Program Outcomes (POs)

Program Specific Outcomes (PSO)

Course Outcomes (COs)

DEPARTMENT OF AGRICULTURE

DOON (P.G.) COLLEGE OF AGRICULTURE SCIENCE AND TECHNOLOGY
SELAQUI, DEHRADUN, UTTARAKHAND.

B. Sc. (Hons.) Agriculture

Programme Outcomes (POs)

Students graduating with the B.Sc. (Hons.) Agriculture degree should be able to acquire

PO-1:	To provide fundamental knowledge on agriculture and allied science.
PO-2:	To asses problems and provide solutions in the field of agriculture.
PO-3:	To disseminate technical knowhow through various socio economic surveys and extension activities.
PO-4:	To impart practical knowledge through operation of different farm implements.
PO-5:	To provide detail practical knowledge about crop cultivation practices under different crop season.
PO-6:	To acquaint students with entrepreneurship skill development programme.
PO-7:	Fundamental understanding of livestock production and management.
PO-8:	Understanding various aspects of soils aspects and impart skills in analysing attributes of soil testing.
PO-9:	To study different weather and climatic variables that contributes in crop production.

PSO (Program Specific Outcome) 1: Employing soil and crop management, crop improvement and crop cultivation knowledge for development and production of organic agriculture in a sustainable manner

PSO (Program Specific Outcome) 2: Applying the ideas of Agriculture Science, Engineering and Business to analyse, discover and formulate ethical solutions to difficult Agricultural challenges

PSO (Program Specific Outcome) 3: Creating cutting edge tools, goods and technologies to address issues with farming and agriculture.

I SEMESTER

AG101: Fundamentals of Agronomy 3(2+1)

Course Outcomes:

CO1:	To study basic principles, concepts and components of agronomy.
CO2:	Knowledge about various agronomical practices, their importance and present status.
CO3:	To make student understand fundamental knowledge of tillage, weeds and water management.
CO4:	To make student learn about ideal plant types and maximization of crop yield
CO5:	Understanding basics of crop nutrition, crop rotation and its principles and management.

AG102: Fundamentals of Genetics 3(2+1)

Course Outcomes:

CO1:	Comprehensive, detailed understanding of the chemical basis of heredity specially in crop plants to improve and develop the new varieties of plants.
CO2:	Understanding of how genetic concepts affect broad societal issues including health and disease, food and natural resources, environmental sustainability, etc.
CO3:	The knowledge required to design, execute, and analyse the results of genetic experimentation in plant systems.
CO4:	Insight into the mathematical, statistical, and computational basis of genetic analyses that use genome-scale data sets in systems biology settings.
CO5:	Understanding the role of genetic technologies in industries related to biotechnology, pharmaceuticals, energy, and other fields.

AG103: Fundamentals of Soil Science 3(2+1)

Course Outcomes:

CO1:	To apprise them about the physical and chemical properties of soil and their effect on plant's health.
CO2:	To provide education to the students regarding the causes and effects of soil pollution, along with effective remedies for its prevention and mitigation.
CO3:	Knowledge about soil forming rocks and minerals, their weathering and soil forming processes and factors affecting them.

AG104: Fundamentals of Horticulture 2(1+1)

Course Outcomes:

CO1:	Students will be able to identify various horticultural crops.
CO2:	Students will understand the principles of orchard establishment.
CO3:	Students will understand how to propagate plant, manage and harvest the crop.
CO4:	Students will learn how horticulture relates to the economy and environments, both at the present and future scenario.

AG105: Rural Sociology and Educational psychology 2(1+1)

Course Outcomes:

CO1:	Understand concept of sociology rural settings of India and its importance in agricultural extension along with characteristics of Indian rural society.
CO2:	Understand concept of groups, stratification, culture, values, control and attitudes in context of rural society, leadership and training of leaders.
CO3:	Understand concept of educational psychology, intelligence, personality, perceptions, emotions, frustration, motivation, teaching and learning
CO4:	Acquaint with characteristics of rural society, village institutions and social organizations. Select lay leaders and train them.
CO5:	Assess personality types, leadership types and emotions of human beings and create a training situation under village conditions

AG106: Introduction to Forestry 2(1+1)

Course Outcomes:

CO1:	Students will understand recognize various harvesting, transportation, and processing systems used in the management of forest resources and production of forest products.
CO2:	Students will understand develop and evaluate management plans with multiple objectives and constraints.
CO3:	Students will learn how to develop and apply silvicultural prescriptions appropriate to management objectives.
CO4:	Students will understand analyse forest inventory information and project future forest, stand, and tree conditions.

