

J .S. University Shikohabad

2022-23

**Submitted by: (Dr. R.A. Kushwaha) Dean of
Agriculture Faculty J.S. University, Shikohabad**

Mr. Ranjan Jadon

Head Department of Horticulture

M.Sc.(Ag.)Horticulture

1stSemester			EvaluationMarks			
Code No.	CourseTitle	Credit Hours	Mid Term(Int ernal)	Practical (External)	Endterm/Final (External)	Total
HORT501	ProductionTechnologyof WinterseasonVegetables	3(2+1)	20	30	50	100
HORT502	Landscapingand ornamentalGardening	3(2+1)	20	30	50	100
HORT503	Tropicaland DryLand FruitProduction	3(2+1)	20	30	50	100
*HORT 511	FruitTechnology(Special Paper)	4(3+1)	20	30	50	100
AST501	ExperimentalDesigns	3(2+1)	20	30	50	100
	TotalCredit	12				
2ndSemester			EvaluationMarks			
HORT504	Productiontechnologyof warmseasonvegetables	3(2+1)	20	30	50	100
HORT505	Subtropicalandtemperate fruit production	3(2+1)	20	30	50	100
HORT506	CommercialFloriculture	3(2+1)	20	30	50	100

*HORT 512	ProtectedCultivationof HorticulturalCrops	4(3+1)	20	30	50	100
AST503	ComputerApplicationin Agriculture	2(1+1)	20	30	50	100
	TotalCredit	11				
3rdSemester			EvaluationMarks			
HORT507	PropagationandNursery Managementof Horticulture crops	3(2+1)	20	30	50	100
HORT508	Production Technology ofPlantation Medicinal,Aromaticand Species crops	3(2+1)	20	30	50	100
HORT509	Breeding ofHorticulture	3(1+1)	20	30	50	100

	Crops					
*HORT 513	SeedProductionTech.of VegetableCrops	4(3+1)	20	30	50	100
	TotalCredit	09				
4thSemester			EvaluationMarks			
HORT510	PostHarvestTechnology forHorticulturalCrops	3(2+1)	20	30	50	100
HORT516	MasterSeminar	1(0+1)	-	-	-	100
HORT517	MasterResearch(Thesis)	20	Satisfactory/Unsatisfactory			
OR						
*HORT 514	Advance inHorticulture	4(3+1)	20	30	50	100
*HORT 515	Production Technology ofunderutilizeSub- Tropical crops	4(3+1)	20	30	50	100
	Grandtotalcredit hours	56				

NOTE:* These courses are in lieu of thesis

Ist Semester

HORT501 PRODUCTION TECHNOLOGY OF WINTER SEASON VEGETABLE CROPS

OPS

3(2+1)

Theory

Introduction, botany and taxonomy, climatic and soil requirements, commercial varieties/hybrids, sowing/planting times and methods, seed rate and seed treatment, nutritional and irrigation requirements, intercultural operations, weed control, mulching, physiological disorders, harvesting, post-harvest management, plant protection measures and seed production of:-

Unit-I:- Potato

Unit-II:- Cole crops: cabbage, cauliflower, knoll kohl, sprouting broccoli, Brussels sprout.

Unit-III:- Root crops: carrot, radish, turnip and beetroot

Unit IV- Bulb crops: onion and garlic.

Unit-V:- Peas and broad bean, green leafy cool season vegetables.

Practical

Cultural operations (fertilizer application, sowing, mulching, irrigation, weed control) of winter vegetable crops and their economic; Experiments to demonstrate the role of mineral elements, plant growth substances and herbicides; study of physiological disorders; preparation of cropping scheme for commercial farms; visit to commercial greenhouse/polyhouse. Research project related to vegetable crops.

1stSemester

HORT502 LANDSCAPING AND ORNAMENTAL GARDENING 3(2+1)

Theory

UNIT-I

Landscape designs types of gardens, English, Mughal, Japanese, Persian, Spanish, Italian, Vanams, Buddhagarden; Styles of garden, formal, informal and freestyle gardens.

UNIT-II

Urban landscaping, Landscaping for specific situations, institutions, industries, residents, hospitals, roadsides, traffic islands, dams sites, IT parks, corporates.

UNIT-III

Garden plant components, arboretum, shrubbery, fernery, palmatum, arches and pergolas, edges and hedges, climbers and creepers, cacti and succulents, herbs, annuals, flower borders and beds, ground covers, carpet beds, bamboo groves; Production technology for selected ornamental plants.

