LUCKNOW UNIVERSITY LUCKNOW
B.Sc. (Honours) Agriculture N E P Semester IV Syllabus

B.Sc. (Honours) Agriculture Semester –IV NEP
Fifth Dean Committee Syllabus
NEP

Sl. No. of Paper	Course code	Theory Paper Code	Course title	Credit hours	Mark Distribution			
					T	I	P	Total
1.	AG-401	**16401**	Crop Production Technology-II (Rabicrops)	2 (1+1)	50	20	30	100
2.	AG-402	**PRA**	Practical Crop Production-II (RabiCrops)	2 (0+1)	-	-	-	100
3.	AG-403	**16402**	Principles of Seed Technology	3(2+1)	50	20	30	100
4.	AG-404	**16403**	Problematic soils and their Management	2(1+1)	50	20	30	100
5.	AG-406	**16404**	Renewable Energy and Green Technology	2(1+1)	50	20	30	100
6.	AG-407	**16405**	Production Technology for Ornamental Crops, MAPS and Landscaping	2(1+1)	50	20	30	100
7.	AG-408	**16406**	Entrepreneurship Development and Business Communication	2(1+1)	50	20	30	100
8.	AG-409	**16407**	Introductory Agro-meteorology & Climate Change	2(1+1)	50	20	30	100
9.	AG-410	**16408**	Agri-Informatics	2(1+1)	50	20	30	100
10.	AG-411	**16409**	Poultry Production and Management	3(2+1)	50	20	30	100
Total Credit				**22 Credit**				
T= Theory, I= Internal, P= Practical								

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Mark Distribution		
Theory 50 Marks	Internal 20 Marks	Practical 30 Marks

AG-401 Crop Production Technology-Il (Rabicrops) 2(1+1)

Theory

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of Rabi crops; cereals -wheat, barley and oat, pulses-chickpea,lentil, peas.oilseeds-rapeseed, mustard, linseed and sunflower; sugar crops-sugarcane; other crop-Potato. Forage crops-berseem, Lucerne and oat.

Practical

Sowing methods of wheat and sugarcane, identification of weeds in rabi season crops. Numerical problems on seed requirement of rabi crop. Study of yield contributing characters of rabi season crops, study of important agronomic experiments of rabi crops at experimental farms. Study of rabi forage experiments, visit to research stations of related crops.

Mark Distribution		
Theory	Internal	Practical
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AG- 402 Practical Crop Production-II (RabiCrops) 2 (0+2)

Practical

Crop planning, raising field crops in multiple cropping systems: Field preparation, seed, treatment, nursery raising, sowing, nutrient, water and weed management and management of insect-pests diseases of crops, harvesting, threshing, drying winnowing, storage and marketing of produce. The emphasis will be given to seed production, mechanization, resource conservation and integrated nutrient, insect-pest and disease management technologies. Preparation of balance sheet including cost of cultivation. net returns per student as well as per team of 8-10 students.

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Theory 50 Marks	Internal 20 Marks	Practical 30 Marks

AG-403 Principles of Seed Technology 3(1+2)

Theory

Seed and seed production technology: introduction, definition and importance. Deterioration causes of crop varieties and their control; Maintenance of genetic purity during seed production. Seed quality; Definition and Characters of good quality seed, different classes of seed. Foundation and certified seed production of important cereals, pulses. oilseeds, fodder and vegetables. Seed certification. phases of certification, procedure for seed certification, field inspection. Seed Act and Seed Act enforcement. Duty and powers of seed inspector, offences and penalties. Seeds Control Order 1983. Varietal identification through Grow Out Test. History and development of Seed Industry in India. Seed drying, processing and their steps, seed testing for quality assessment, seed treatment, its importance, method of application and seed packing. Seed storage; general principles, stages and factors affecting seed longevity during storage. Measures for pest and disease control during storage. Seed marketing, Private and public sectors and their production and marketing strategies.

