

ANNUAL ACADEMIC PLAN

SEED PRODUCTION TECHNOLOGY

FIRST YEAR

Sl.No	Month Periods Days	Paper – I BASIC BOTANY	Paper – II PRINCIPLES OF GENETIC AND PLANT BREEDING	Paper – III Fundamentals of SEED PRODUCTION TECHNOLOGY	Paper – IV IV. SEED PRODUCTION TECHNOLOGY OF CEREALS-MILLETS AND FORAGES	Remarks
1	June 24 4	<p>Global Agriculture – an over view</p> <p>Agricultural Development in India</p> <p>Various branches in Agriculture</p> <p>National and International Institutes of Agricultural research in India</p> <p>Importance of Horticulture in Indian Scenario</p> <p>Importance of vegetables, fruits and floriculture</p> <p>Diversity of plants-Habitat and habit</p> <p>Duration of life-annuals, biannuals and peri-annuals</p> <p>Parts of flowering plant</p> <p>The seed – parts of grass seed – Parts of a pea-seed parts of a country</p>	<p>Cell structure and functions of the cell – cell organelles, mitochondria, golgi complex, lysosomes, ribosomes, chloroplast, plastids.</p> <p>Practical: The students should be shown the cell and parts of the cell.</p>	<p>AGRONOMY:</p> <p>Agriculture is a science-its scope</p> <p>Agriculture-its relation with other sciences.</p> <p>Terminology used in agriculture science and agricultural operation.</p> <p>Practical: Agro-climatic maps (India and States) of soil, crops and climatic conditions.</p>	<p>Deterioration of crop varieties and methods to prevent them.</p> <p>Practical: Nursery bed preparation for paddy.</p>	

		<p>been seed – parts of carter seed parts of rice grain – Parts of Maize Grain.</p> <p>Practical: Students should get acquainted with different parts of a plant.</p>				
2	July 26 10	<p>GERMINATION – TYPES OF GERMINATION</p> <p>Functions of Cotyledons</p> <p>The root normal and adventitious roots, regions of root, modified roots</p> <p>The stem and modification of stem</p> <p>Branching and types of branching.</p> <p>The leaf; parts of Leaf, Stipules, Kinds of Stipules</p> <p>Leaf blades, Apex of the Leaf, margin of the leaf and shape of the leaf, venation, simple and compound leaves, Phyllotaxy.</p> <p>The inflorescence – types of inflorescence</p> <p>The flower :</p> <p>Parts of flower</p> <p>Some descriptive terms</p>	<p>Nucleus, nucleolus, nuclear membrane, nucleoplasm, cellwall and endoplasmic reticulum.</p> <p>Chromosome and its structure cell division – mitosis – melotic cell cycle and its significance in plant breeding.</p> <p>Practical: Mitosis and Meiosis cell divisions.</p>	<p>Soil constituents-Mineral matter-Organic matter.</p> <p>Definition of seed, concept and scope of seed production technology.</p> <p>Reproductive systems and methods of propagation in higher plants.</p> <p>Embryo development, seed maturation.</p> <p>Types of seeds, their structure and function.</p> <p>Practical: Recording of meterorological data viz., rainfall, temperature, relative humidity, wind direction and velocity, number of hours of sunshine.</p> <p>Identification of different crop seeds-study of seed development structure, texture and function.</p>	<p>Multiplication of nucleus seed and breeders seed in self and cross pollinated crops.</p> <p>Cereals-wheat, paddy, maize, barley, Millets-sorghum, pearlmillet, ragi, forages, berseem, Lucerne, oat, guar.</p> <p>Floral biology, inflorescence and types of flowers, floral stigma receptivity, pollination of the above crops.</p> <p>Climatic requirements, rainfall, quantity pattern, stress period & Temperature range-diamal variation, degree days, Photo-period day length-total light hours.</p> <p>Soil- types-depth pH.</p> <p>Practical: Seed bed preparation for wheat, maize berseem.</p> <p>Calculation of fertilizer dose, application and use</p>	