UNIT-IV

Lawns, Establishment and maintenance, special types of gardens, vertical garden, roof garden, bog garden, sunken garden, rock garden, clock garden, colour wheels, temple garden, sacred groves.

UNIT-V

Bio-aesthetic planning, eco-tourism, theme parks, indoor gardening, therapeutic gardening, non-plant components, waterscaping, xeriscaping, hardscaping.

Practical

Selection of ornamental plants, practices in preparing designs for home gardens, industrial gardens, institutional gardens, corporate, avenue planting, practices in planning and planting of special types of gardens, burlapping, lawn making, planting herbaceous and shrubbery borders, project preparation on landscaping for different situations, visit to parks and botanical gardens, case study on commercial landscape gardens.

1stSemester

HORT503 TROPICALANDDRYLANDFRUITPRODUCTION

3(2+1)

Theory

Commercial varieties of regional, national and international importance, ecophysiological requirements, recent trends in propagation, rootstock influence, planting systems, cropping systems, rootzone and canopy management, nutrient management, water management, fertigation, role of bioregulators, abiotic factors limiting fruit production, physiology of flowering, pollination fruit set and development, pest and diseases management, physiological disorders-causes and remedies, quality improvement by management practices; maturity indices, harvesting, industrial and export potential, Agri. Export Zones (AEZ) and industrial support.

UNIT-I:-Mango and Banana

UNIT-II:-Citrus and Papaya

UNIT-III:-Guava, Sapota and Jackfruit

UNIT-IV:-Pineapple, Annona and Avocado

UNIT-V:-Amla, Phalsa and Ber, minor fruits of tropics

Practical

Identification of important cultivars, observations on growth and development, practices in growth regulation, malady diagnosis, analyses of quality attributes, visit to tropical and arid zone orchards, Project preparation for establishing commercial orchards.

Ist
Semester Spe
cial Paper

HORT511 FRUIT TECHNOLOGY

4(3+1)

Unit-I:

History, present position and future scope of fruit and vegetables preservation industries in India

General principles of fruit and vegetables preservation

Unit-II:

Canning and bottling of fruit and vegetables, brief history of scientific canning equipment for home canning and commercial production, important considerations for laying out of canny Canning of important fruits, vegetables, spoilage in canned fruits and vegetables

Unit-III:
Fruits and vegetables juices, unfermented beverages [sweetened and unsweetened], principles of preservation, home and commercial scale equipment for juices, preparation and preservation of juices, squashes and Cordials from Citrus fruits, Mango, Phalsa, Jamun, Grape, Pomegranate, Tomato etc. Fruit juice concentrates and their general method of preparation

Unit-IV :

Jams, Jellies and Marmalades, role of pectin-sugar and acid in jelly formation, general method of preparation of jams, jellies and marmalades, use of jelly meter etc. Equipment for home and commercial production.

Unit-V:

Pickles, sauces, chutney and Vinegar, Potato chips general principle, equipment and method of preparation, preserve candy and canes fruits, general principles and method of preparation of byproduct from fruit and vegetables waste in home and commercial production and sundrying and dehydration of fruit and vegetables, equipment and methods.

Practical

- (1) List of important equipments for fruit and vegetable preservation.
- (2) Preparation of Jam, Jelly, Marmalade and Pickles (Mango, Lime and Mix Veg.)
- (3) Preparation of Beverages (RTS, Squash, Nectar, Syrup and Barley Water)
- (4) Preparation of preserve and candy (Aonla, Bael and Karaunda).
- (5) Preparation of Tomato products (Sauce, Ketchup and chutney)
- (6) Preparation of Potato Chips and canning of Pea

2ndSemester

HORT504 PRODUCTION TECHNOLOGY OF WARM SEASON VEGETABLES

3(2+1)

Theory

Introduction, botany and taxonomy, climatic and soil requirements, commercial varieties/hybrid s. sowing/planting times and methods, seed rate and seed treatment, nutritional and irrigation requirements, intercultural operations, weed control, mulching, physiological disorders, harvesting, post harvest management plant protection measures, economics of crop production and seed production of:

Unit-I :- Tomato, eggplant, hot and sweet

peppers **Unit-II:-** Okra, beans, cowpea and

cluster bean **Unit-III:-** Cucurbitaceous crops

Unit-IV:- Tapioca and sweet potato

Unit-V:- Green Leafy Warm season vegetables.