Practical

Seed production in major cereals: Wheat, Rice, Maize, Sorghum and Bajra. Seed production in major pulses: Urd, Mung. Pigeonpea. Lentil, Gram, field bean, pea. Seed production in major oilseeds: Rapeseed and Mustard. Seed production in important vegetable crops. Seed sampling and testing: Physical purity, germination, viability. etc. Seed and seedling vigour test. Genetic purity test: Grow out test. Seed certification: Procedure. Field inspection, Preparation of field inspection report. Visit to seed production farms, seed testing laboratories and seed processing plant.

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AG-404-Problematic Soils and their Management 2(1+1)

Theory

Soil quality and health, Distribution of Waste land and problem soils in India. Their categorization based on properties. Reclamation and management of Saline and sodic soils, Acid soils. Acid Sulphate soils. Eroded and Compacted soils. Flooded soils, & Polluted soils. Irrigation water - quality and standards, utilization of saline water in agriculture. Remote sensing and GIS in diagnosis and management of problem soils. Multipurpose tree species, bio remediation through MPTs of soils. land capability and classification, land suitability classification. Problematic soils under different Agro-ecosystems.

Practical

Determination of pH & Ec in soil and water. Lime and gypsum requirement in soil, ESP and SAR in Soils. Application of remote sensing and GIS in delineating problematic soil in LIP. Visit problematic soil in U.P.

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AG-406 Renewable Energy and Green Technology 2(1+l)

Theory

Classification of energy sources, contribution of these of sources in agricultural sector, Familiarization with biomass utilization for biofuel production and their application, Familiarizationwith types of biogas plants and gasifiers. biogas. bioalcohol, biodiesel and bio oil production and their utilization as bio energy resource, introduction of solar energy, collection and their application, Familiarization with solar energy gadgets: solar cooker, solar water heater, application of solar energy:solardrying, solarpond,solardistillation, introductionofwind energyandtheirapplication.

Practical

Familiarization with renewable energy gadgets. To study biogas plants, To study gasifier, To study the production process of biodiesel, To study briquetting machine, To study the production process of bio-fuels. Familiarization with different solar energy gadgets. To study solar photovoltaic system: solar light, solar pumping, solar fencing. To study solar cooker, To study solar drying system. To study solar distillation and solar pond.

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AG-407 Production Technology for Ornamental Crops, MAPS and Landscaping 2(1+l)

Theory

Importance and scope of ornamental crops. medicinal and aromatic plants and landscaping. Principles of landscaping, Landscape uses of trees, shrubs and climbers. Style of gardening and lawn making and maintenance. Production technology of important cut flowers like rose, Gerbera, carnation, lilium and orchids under protected conditions and gladiolus, tuberose, chrysanthemum under open conditions. Package of practices for loose flowers like marigold and jasmine under open conditions. Production technology of important medicinal plants like- Isabgol, Ashwagandha, Asparagus, Aloe and aromatic plants like mint, lemongrass, citronella, palmarosa, ocimum, geranium, vetiver. Processing and value edition in ornamental crop and MAPs produce.

Practical

Identification of Ornamental plants. Identification of Medicinal and Aromatic Plants. Nursery bed preparation and seed sowing. Training and pruning of Ornamental plants. Planning and layout of garden. Bed preparation and planting of MAP. Protected structures - care and maintenance. Intercultural operations in flowers and MAP. Harvesting and post harvest handling of cut and loose flowers extraction of essentials oils.

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AG-408 Entrepreneurship Development and Business Communication 2(1+1)

Theory

Concept of Entrepreneur, Entrepreneurship Development, Characteristics of entrepreneurs; SWOT Analysis & achievement motivation, Government policy and programs and institutions for entrepreneurship development Impact o f economic reforms on Agribusiness/Agrienterprises, Entrepreneurial Development Process: Business Leadership Skills; Developing organizational skill (controlling, supervising, problem solving, monitoring & evaluation), Developing Managerial skills, Business Leadership Skills (Communication, direction and motivation Skills), Problem solving skill, Supply chain management and Total quality management, Project Planning Formulation and report preparation; Financing of enterprise, Opportunities for agri-entrepreneurship and rural enterprise.