		<p>Form of Corollas Aestivation.</p> <p>Practical: They should be shown parts of a Gramseed, Pea-seed, Cotton seed rice grain and Maize grain.</p>			<p>of fertilizer drill and rhizobium inoculation in berseem.</p> <p>Transplanting of paddy.</p> <p>Identification and usage of different kinds of hand tools for intercultural.</p> <p>Application of common weeds and their removal.</p>	
3	Aug' 25 10	<p>ANDROECIUM: Parts-cohesion of stamens, length of stamens</p> <p>GYNOECIUM: Parts-Stigma, style and ovary</p> <p>Placenta ion, types of placenta ion</p> <p>Ovule – Structure of ovule, parts and functions of Embryo-sac – forms of ovules.</p> <p>Pollination – Self and cross pollination, fertilization</p> <p>The Seed and Seed development</p> <p>The fruit and classification of fruits</p> <p>Dispersal of Seeds and Fruits.</p> <p>Practical: Branching and types of branching – parts of leaf stipules, kinds of stipules.</p>	<p>Meiosis-meiotic cell cycle and its significance in plant breeding.</p> <p>Differences between mitosis and meiosis.</p> <p>Mendellian genetics – Mendels experiment reasons for selection of pea plant, characters studied and reasons for his success. Mendels laws of inheritance exceptions to mendels law, monohybrid, dihybrid ratios, interaction and epistasis.</p> <p>Practical: Mendel's laws and problems on monohybrid, dihybrid and interactions.</p>	<p>Factors affecting seed set-Environmental viz temperature, relative humidity, day length, wind velocity and direction, duration of flowering anthesis and stigma receptivity, nutrition amd irrigation.</p> <p>Seed quality, concept, physical purity, cultivar purity, germination, vigour, uniformity, health, moisture content etc., attributes of high quality seeds.</p> <p>Seeds as a basic input in agriculture-Role of quality seeds in improving agricultural production.</p> <p>Practical: Examination of seeds and their parts in relation ot seed germination.</p> <p>Study of inflorescence and flower structure of</p>	<p>Specific land requirements and isolation-previous crop history of land-Isolation requirements of (a) self pollinated crops-wheat, paddy, ragi, guar, oat (b) crops pollinated crops-maize, berseem, Lucerne, pearl millet (c) often cross pollinated-sorghum.</p> <p>Agronomy, selection of site, nursery preparation and transplanting of paddy and ragi-seed bed preparation, seed rate, row spacing, seeding depth and seeding time of all the crops pres wing seed treatment of the crops., fertilizers requirements and application, interculture, stages of irrigation, weed control, common weeds, herbicides, dose and their application, precautions during herbicide application, plant protection measures, important diseases, pests and their control stages of maturity, crop appearance-</p>	

				<p>self and cross pollinated crops of the area.</p> <p>Study of pollination and fertilization, insect pollinators-their identification, management of insect pollinators, especially bees.</p>	<p>harvesting methods, threshing winnowing and drying.</p> <p>Practical: Identification of herbicides, formulation and field application.</p> <p>Study of floral biology of various crops.</p> <p>Selling, detasselling and pollination in maize. Special practices like mea, GA₃ applies. To achieve synchronization in flowering in parental lines of real melted and rice.</p>	
4	Sept' 23	ON THE JOB TRAINING	ON THE JOB TRAINING	ON THE JOB TRAINING	ON THE JOB TRAINING	
Half yearly Examinations from 01.01.2005 to 07.01.2005						
First term of Holidays 08.01.2005 to 16.01.2005						
5	Oct' 18 4	<p>Classification of Different Agricultural and horticultural crops</p> <p>Botanical description with special emphasis on floral Biology, Types of Pollination and economic importance of the following.</p> <p>Crops, Cereals and Millets-Paddy, Wheat, Maize, Bajra, Sorghum.</p> <p>Practical:</p> <p><u>LEAF BLADE:</u></p> <p>Apex of leaf, Margin of leaf, and shape of leaf,</p>	<p>Plant breeding aim and objectives interrelationship with other disciplines.</p> <p>Modes of reproduction, sexual, asexual, apomixes and their classification.</p> <p>Practical: Breeders kit and uses of different equipment.</p>	<p>Concept of variation, heritable and non-heritable characters.</p> <p>Brief outline of development and evaluation of cultivars of self and cross pollinated crops, synthetics, composites and hybrids, release and notification of cultivars.</p> <p>Practical: Examination of male sterile, maintainer and restorer lines in pearl millet and sorghum, parental lines of hybrid cotton, tomato and brinjal</p>	<p>Quality control-varietal characteristics, time and number of field inspection, rouging.</p> <p>Removal of unhealthy and off types</p> <p>Crop standards, seed standards.</p> <p>Practical: Identification of major diseases of different crops.</p> <p>Identification of major insects of different crops.</p>	

