Syllabus for RET, Dept. of Horticulture, Institute of Agricultural Science

Principles and fundamentals of horticulture.Orchard management, nursery management and seed production. Method and time of propagation of different fruit and plantation crops in different regions.Importance of fruits and vegetables in human nutrition. Horticulture based cropping system. Principles of breeding of horticultural crops. *Micropropagation, meristem culture, ovule culture, in vitro pollination*.Contribution of horticulture in national economy and exports.Programmes of development.

Growth and development physiology of flowering, fruit set and development, parthenocarpy and seedlessness. Maturity and ripening. Plant growth regulators and their role. Physiological basis of flowering and fruiting. Production of bio-agents and bio-fertilizer.Green house management. Stionic relations and root stock.

Improved production technology of fruits and plantation crops (mango,citrus,banana,grape,sapota,papaya,guava,pineapple,aonla,pomegranate,apple,pear, peach, ,coconut,arecanut,oil palm,cashew,tea,coffee,rubber), high density planting, Integrated nutrient and water management, fertigation, precision farming in horticulture, watershed management for promotion of horticulture. Protected cultivation. Training, pruning and canopy management. Physiological disorders in fruits and plantation crops. Important diseases and pests of fruit and plantation crops and their management.

Importance of vegetables and spices. Classification of vegetables and spices.Climatic and soil requirements, commercial varieties and hybrids,nutritional requirement,irrigation,interculture,weed control,mulching,plant protection and other cultural practices of warm and cool season crops i.e. solanaceous fruit vegetables, okra, cucurbits, onion, cole crops,root crops, sweet potato, cowpea, beans and peas,leafy vegetablesand spices (Black pepper, cardamom,cinnamon,clove,nutmeg,cumin,fennel,coriander and fenugreek).Breeding strategies for vegetables,tuber crops, potato and spices. Hybrid seed production. Biotic and abiotic stress breeding. Biotechnological tools for breeding. Protected cultivation of vegetables. Agronomical and genetical principles of vegetable seed production.Pollination system in vegetable crops.

Principles of floriculture and landscaping,History and development of gardens,Production technology of indoor plants,Commercial production of field flowers,bulbous,foliage,pot plants,medicinal and aromatic plants.Specific problems concerning production of roses, chrysanthemum,carnation,jasmine,gerbera ,marigold,orchids and anthurium.Essential oils from flowers.Active ingredients in important medicinal plants. Major insects, nematodes,diseases and their management.Flower arrangements and value addition.

Importance of post harvest handling in horticultural crops, physiology of fruits, vegetables and flowers after harvest. Different methods of storage,cool chain management, processing for value addition and product diversification.Disease management in storage.Quality assurance and food laws.

Course Work

The following format has been fixed for the coursework of the registered candidates after which they will be awarded with a completion certificate**:** one semester course work of 20 credits.

Review of his/ her own research topic:	=> 5 credit points.
Seminar presentation:	=> 5 credit points.
Seminar attendance:	=> 2 credit points.
Research methodology, Instrumentation & Techniques(Course work)	=> 5 credit points.
Computation and statistical methods:	=> 3 credit points.

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DEPT. OF HORTICULTURE