Practical

Cultural operations (fertilizer application, sowing, mulching, irrigation, weed control) of summer vegetable crops and their economics; study of physiological disorders and deficiency of mineral elements. preparation of cropping schemes for commercial farms; experiments to demonstrate the role of mineral elements, physiological disorders; plant growth substances and herbicide; seed extraction techniques; identification of important pests and diseases and their control; maturity standards; economics of warm season vegetable crops.

2ndSemester

HORT505SUBTROPICALANDTEMPERATFRUITPRODUCTION3(2+1)

Theory

Commercial varieties of regional, national and international importance, ecophysiological requirements, recent trends in propagation, rootstock influence, planting systems. cropping systems, root zone and canopy management, nutrient management, water management, fertigation, bioregulation, abiotic factors limiting fruit production, physiology of flowering, fruit set and development, abiotic factors limiting production. physiological disorders-causes and remedies, quality improvement by management practices; maturity indices, harvesting, industrial and export potential, Agri. Export Zone (AEZ) and industrial support.

Crops

Unit-I:-Apple, pear, quince, grapes

Unit-II:-Plums, peach, apricot, cherries, hazelnut

Unit-III:-Litchi, loquat, persimmon, kiwifruit, strawberry

Unit-IV:-Nuts-walnut, almond, pistachio, pecan

Unit-V:-Minor fruits-

mangosteen, carambola, bael, woodapple, fig, jamun, rambutan, pomegranate.

Practical

Identification of important cultivars, observations on growth and development, practices in growth regulation, malady diagnosis, analyses of quality attributes, visit to tropical, subtropical, humid tropical and temperate orchards, Project preparation for establishing commercial orchards.

2ndSemester

HORT506COMMERCIALFLORICULTURE

3(2+1)

Theory

UNIT-I

Scope of cut and loose flowers in global trade, Global Scenario of cut and loose flower production. Varietal wealth and diversity, area under cut and loose flowers and production problems in India-Patent rights, nursery management media for nursery, special nursery practices.

UNIT-II

Growing environment, on cultivation of cut and loose flower, soil it requirements, field preparation, planting methods, influence of environmental parameters, light, temperature, moisture, humidity and CO₂ on growth and flowering.

UNIT-III

Flower production—water and nutrient management, fertigation, weed management, rationing, training and pruning, disbudding, special horticultural practices, use of growth regulators, physiological disorders and remedies, IPM and IDM, production for exhibition purposes.

UNIT-IV

Flower forcing and year round flowering through physiological interventions, chemical regulation, environmental manipulation.

UNIT-V

Cut flower standards and grades, harvest indices, harvesting techniques. Post-harvest handling. Methods of delaying flower opening, prolonging self life, Pre-cooling, pulsing, packing, Storage & transportation, marketing, export potential, institutional support. Agri. Export Zones.

Crops: Rose, chrysanthemum, carnation, gerbera, gladioli, tuberose, orchids, anthurium, aster, liliams, as cut flower nyctanthes, jasmines, marigold, crosandra, celosia, gamphrena as loose flower.

Practical

Botanical description of varieties, propagation techniques, mist chamber operation, training and pruning techniques, practices in manuring, dirpand fertigation, foliar nutrition, growth regulator application, pinching, disbudding, staking, harvesting techniques, post-harvest handling, cold chain, project preparation for regionally important cut and loose flowers, visit to commercial flower units and case study.

2nd Semester Special

Paper

HORT512 PROTECTED CULTIVATION OF HORTICULTURAL CROPS

4(3+1)

Theory

Unit-I

Importance and scope of protected cultivation, world scenario Indian situation present and future scope. Principles used in protected cultivation, energy management, low cost structures

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Unit-II

Regulatory structures used in protected structure types of greenhouse/polyhouse/nethouse, hot beds, cold frames, effect of environmental factors viz. temperature, light. CO₂ and humidity on growth of different vegetables, flowers and fruits. manipulation of CO₂ light and humidity and temperature for production of horticultural crops installation of micro irrigation and fertilization.

Unit-III

Nursery raising in protected structures like poly-tunnels, types of benches and containers, different media for growing nursery under cover.

Unit IV

Regulation of flowering and fruiting in horticultural crops. technology for raising tomato, sweet pepper, cucumber, gerbera, rose, chrysanthemum and straw berry in protected structure training and staking in protected crops, varieties and hybrid suitable for growing in protected structures.