Practical

Assessing entrepreneurial traits, problem solving skills, managerial skills and achievement motivation, exercise in creativity, time audit through planning, monitoring and supervision, identification and selection of business idea, preparation of business plan and proposal writing, visit to entrepreneurship development institute and entrepreneurs.

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AG-409 Introductory Agro-meteorology & Climate Change 2(1+1)

Theory

Meaning and scope of agricultural meteorology; Earth atmosphere- its composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height; Wind, typesof wind, daily and seasonal variation of wind speed, cyclone, anticyclone, land breeze and sea breeze; Nature and properties of solar radiation. solar constant, depletion of solar radiation, short wave, long wave and thermal radiation, net radiation, albedo: Atmospheric temperature, temperature inversion, lapse rate, daily and seasonal variations of temperature, vertical profile of temperature, Energy balance of earth; Atmospheric humidity, concept of saturation, vapor pressure, process of condensation, formation of dew, fog. mist, frost, cloud; Precipitation, process of precipitation types of precipitation such as rain, Snow, sleet, and hail, cloud formation and classification: Artificial rainmaking. Monsoon-mechanism and importance in Indian agriculture, Weather hazards - drought, floods, frost, tropical cyclones and extreme weather conditions such as heat-wave and cold-wave. Agriculture and weather relations; Modifications of crop microclimate, climatic normals for crop and livestock production. Weather forecasting- types of weather forecast and their uses. Climate change, climatic variability, global warming, causes of climate change and its impact on regional and national Agriculture.

Practical

Visit of Agro meteorological Observatory, site selection of observatory, exposure of instruments and weather data recording. Measurement of total, shortwave and long wave radiation, and its estimation using Planck's intensity law. Measurement of albedo and sunshine duration, computation of Radiation Intensity using ASS. Measurement of maximum and minimum air temperatures. its tabulation, trend and variation analysis. Measurement of soil temperature and computation of soil heat flux. Determination of vapor pressure and relative humidity. Determination of dew point temperature. Measurement of atmospheric pressure and analysis of atmospheric conditions. Measurement of wind speed and wind direction, preparation of windrose. Measurement. tabulation and analysis of rain. Measurement of open panevaporation and evapotranspiration. Computation of PET and AET.

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AG-410- Agri-Informatics 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 (WNW): 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, Smartphone 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 DOSC 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 WorldWideWeb (WWW). Introduction of programming languages. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/CropSyst/ Wofost; Computation of water and nutrient requirements of crop using CSM and IT tools. Introduction of Geospatial Technology for generating valuable information for Agriculture. Handson Decision Support System. Preparation of contingent crop planning.

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AG-411 Poultry production and management 3(2+1)

GENERAL : Importance of poultry industry in India, Poultry production and marketing statistics of eggs and chicken. Historical development in poultry birds potential.
BREEDING : Male and female reproductive system of chicken, Breeds and strains of broilers and layers of chicken. duck and quails, General aspects of breeding for better egg production and body weight gain. Selection and culling, Artificial in semi nation.
GENERAL MANAGEMENT : Establishment of poultry farm. Housing and equipment, incubation and hatching of eggs, Broiler and layer management. Lighting schedule for poultry.
FEEDS AND FEEDING : Digestion, Digestive system of chicken. Feed ingredients, Availability of CP and ME in ingredients. Feed processing. Formulation of feed viz. Starter. Grower, Layer, Finisher and Breeder ration, FCR, CP ratio, Nutritional deficiency conditions.
HEALTH MANAGEMENT: Vaccination schedule for poultry, Common poultry diseases, i.e. Ranikhet, Marex, Chicken pox, Gumboro, Infectious bronchitis and CRD. Control of internal and external parasites.
POULTRYPRODUCTS: Preservation and storage of eggs, Grading of eggs, AGMARK standard of egg. Egg powder, Slaughtering and processing of chicken, Marketing of poultry products.

Practical

Neat and clean diagram of hen showing external body parts. structure of egg, Formulation ofrationviz.Broilerstarterration,Broilerfinisherration.Chickstarterration,Growerration,Layerration andBreederration.Vaccinationscheduleforbroilerandlayers.Debeaking,Candlingofeggs.Dissection of bird fir showing internal body parts.