		simple and compound leaves and their phyllotaxy.		and important vegetables.		
6	Nov' 23 8	<p>Pulses: Red gram, Greengram, Blackgram, Chick pea, Soyabean, Cowpea.</p> <p>Oil seeds: Groundnut, sesame, castor, sunflower, safflower;</p> <p>Crops: Cotton, Sunhemp, Mesta, jute</p> <p>Practical: The inflorescence and types of inflorescence.</p>	<p>Significance in plant breeding modes of pollination, genetic consequence. Difference between self and cross pollinated crops.</p> <p>Methods of breeding introduction and acclimatization.</p> <p>Practical: Emasculation and pollination Technique for different crops such as cereals, millets, pulses.</p>	<p>Principles and methods of hybrid seed production, male sterility, and self incompatibility in crop plants, definition of female, male sterile maintainer and restorer lines, single cross, double cross, three-way cross, double top cross hybrids, maintenance of parental lines etc.,</p> <p>Emasculation and pollination techniques in cotton, supplementary, pollination in sunflower.</p> <p>Concept of cultivar purity- Maintenance of cultivar purity-Methods of testing cultivar purity.</p> <p>Practical: Testing of cultivar purity through examination of seeds, seedlings and plants, recording of data and filling result forms.</p> <p>Study of cropping pattern of areas-Familiarization with different kinds of manures, biofertilisers, fertilizers, pesticides and other inputs.</p>	<p>Harvesting – stage of maturity, crop appearance, threshing methods, threshing, cleaning and drying.</p> <p>Delivery to processing plant-kinds of containers, packaging mode of transport.</p> <p>Crop cultivars, important varieties of the crops listed and their distinguishing characters of varietal identification in the field.</p> <p>Practical: Varietal identification in standing crop identification of pollen shedders and rouging.</p> <p>Identification of stage of cutting and cutting operation in forages.</p>	
7	Dec' 25	Vegetables: Tomato,	Selections, selection	Areas of seed	Special measures for	