Unit-V

Problem of growing horticultural crops in protected structures and their remedies, insect and disease management in protected structures;

Practical

Study of various types of structures, methods to control temperature, CO₂ and light, media, training and pruning, fertigation and nutrient management; control of insect-pests and diseases in greenhouse; economics of protected cultivation, visit to established green/polyhouse/nethouse/shadehouse in the region.

3rdSemester

HORT 507PROPAGATIONANDNURSERY

MANAGEMENTFORHORTICULTURALCROPS

3(2+1)

Theory,

Unit-I

Introduction,lifecyclesinplants,cellularbasisforpropagation,sexual propagation,apomixes, polyembryony, chimeras. Principles factors influencing seed germination ofhorticulturalcrops,dormancy,hormonalregulationofgerminationandseedling growth.

Unit-II

Seedquality,treatment,packing,storage,certification,testing.Asexualpropagation-rooting of soft and hard wood cutting under mist by growth regulators. Rooting of cuttingsinhotbeds.Physiological,anatomicalandbiochemicalaspectssofrootinductionincutting s.Layering—principleandmethods.

Unit-III

Budding and grafting — selection of elite mother plants, methods. Establishment of budwood bank, stock, scion and inter stock relationship-incompatibility. Rejuvenation throughtopworking—Progenyorchardandscionbank.

Unit-IV

Micro-propagation-principles and concepts, commercial exploitation in horticultural crops.Techniques- invitroclonalpropagation,directorganogenesis,embryogenesis,micrografting,meristemculture.Hardening,packingandtransportofmicro-propagules.

Unit-V

Nursery-

types,structures,components,planningandlayout.Nurserymanagementpracticesforhealthypropagule production.

Practical

Anatomical studiesin rooting of cutting and graftunion,construction of propagationstructures, study of media and PGR. Hardening –case studies, micro propagation, explantpreparation, media preparation, culturing - in vitro clonal propagation, meristem

culture,shoottipculture,axillarybudculture,directorganogenesis,directandindirectambryogenesis,micrografting,hardening.VisittoTClabsand nurseries.

3rdSemester

HORT508PRODUCTIONTECHNOLOGYOFPLANTATIONMEDICINALAROMATICANDSPECIESCROPS **3(2+1)**

Theory

Unit-I:

Importance and scope of aromatic, medicinal, aromatic and Species crops in India and its area and distribution. Future prospects, classification of plantation, medicinal, aromatic, Species crops.

Unit-II:

Production technology of plantation crops like, Coconut, Cashew nut, Tea, Coffee and Cocoa.

Unit-III:

Cultivation of medicinal crops like Rauwolfia, Dioscorea, Aloe vera, Safed musli, Stevia, Isabgol, Ashwagandha.

Unit-IV:

Cultivation of Aromatic crops like Mentha, Javacitronella, Khus, Ocimum, Lemon grass, Geranium, Palmarosa and Rose.

Unit-V:

Production technology of Species crops like Turmeric, Zinger, Cumin, Coriander, Fennel, Black Pepper, Cardamon (Large and small).

Unit-VI :

Different method of distillation of medicinal and aromatic crops, problems of distillation and their solution. Marketing of plantation, medicinal, aromatic and species crops.

Practical:

1. Identification of plantation, medicinal, aromatic and species, crops.
2. Study of propagation techniques of plantation, medicinal, aromatic and species, crops.
3. Study of cost of production of Rauwolfia, Aloe vera, Safed Musli, Mentha, Turmeric, Ginger, Coriander, Coconut, Cashew, Tea, Coffee.
4. Study of different method of distillation of medicinal and aromatic crops.
5. Visit of distillation plant and institute related to plantation, medicinal, aromatic and species, crops.

3rdSemester

HORT509 BREEDING OF HORTICULTURAL CROPS

3(2+1)

Theory

Origin, botany, taxonomy, genetics, breeding objectives, breeding methods (introduction, selection, hybridization, mutation), varieties and varietal characterization, resistance breeding for biotic and abiotic stress, quality improvement, issue of patenting, PPVFR act achievement and future trust in following selected crops,.

Unit-I

Mango, papaya, banana, grape and citrus fruits.

Unit-II

Potato, tomato, brinjal, hot pepper and sweet pepper.

Unit-III

Okra, Pea and beans.