AG107: Introductory Animal Husbandry 3(2+1)

Course Outcomes:

CO1:	Students will identify different breeds of farm animal
CO2:	Students will understand the role of nutrition in animal production
CO3:	Students will able to apply the concept of breeding and nutrition, herd health management
CO4:	Students will learn why animal are important to farm and why each animal is very important to the farmer
CO5:	To make students to learn about the various farm practices and their management

AG108: Comprehension and Communication Skills in English 2(1+1)

Course Outcomes:

CO1:	Students will identify and explain their goals to the semester and also identify the needs of communication helps us meet. They will able to understand the common misconceptions about communication and the reasons, people use language.
CO2:	Students can differentiate the action, interaction and transaction models of communication. They can define the process of both perception and listening. Students can recall the importance of listening effectively and can identify strategies for communicating the cultural awareness.
CO3:	Students will able to introduce themselves to the class and begin getting to know one another and will apply communication strategies by preparing and participating in class discussion.
CO4:	Students will prepare and present messages with the intent of persuading an audience. Students will able to analyse basic communication skills, intercultural communication skills, interpersonal communication skills and public- speaking skills.
CO5:	Students can demonstrate critical and innovative thinking. Display competence in oral, written and visual communication. They can able to use current technology related to the communication field.

REMEDIAL COURSES

AG109: Agricultural Heritage 1(1+0)

Course Outcomes:

CO1:	Ancient Agricultural Practices & Its relevant to modern agriculture practices.
CO2:	Traditional Technical Knowledge.
CO3:	Our Journey (Developments) in Agriculture and Vision for the Future.
CO4:	To know the basics of the agriculture, tillage and evolution of agriculture from different periods from Veda to modern agriculture.

AG110: Introductory Biology 2(1+1)

Course Outcomes:

CO1:	To expose the students to the basic features of botanical and zoological description, economic parts and economic importance of different field and horticultural crops.
CO2:	Botanical features and economic importance of different crop plants belonging to 20 families will be exposed.
CO3:	To know about the Binomial nomenclature and classification of plants.
CO4:	To understand the Morphology of flowering plants - root, stem and leaf and their modifications.
CO5:	To acquire knowledge about the Cell, tissues & cell division.

AG111: Elementary Mathematics 2(2+0)

Course Outcomes:

CO1:	To understand and apply fundamental concepts of mathematics applicable in agriculture
CO2:	To acquire knowledge on theoretical concepts of Algebra, Calculus and Mathematical Modelling.
CO3:	Further the course will provide them good introduction to various mathematical models used in biological sciences.

Non Gradial Courses

AG112 A/ 112 B/ 112 C: NSS/NCC/Physical Education & Yoga Practices 2(0+2)

Course Outcome:

CO1:	Course aims at evoking social consciousness among students through various activities.
CO2:	To Develop skill in programme development to be able for self-employment.
CO3:	To reducing gap between educated and uneducated, increasing awareness.
CO4:	Student will play different games to maintain physical health.
CO5:	Maintain disciplines of all kinds and create self interest in various sports.

II SEMESTER

AG201: Fundamentals of Crop Physiology 3(2+1)

Course Outcomes:

CO1:	Role of crop physiology in crop health.
CO2:	Identification of deficiency symptoms of nutrients.
CO3:	To understand the metabolic and synthetic pathway of biomolecules.
CO4:	To know the difference between C3, C4 and CAM plant.
CO5:	Importance of growth hormones in Agriculture.