8		<p>Potato, Brinjal, Bendi, Chillies, Capsicum, Cucurbits like Watermelon, musk melon, cucumber, Bottle Guard, Bittergaurd, Ridgegourd, Snake gourd, Pumpkin and squash, French bean, cluster bean, dolichos beam.</p> <p>Practical: The flower and parts of flower</p> <p>The botanical description should be shown with live samples of the following crops, cereals, pulses, oil-seeds, fibre crops.</p>	<p>differential and selections intensity heritability and generic basic. Pure line selection-advantages and limitations. Hybridization – aim and objectives, types of hybridization, types of handling segregating material – Pedigre method, bulk method and back cross method – their advantages and disadvantages.</p> <p>Practical: Oilseeds fibre crops, Vegetable crops.</p>	<p>production-Factors of affecting choice of area for seed production-soil types, climate, previous crop history, nutrition, weed status, insect pests and diseases-compact area approach in seed production-its advantages.</p> <p>Principles of control of crop pests-integrated pest management.</p> <p>Principals of control of seed borne and other important diseases.</p> <p>Practical: Comparative study of diseased and healthy seeds, seedlings and plants – study of external and internal seed borne diseases.</p> <p>Study and identification of different crop pests.</p> <p>Practical exercises in seed treatment methods.</p>	<p>commercial hybrid seed production of maize, rice, sorghum, and pearl millet and maintenance and multiplication of A.B and R.Lines.</p> <p>Practical: Inspection of field for crop standard, taking counts and certification.</p> <p>Determination of stage of maturity.</p> <p>Harvesting operation and field drying.</p>	
8	Jan' 20 4	<p>Cole Crops:Cauliflower – Cabbage</p> <p>Farm Crops: Berseem, Lucer.</p> <p>Practical: Vegetable and forages.</p> <p>NOTE: THE STUDENTS SHOULD SUBMIT</p>	<p>Male sterility and self incompatibility and its utilization in hybrid seed production.</p> <p>Practical: Forage crops.</p>	<p>Factors affecting time of harvesting and threshing, precautions for these operations especially in hybrid seed production.</p> <p>Factors responsible for seed size variation in crops.</p> <p>Drying of seed in field.</p>	<p>Isolation: Planting ratio, synchronization flowering of parents-data selling, sorting of cobs, drying and shelling of maize, number and stages of cuttings of forages.</p> <p>Practical: Packing and</p>	

		HERBARIUM FOR ALL THE ABOVE CROPS ALONG WITH SMALL QUANTITY OF SEED.		Practical: Use of plant protection equipment and their maintenance.	labeling of produce	
Pre-Final Examinations commence from First Week of February						
Commencement of Practical Examinations I.P.E. II Week of February						
9	Feb' 23	Revision both theory and practicals. PRE-FINAL EXAMINATIONS	Revision both theory and practicals. PRE-FINAL EXAMINATIONS	Revision both theory and practicals. PRE-FINAL EXAMINATIONS	Revision both theory and practicals. PRE-FINAL EXAMINATIONS	
10	March 22 6	Revision both theory and practicals. PUBLIC EXAMINATIONS	Revision both theory and practicals. PUBLIC EXAMINATIONS	Revision both theory and practicals. PUBLIC EXAMINATIONS	Revision both theory and practicals. PUBLIC EXAMINATIONS	
	Total	138+60=198 periods Unit tests: 4 Assignments: 4	138+60=198 periods Unit tests: 4 Assignments: 4	138+60=198 periods Unit tests: 4 Assignments: 4	138+60=198 periods Unit tests: 4 Assignments: 4	
Final Examinations commence from first week of March						

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SEED PRODUCTION TECHNOLOGY

FIRST YEAR

Sl.No	Month Periods Days	Paper – I SEED PRODUCTION TECHNOLOGY OF PULSES: OIL SEDS: CASH AND FIBRE CROPS	Paper – II SEED PRODUCTION TECHNOLOGY OF vegetables and flowers	Paper – III SEED PROCESSING : TESTING & STORAGE	Paper – IV SEED INDUSTRY: MANAGEMENT: MARKETING ECONOMICS AND EXTENSION.	Remarks
1	June 24 4	<p>Crops to be covered – pigeonpea-chickpea</p> <p>Practical: Study of flower structure of sun flower, sesame, cotton, jute, pulses, linseed, mustard, tobacco, castor.</p>	<p>Inflorescence and types of flower structure, flowering time and duration, anthesis and stigma, receptivity, pollination.</p> <p>Climatic requirements, rain fall, quantity pattern and stress period, temperature-range, diurnal variation, degree days, photoperiod, day length, total light hours, soil types, depth, pH and special requirements.</p> <p>Specific land requirement, previous crop history of land, isolation requirements for different crops.</p> <p>Agronomy-seed bed preparation, seed rate, seed treatment, sowing time, method of sowing/planting, spacing, fertilizer application</p>	<p>Importance of seed processing, kinds of seeds and their preparations in relation to processing.</p> <p>Capacity types and uses of processing equipment based on seed demand.</p> <p>Practical: Exercise on seed drying natural and artificial drying.</p> <p>Exercise on tempering on ground nut and paddy.</p> <p>Exercise on sampling hulling shelling of seeds.</p>	<p>Scope-estimation for production for various kinds of seeds, their local preference resource availability, mode of transport communication, availability of inputs.</p> <p>Practical: Survey on kind and crop varieties mapping of seed zones for disease free and quality oriented nature.</p>	