Unit-IV

Gourds, melons, pumpkins and squashes

Unit-V

Cabbage, cauliflower, carrot, beetroot, radish

Practical

Selection of desirable plants from breeding population, observations and analysis of various qualitative and quantitative traits in germplasm, hybrids and segregating generations; induction of flowering, palynological studies, selfing and crossing techniques in horticulture crops; hybrid seed production of vegetable crops in bulk, screening techniques for insect-pests, disease and environmental stress resistance in above mentioned crops, demonstration of sib-mating and mixed population; Visit to breeding blocks.

3rd Semester Special Paper

Hort-513 SEED PRODUCTION TECHNOLOGY OF VEGETABLE CROPS 4(3+1)

Theory

Unit-I

Definition of seed and its quality, new seed policies; DUS test, scope of vegetable seed industry in India

Unit-II

Genetical and agronomical principles of seed production; methods of seed production; use of growth regulators and chemicals in vegetable seed production; floral biology, pollination, breeding behavior, seed development and maturation; methods of hybrid seed production.

Unit-III

Categories of seed; maintenance of nucleus, foundation and certified seed; seed certification, seed standard; seed act and law enforcement, plant quarantine and quality control.

Unit-IV

Physiological maturity, seed harvesting, extraction, curing, drying, grading, seed processing, seed coating and pelleting, packing (containers/packets), storage and cryopreservation of seeds, synthetic seed technology.

Unit-V

Agro-techniques for seed production in solanaceous vegetables, cucurbits, leguminous vegetables, cole crops, bulb crops, leafy vegetables, okra, vegetatively propagated vegetables.

Practical

Seed sampling, seed testing (genetic purity, seed viability, seedling vigour, physical purity) and seed health testing; releasing and notification procedures of varieties; floral biology; rouging of off-type; methods of hybrid seed production in important vegetables and spice crops; seed extraction techniques; handling of seed processing and seed testing equipment; seed sampling; testing of vegetable seed purity, germination, vigour and health, visit processing units, seed testing laboratory and seed production farms

4thSemester

HORT510POSTHARVESTTECHNOLOGYOFHORTICULTURALCROPS

3(2+1)

Theory

Unit-I

Maturity indices, harvesting practices for specific market requirements, influence of pre-harvest practices, enzymatic and textural changes, respiration, transpiration.

Unit-II

Physiology and biochemistry of fruit ripening, ethylene evolution and ethylene management, factors leading to post-harvest losses of horticultural crops, pre-cooling, Spoilage, microbial and biochemical physical injuries and disorders.

Unit-III

Treatments prior to transportation, viz. grading, pre-coding, chlorination, waxing, chemicals, biocontrol agents and natural plant products. Methods of storage-ventilated, refrigerated, MAS, CA storage, zero energy cool chamber, hypobaric storage.

Unit-IV

Packing methods and transport, principles and methods of preservation, food processing, canning preparation of fruit juices.

Unit-V

Dried and dehydrated products, nutritionally enriched products, fermented beverages, packaging technology, management of processing waste, food safety standards.

Practical

Analyzing maturity stages of commercially important horticultural crops, improved packing and storage of important horticultural commodities, physiological loss in weight of fruits and vegetables, estimation of transpiration, respiration rate, ethylene release and study of vase life extension in cut flower using chemicals. Estimation of quality characteristics in stored fruits and vegetables, cold chain management visit to cold storage and CA storage units, visit to fruit and vegetable processing units, project preparation, evaluation of processed horticultural products.

4th Semester Special Paper

HORT514 ADVANCES IN HORTICULTURE

4(3+1)

Theory

Unit-I:

Introduction and importance, mechanization of Nursery. Micro Propagation of Horticulture, Crops Advantages and limitations. Types of culture (Seed, embryo, organ, callus).

Unit II:

Advances made in rootstocks Development of rootstocks for biotic and abiotic stress

Unit III:

Advances in irrigation system Advantage and disadvantage of drip irrigation, sprinkler and rain gun.

Unit IV :

Canopy management of Tropical and Subtropical fruit crops like Mango, Guava, Grapes, Ber and Beal.

Unit V:

Special problem of fruit crops and their control (Mango, Guava, Papaya, Grapes, Pineapple and Apple). High density or hedging in fruit crops

Practical:

1. Identification and use of equipments in tissue culture laboratory.
2. Sterilization technique of media.
3. Identification and application of tools and equipment related to micro irrigation system and canopy management.
4. Identification of special problems of fruit crops.