AG202: Fundamentals of plant biochemistry 3(2+1)

Course Outcomes:

CO1:	To gain basic knowledge of the biomolecules viz., carbohydrates, proteins and lipids – their properties, structure and metabolism.
CO2:	To learn basics of enzymes and their industrial uses.
CO3:	Plant tissue culture is a area of entrepreneurship
CO4:	Identify the deficiency symptoms of biomolecules

AG203: Fundamentals of Entomology-I 3(2+1)

Course Outcomes:

CO1:	To be able to identify morphological characteristics, feeding habit and habitat of agriculturally important insect-pest.
CO2:	To be able to apply concepts and analytical approaches in evolutionary biology, genetics and other areas of insect biology of the student's choice.
CO3:	To be able to categorize insects based on basic ecological, behavioural, morphological, physiological, or developmental attributes.
CO4:	To be able to examine insects deeply within a biological level of analysis and make strategies for successful pest management strategy.
CO5:	To be able to understand about different families and orders of class Insecta which cause economic losses for human beings.

AG204: Fundamentals of Agricultural Economics 2(1+1)

Course Outcomes:

CO1:	To learn about basic concepts of economics applied in the field of agriculture
CO2:	To know about the application of various economic principles in agricultural production and management system under resource constraints.
CO3:	Describe and explain concepts of production, supply and demand of agricultural and food products in national and international markets.
CO4:	Understand the concepts of micro and macro-economic aggregates affecting economic system of agriculture sector.
CO5:	Understand the mechanism, functions and concept of various market structures as well as price determination under various conditions.

AG205: Principals of organic farming 2(1+1)

Course Outcomes:

CO1:	Initiative from Government for organic produce.
CO2:	To get knowledge about the Role of NGOs in producing organic products.
CO3:	To know the Selection of crops and varieties for organic produce
CO4:	To aware about the process of Certification of organic produce.

AG206: Fundamentals of plant pathology 4(3+1)

Course Outcomes:

CO1:	Student will acquaint about concepts of plant pathogens, major disease-causing organisms and their etiology.
CO2:	To provide specific knowledge about host pathogen interactions.
CO3:	Recognition of plant disease is the first step in doing something about them.
CO4:	To give specific knowledge about environment and disease development.

AG207: Production Technology of Vegetables and spices 2(1+1)

Course Outcomes:

CO1:	To impart knowledge on specialized production techniques of vegetables and species.
CO2:	To know about the propagation and production techniques of tropical, sub-tropical, temperate vegetables and spice crops.
CO3:	Managing skills to guide farmers for solving field problems.
CO4:	Students will understand the importance of vegetables and species in human nutrition and role in national economy.

AG208: Fundamentals of Agricultural Extension Education 3(2+1)

Course Outcomes:

CO1:	Education; Extension Programme planning Meaning, Process, Principles and Steps in Programme Development.
CO2:	Extension systems in India: Extension efforts in Pre-independence era.
CO3:	New trends in agriculture extension: privatization extension.
CO4:	Monitoring and evaluation – concept and definition, monitoring, and evaluation of Extension programmes, Transfer of Technology- Concept and models.

AG209: Food Processing and Safety Issues 3(2+1)

Course Outcomes:

CO1:	To impart knowledge in various aspects of Food Technology through Theory and Practical knowledge.
CO2:	The students can gain knowledge about food and its functions.
CO3:	To make the students familiar with the technologies of food processing and preservation of dairy products.
CO4:	To know about quality management system in food industries.

AG210: Human Value and Ethics 1(1+0)

Course Outcomes:

CO1:	Understand the significance of value inputs in a classroom and start applying them in their life and profession.
CO2:	Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.
CO3:	Understand the value of harmonious relationship based on trust and respect in their life and profession.
CO4:	Understand the role of a human being in ensuring harmony in society and nature.
CO5:	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

AG211: Soil and Water Conservation Engineering 2(1+1)

Course Outcomes:

CO1:	Various agents of soil erosion and forms of water erosion, classification of gullies and their control measures.
CO2:	Course will give the knowledge of soil loss equation and it can estimate long - term annual soil loss and guide conservationists on proper cropping, management, and conservation practices.
CO3:	This course will help the students to learn about different agronomic and mechanical methods of soil and water conservation.
CO4:	By this course student get the knowledge about the design of Grassed waterways, contour bunds, graded bunds and bench terraces.
CO5:	Students will be able to understand the wind erosion, centrifugal pumps and various pressurized irrigation methods. So overall the importance of this technology in farm is given to students by teaching this course.