			<p>(quantity and time of application) irrigation, hoeing and weeding (time & use of herbicides) plant protection (important insects, diseases and their control) in relation to the following crops.</p> <p>Vegetables – Tomato, Brinjal, Chilli.</p> <p>Practical: Identification of seeds of vegetables and flowers.</p>			
2	July 26 10	<p>Pea, lentil blackgram, greengram, cowpea.</p> <p>Practical: Emasculation and pollination in cotton or castor and supplementary pollination in sunflower.</p> <p>Estimation of success in hybridization.</p> <p>Field inspection for certification.</p>	<p>Bittergourd, Spongegourd, Ridgegourd, Pumpkin, Cucumber.</p> <p>Practical: Seed examination in relation to purity and damage</p> <p>Seed treatment.</p> <p>Raising of seedlings of vegetables and flower in nursery and transplanting.</p> <p>Preparation of hills and sowing of cucurbitaceous vegetables.</p> <p>Sowing of different crops (vegetables and flowers)</p> <p>Practice of manures and fertilizer application in different crops (Vegetables and flowers)</p>	<p>Drying conditioning, pre-cleaning, cleaning.</p> <p>Grading specific gravity, separator, indented cylinder, spiral separator, dodder mills, sieve sizes four cleaning and grading. Seed scarifiers.</p> <p>Seed treatments.</p> <p>Blending of seeds.</p> <p>Processing sequence for some important crop seeds.</p> <p>Records and forms used at the seed processing plant.</p> <p>Practical: Use of specific gravity separator indented cylinder, spiral separator and other.s</p> <p>Upgrading of seeds through salt and water.</p> <p>Use of sieve shakers for cleaning and grading of</p>	<p>Human resource management in seed industry. Seed industries-private, public, cooperative consortium, partially and fully government supported organization, state seed corporations, national seed corporation – their merits and demerits.</p> <p>Demand forecast – building the supply of seeds, sowing time, report preparation availability of seeds.</p> <p>Practical : Data presentation on seed industries, types and their positions in competitive nature.</p> <p>Arriving at the area and quantity requirement of</p>	

				<p>small quantity of seed. Delinting of cotton, seed use of scarifier. Use of conveyors and their maintenance. Use of chemicals for seed treatment, calculation of seed petalling, dosages and treating the slurry and dry method. Bad closing machines use of sealers for sealing vegetables and flower seed packets labeling and sealing.</p>	<p>quantity requirement of various classes of seeds.</p>	
3	Aug' 25 10	<p>SEsbania, oilseeds, groundnut, mustard, and rapeseed.</p> <p>Practical: Seed bed preparation for pigeon pea, chickpea, groundnut, sunflower, mustard, Soya been, sugarcane, tobacco, cotton and jute.</p> <p>Rhizobium inoculation of a pulse crop.</p> <p>Fungicide and insecticide treatment of seeds.</p>	<p>Radish, Carrot, Onion, Potato, Coriander, Spinach, French bean, Cauliflower, Cabbage, Knolkhol and Okra.</p> <p>Practical: Method and schedule of irrigation.</p> <p>Inter culture operations weeding, hoeing and earthing up.</p> <p>Stacking in tomato, beans and cucurbits.</p> <p>Propagation of different/annual flowers in beds and pots.</p> <p>Preparation and application of starter solution.</p>	<p>Maintenance and use of seed processing equipments.</p> <p>Layout and design of a seed processing plant.</p> <p>Objectives and importance and seed testing.</p> <p>Equipments used in seed testing.</p> <p>Sampling procedures, size of the submitted samples.</p> <p>Receiving of seed sample and entry mixing and dividing.</p> <p>Moisture testing.</p> <p>Physical purity analysis.</p> <p>Concept of seed germination and dormancy factors influencing seed</p>	<p>Assessing the number of customers in the area seed pricing, assessing market demand-direct and indirect costs involved. Working out economics of seed production in varieties and hybrid seeds of crops, benefit cost ratio.</p> <p>Preparation of blue prints on seed production-infrastructure availability – area and seed requirement of various kind of seeds.</p> <p>Establishing seed enterprise, arranging Institutional finance, land lease, contract system incentives.</p> <p>Practical: Exercise on man power requirement</p>	