**4thSemesterS
pecialPaper**

**HORT515PRODUCTIONTECHNOLOGYOFUNDERUTILIZESUB-
TROPICALFRUITS
Theory**

4(3+1)

UnitI:

Importance and scope of under utilize fruits in India. Distribution and description of underutilizefruits.

UnitII:

Production technique of under utilize sub-tropical fruits like Beal, Carambola, Custardapple, Wood Apple, Tamarind, Lasora, Barbadas cherry, Chirounji, Jamun, Falsa, Fig, Mulberry, Karounda, Barhaland Amra.

UnitIII:

Propagationtechniqueofunderutilizefruitssexualandasexualincludingmicropropagation.

UnitIV :

Problemofunder utilizefruitsandtheir remedies.

UnitV:

Marketing,Post harvestmanagement andstorageofunderutilizefruits.

Practical:

1. Identificationofunderutilizefruits.
2. Propagationofunderutilizefruits.
3. Filling andLiftingofpolybags
4. Packagingofsampling.
5. VisitofResearchcentersworkingonunder utilizefruits.

2nd Semester
Common Course for M.Sc. (Ag.)

AST502 COMPUTER APPLICATION IN AGRICULTURE

2(1+1)

Theory

Introduction to Computers, Operating Systems, definition and types, Applications of MS-Office for document creation & Editing, Data presentation, interpretation and graph creation, statistical analysis, mathematical expressions, Database, concepts and types, uses of DBMS in Agriculture, World Wide Web (WWW): Concepts and components. Introduction to computer programming languages, concepts and standard input/output operations.

e-Agriculture, concepts and applications, Use of ICT in Agriculture. Computer Models for understanding plant processes. IT application for computation of water and nutrient requirement of crops, Computer-controlled devices (automated systems) for Agri-input management, Smart phone Apps in Agriculture for farm advises, market price, postharvest management etc; Geospatial technology for generating valuable agri-information. Decision support systems, concepts, components and applications in Agriculture, Agriculture Expert System, Soil Information Systems etc for supporting Farm decisions. Preparation of contingent crop-planning using IT tools.

Practical

Study of Computer Components, accessories, practice of important DOS Commands. Introduction of different operating systems such as windows, Unix/Linux, Creating, Files & Folders, File Management.

Use of MS-WORD and MS Power-point for creating, editing and presenting a scientific Document. MS-EXCEL - Creating a spreadsheet, use of statistical tools, writing expressions, creating graphs, analysis of scientific data. MS-ACCESS: Creating Database, preparing queries and reports, demonstration of Agri-information system. Introduction to World Wide Web (WWW). Introduction of programming languages. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/Cmp Syst/ Wofost; Computation of water and nutrient requirements of crop using CSM and IT tools. Introduction of Geospatial Technology for generating valuable information for Agriculture. Hands on Decision Support System. Preparation of contingent crop planning.

IstSemester
M.Sc.(Ag.)AgriculturalStatistics

AST501EXPERIMENTALDESIGNS

3(2+1)

Theory

Unit-I

Classification tabulation and graphical representation of data. Box-plot Descriptive statistics. Exploratory data analysis; Theory of probability. Random variable and mathematical expectation.

UnitII:

Discrete and continuous probability distribution: Binomial, Poisson, Normal distribution. Concept of sampling distribution: chi-square, t and F distributions. Tests of significance based on Normal, chi-square, t and F distributions. Large sample theory.

UnitIII:

Introduction to theory of estimation and confidence-intervals. Correlation and regression, Simple and multiple linear regression model, estimation of parameters, predicted values and residuals, correlation coefficient partial correlation coefficient, multiple correlation coefficient, rank correlation coefficient. Test of significance of correlation coefficient and regression coefficients, coefficient of determination.

UnitIV

Need for designing of experiments, characteristics of a good design. Basic principles of designs, randomization, replication and local control.

UnitV

Uniformity trials, size and shape of plots and blocks, analysis of variance, completely randomized design, randomized block design and Latin square design, missing plot techniques, split plot design.

UnitVI

Sampling techniques - Planning of survey, method of data collection. questionnaire v/s schedule. Problems of sampling frame, choice of sample of design, probability sampling, sample space, sampling design, simple random sampling, Estimation of proportion, confidence interval, determination of sample size, stratified sampling, cluster sampling, multi state sampling, systematic sampling, ratio and regression method of estimation. Nonsampling error source and classification,

Practical

On the topic listed on the theory syllabus.

