservation of juices, squashes, Jams, Jellies. Marmalades and pickles. Dehydration of some important fruits, vegetables, Tomato products.

Practical: related with the course.

Semester- IVth

HOR-7415: FLORICULTURE AND LANDSCAPING

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance and scope of floriculture and land scaping in India. Origin, history, taxonomy and cultivation practices of flower crops like Rose, Gladiolus, Tuberose, Aster. Dahlia. Canna, gerbera, Carnation, Orchid, Liliun, Anthurium and Chrysanthemum. Phsiological disorders of importanat flower crops.

History and development of different styles of gardening, their characteristics and arrangements. Formal styles of gardening- essential and accessories, designing and management of formal gardens. Basic concepts, principles and practices of landscape gardening . Planting design; use and selection of plant material for colour and effect, proper use of colour and water in landscape gardening, making and maintenance of water garden, rock garden and Bonsai. Herbaceous border, shrubbery border, Parks. Bungalow compound, Indoor gardening and shade loving plants. Bio-aesthetic planning of roads and canals. Importance of trees, shrub, ferns, palms and foliage plants in landscaping. Dry flowers management and flower exhibitions.

Practical: related with the course.

HOR-7416: BREEDING OF HORTICULTURAL CROPS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Importance and prospects, history of crop improvement, major bottleneck in improvement of horticultural crops. Breeding of important fruit crops viz. Mango, guava, banana, citrus, aonla, grape, apple, pear etc; vegetables viz. Cucurbitaceous, Solanaceous, Leguminous vegetables and flowers viz. rose, gladiolus, tuberose, gerbera, chrysanthemum, Liliun and bougainvillea.

Practical: related with the course.

HOR-7417: MARKETING AND QUALITY CONTROL OF FRUITS, VEGETABLES AND FLOWERS

(Credit Hours: 2+1=3)

(Marks: MID 20+ THE 40 + PRA. 40=100)

Basic economic principles applied to marketing of horticultural products. Different approaches of marketing of vegetables, fruits and flower, and its processed products. Production & supply, consumption and related demands, types of markets and trend in marketing of fruits, vegetables and flowers. Role of Govt. and corporate body in regulating market, internal trade and international market for fruits, vegetables and flowers. Concept of quality control on its. Safety aspects of fruits, vegetables and flowers and its processed products with reference to use of pesticides, weedicides and preservatives. HACCP as applied to quality assurance of fruits, vegetable and flowers and its processed products. Legal standards and quality indices of fruits and vegetables and its processed products.

Practical: related with the course