				<p>germination methods for breaking seed dormancy.</p> <p>Practical: Filing of records and forms and their maintenance.</p> <p>Renewal of license.</p> <p>Visit of study the layout and design of a seed processing plant.</p> <p>Study of various equipment used in seed testing.</p> <p>Use of triers for seed sampling and drawing seed samples.</p> <p>Mixing, dividing and obtaining the working sample.</p> <p>Estimation of seed moisture content, use of moisture meters and oven grinding and sieving of sample for moisture testing.</p>	<p>on special and exacting operations in varieties and hybrids.</p> <p>Visit to private, public, co-operative and corporations for discussing on cheap and effective seed operation, development of entrepreneurship.</p>	
4	Sept' 23	ON THE JOB TRAINING	ON THE JOB TRAINING	ON THE JOB TRAINING	ON THE JOB TRAINING	
Half yearly Examinations from 01.01.2005 to 07.01.2005						
First term of Holidays 08.01.2005 to 16.01.2005						
5	Oct' 18 4	<p>Sunflower, linseed.</p> <p>Practical: Delinting of cotton seeds.</p> <p>Selection of sugarcane plant and set</p>	<p>Flowers: Amaranthus, Cosmos, balsam, gallardia.</p> <p>Practical: Identification of important insects and</p>	<p>Analysis of germination preparation of seed for germination test</p> <p>preparation of medium evaluating of seedlings vigour and its concept.</p>	<p>Seed cooperative consortium and seed village concept-its aim and objectives-organizational features, agro based assistance,</p>	

		<p>preparation.</p> <p>Seed examination requirements planting ratios for hybrid seed production.</p>	<p>diseases.</p> <p>Practice of spraying of fungicides, insecticides and herbicides.</p>	<p>Tetrozanium test for conducting seed viability.</p> <p>Phenol test for germ tic purity of wheat.</p> <p>Seed health testing.</p> <p>Seed acts and seed rules in relation to seed testing, seed testing laboratories in India.</p> <p>Tolerances and its use in seed testing.</p> <p>Practical: Purity analysis of important crop seeds, identification of weed seeds and calculation and reporting of results.</p> <p>Exercise on breaking seed dormancy use of acid sand paper, hot water potassium nitrate, GA3 etc.,.</p>	<p>their collaborative areas.</p> <p>Problems associated with seed production, seed marketing and seed distribution.</p> <p>Practical : Visit to multicrop research centres knowing problems and amelioration. Visit to training centres developing skills in methodological approaches.</p>	
6	Nov' 23 8	<p>Sesame, safflower, castor, soybean, cash and fibre crops.</p> <p>Practical: Sowing by hand</p> <p>Use of bullock and power driven seeding equipment.</p> <p>Plantation of sugarcane.</p> <p>Fertiliser application, basat, split and foliar.</p>	<p>Gomphrina, hollihock, marigold, sunflower, erbina, portulaca, zinnia, antirrhinum.</p> <p>Practical: Identification of physiological disorders in tomato and cauliflower.</p> <p>Practice of planting of potato tubers.</p> <p>Transplanting and raising seed tubers from TPS.</p>	<p>Forms and records used in seed testing-storage of guard samples.</p> <p>Layout and design of a seed testing laboratory.</p> <p>Objectives life span of seed recalcitrant and orthodox seeds.</p> <p>Factors influencing loss of germinability during storage.</p>	<p>Marketing-seed advisory centre, after sales service, market intelligence, mass contact, improving marketability, marketability through attractive conceivable business models.</p> <p>Information of seed trade in the region, competitive and quality orientation.</p>	

		<p>Identification of kharif and Rabi weed plants.</p> <p>Weeding with the help of hand operated implements mechanized weeders and herbicides.</p>	<p>Varietal identification in standing crop and rouging.</p> <p>Study of flower structure of tomato, brinjal, bottle gourd, cauli flower, okra, cabbage, candytuff, marigold aster, masturium and hollyhock.</p>	<p>Short medium and long term storage of seeds, use of wooden pallets for stacking the seed bags.</p> <p>Control of rodents, insects and mites during storage.</p> <p>Seed packaging, types of packaging materials.</p> <p>Seed storage management and sanitation.</p> <p>Checking seed viability during storage.</p> <p>Design and construction of seed store.</p> <p>Maintenance of storage records.</p> <p>Practical: Conducting germination test of important crop seeds by different methods viz. B.P.T.P. and sand seedling evaluation calculation and reporting of results.</p> <p>Conduction of tetrazolium test for assessing seed viability estimation of seed vigour by performance test Exercise on phenol test for assessing genetic purity in wheat.</p> <p>Use of tolerance tables.</p>	<p>Extension-Drill box survey and field demonstration – Training and visit system approach methods of publicity-discussion and exchange of view through seeds days.</p> <p>Practical: Demonstration trials to show benefits of quality seeds.</p> <p>Participation of farmers, plant protection and seed days, exhibitions, use of audio visual aids in publicity documentary film shows.</p>	
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7	Dec' 25 8	<p>Sugarcane, tobacco.</p> <p>Practical: Identification of major insects and nature of damage.</p> <p>Use of insecticides and fungicides in seed and standing crop</p> <p>Varital identification in standing crop and rouging.</p> <p>Field identification for crop standards, taking counts and certifications.</p>	<p>Aster, calendula, camation, poppy, larkspur, lupins, nasfurtium, paddy, petunia.</p> <p>Practical: Field inspection for crop standards taking counts and certification.</p> <p>Determination of crop maturity.</p> <p>Harvesting, seed extraction and threshig operations.</p> <p>Cleaning and drying.</p>	<p>Seed certification-stages of seed multiplication-classes of seed phases and agency of seed certification, seed certificatin standards, field inspection, principles and procedures inspection at harvesting, threshing and processing, issue of certificate, seed law enforcement.</p> <p>Practical : Effect of seed moisture storage temperature and packaging material on seed storage.</p> <p>Exercise on the use of fungicides insecticides and non-toxic inert materials and biologicals seed treatment to control insect pests during storage.</p> <p>Fumigation of seeds and storage to control insect pests.</p> <p>Seed hydration-dehydration treatment for minimizing loss of viability</p>	<p>Technical services envisaged in organization – Availability of sowing material, stock building as buffer, plant protection, herbicides, fertilizers, and labour management.</p> <p>Planning and utilisatin of byproducts viz. tomato juice, ash gourd, fruit, bracketing of paddy, husk, etc.,</p> <p>Linakges with other organization seed association in different regions, SAUs, Socio Economics, contacts.</p> <p>Practical: Visit to financial institutions appraisal and understanding of working for obtaining dividends.</p> <p>Public relations-salesmanship – consultancy service – Maintenance of account – legal office contacts for better relations and smooth running.</p>

				<p>during storage and for invigoration.</p> <p>Assessment of mechanical injury on seed storability.</p> <p>Layout and design of seed go down.</p>	
8	Jan' 20 4	<p>Cotton, jute.</p> <p>Floral biology of the representative families of the above mentioned crops.</p> <p>Inflorescence and types of flowers, flower structure, flowering time and duration antheses and stigma receptivity pollination.</p> <p>Climatic requirement, rainfall, quantity, pattern, stress period, Temperature-range, diurnal, variation degree days, photoperiod-day length, total light hours.</p> <p>Soils, Types, depth, pH, special requirements.</p> <p>Specific land requirement and isolation: previous crop history of land, Isolation requirements for (a) self pollinated crops (chickpea, pea, lentil, black gram, green gram, sesbania, groundnut, linseed soyabean,</p>	<p>Phiox, sweet peas and dahlia.</p> <p>Quality control, varietals characteristics, time and number of field inspections rouging (removal of unhealthy and off plants) crop standards seed standards.</p> <p>Harvesting stage of maturity (by crop appearance and seed moisture, methods, seed extraction methods, threshing cleaning and drying.</p> <p>Delivery to processing plant, types of containers packaging labeling, moede of transport.</p> <p>Crop cultivars important varieties of the crops listed and their distinguishing characters.</p> <p>Hybrid seed production – tomato, cabbage/cauliflower, cucumber, brinjal, chilli, onion, bottlegourd.</p>	<p>Seeds Act, seed Rule and seed order, seed inspector-duties and responsibilities.</p> <p>Practical: Exercise on sanitation and maintenance of seed store.</p> <p>Visit to seed storage godown to study the design, construction methods of seed storage store sanitation.</p> <p>Maintenance of records.</p>	<p>Familiarization with laws- seed Act rules, commodity Act Rules, individual, labour and taxation laws, records and forms.</p> <p>Practical: Maintenance of records and forms.</p>

	<p>tobacco) (b) Often cross-pollinated crops (mustard and rapeseed, sunflower, sesame, castor, jute, safflower.)</p> <p>Agronomy: Nursery preparation for tobacco, field preparation seed rates, seed treatment (a) Rhizobium inoculation in pulses (b) fungicides and insecticide treatment of all seeds (c) delinting of cotton (d) dehusking of ground nut and (2)set preparation in sugarcane, sowing time and tect____) date of sowing in relation to climate (b) item of transplanting (c) crop geometry (spackling) (d) plant destiny and (e) sowing techniques fertilizer application (a) organic and inorganic manures (b) fertilizer requirements and methods of application (basal, split, foliar, irrigation) (a) weed control(a) identification and behaviour of major weeds (b) losses due to weeds, weed control (manual, tillage, herbicides and integrated weed control) varietal characteristics, time and</p>	<p>Practical: Packaging and labeling of produce.</p>			
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		<p>number of field inspection, rouging (removal of unhealthy and off plants) crop standards, seed standards.</p> <p>Harvesting stage of maturity (by crop appearance and seed moisture) methods, seed extraction methods, threshing, cleaning and drying.</p> <p>Delivery to processing plant – types of obtainers, packaging, labeling, mode of transport.</p> <p>Crop cultivars – important varieties of the crops listed and their distinguishing characters.</p> <p>Practical: Determination crop maturity.</p> <p>Harvesting and threshing operations cleaning and drying.</p> <p>Packing and labeling of produce.</p>				
Pre-Final Examinations commence from First Week of February						
Commencement of Practical Examinations I.P.E. II Week of February						
9	Feb' 23	Revision both theory and practical. PRE-FINAL EXAMINATIONS	Revision both theory and practical. PRE-FINAL EXAMINATIONS	Revision both theory and practical. PRE-FINAL EXAMINATIONS	Revision both theory and practical. PRE-FINAL EXAMINATIONS	

10	March 22 6	Revision both theory and practical. PUBLIC EXAMINATIONS	Revision both theory and practical. PUBLIC EXAMINATIONS	Revision both theory and practical. PUBLIC EXAMINATIONS	Revision both theory and practical. PUBLIC EXAMINATIONS	
	Total	138+60=198 periods Unit tests: 4 Assignments: 4	138+60=198 periods Unit tests: 4 Assignments: 4	138+60=198 periods Unit tests: 4 Assignments: 4	138+60=198 periods Unit tests: 4 Assignments: 4	
Final Examinations commence from first week of March						

B. Vijaya Sree, J.L. in C.P.

Govt. City Jr. College, Hyderabad-2

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