SEMESTER III

AG301: Crop Production Technology – I (*Kharif Crops)* 2(1+1)

Course Outcomes:

CO1:	In the course study the students will be able to know about origin, geographical distribution, and economic importance of Kharif crops
CO2:	In the course study the students will be able to know about Soil and climatic requirements, varieties, cultural practices and yield of Kharif crops.
CO3:	Analysis of comparative benefits of the different kharif crops
CO4:	Constraints in production of oilseeds and pulses maybe identified through course content.
CO5:	Production technology of kharif cereals and millets fulfil the need of human consumption and milch cattle.

AG302: Practical Crop Production – I (*Kharif Crops)* 2(0+2)

Course Outcomes:

CO1:	In the course study students will be acquainted with the knowledge of profitable crop production technology.
CO2:	Course content will help to students/farmers about ruminative crop production techniques.
CO3:	It helps to adopt diversified farming system according to available farming situation.
CO4:	It will assist to encourage the sustainable agriculture system.
CO5:	Profitable based farming system can we adopted with the help of course content.

AG 303: Fundamentals of Plant Breeding 3(2+1)

Course Outcomes:

CO1:	Establish the commercial plant breeding company to developed new superior crops varieties.
CO2:	Develop the insect and disease resistant varieties for environment friendly management of disease and insect.
CO3:	Serve the quality food in the market by developing high nutritive varieties.
CO4:	Increase the farm yield to get higher income on farm by developing higher yield crop varieties.

CO5:	start a consultant company to guide & supply the better varieties to the farmers.

AG304: Agricultural Microbiology 2(1+1)

Course Outcomes:

CO1:	Student will understand the basic microbial structure, function and study the comparative characteristics of prokaryotes and eukaryotes.
CO2:	To know the various Physical and Chemical growth requirements of bacteria.
CO3:	Impart knowledge about production of beneficial bacteria.
CO4:	Basic skilling of instrumentation, microbial culture handling and maintenance.
CO5:	To understand the diverse physical and chemical conditions needed for bacterial development.

AG305: Agricultural Finance and Co-operation 3(2+1)

Course Outcomes:

CO1:	Explain the broad feature of Indian financial institutions with instruments to control credit in the country.
CO2:	Effectively narrate the kinds and components of money with its regulatory system. Be aware of the functions, objectives and limitations of commercial bank.
CO3:	Identify the existence and development of non- banking financial institutions, know the important role of mutual fund. LIC investment companies etc. Utilize and effectively participate in the development process.
CO4:	Understand the conditions of financial markets and its impact in the economy.
CO5:	Understand the macroeconomics aspects of the economy as they affect the agricultural sector.

AG 306: Farm Machinery and Power 2(1+1)

Course Outcomes:

CO1:	Various sources of farm power and their uses.
CO2:	About working of IC Engines and their uses in modern equipment's.
CO3:	About various parts of tractors and their mechanism.
CO4:	The financial aspects of using farm power.

CO5:	The various implements used in agriculture farm for various purposes.

AG307: Principles of Integrated Disease Management 3 (2+1)

Course Outcomes:

CO1:	Student will know importance of sign and symptoms for detection of pathogens and disease.
CO2:	Student acquire the knowledge of Integrated methods of disease management.
CO3:	Learn about biological and chemicals in disease management.
CO4:	Gain the knowledge about IDM modules of wheat, rice, groundnut, mustard potato, cumin, citrus and chickpea diseases.
CO5:	To develop skill in the students to make a decision of correct pest management tactics.

AG308: Environmental Studies and Disaster Management 3(2+1)

Course Outcomes:

CO1:	Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving. Interdisciplinary branches of environment and their scopes.
CO2:	Concepts of natural resources, Food resources, mineral resources, Concept of non-Conventional energy resources, types and various applications of renewable resources and current potentials of energy resources.
CO3:	Ecosystem Links between environmental components and their role and types of ecosystems.
CO4:	Types of biodiversity, their values, depletion and conservation methods.
CO5:	To know about different disasters and their management.

AG309: Statistical Methods: 2(1+1)

Course Outcomes:

CO1:	Acquaintance with some basic concepts in statistics.
CO2:	Making familiar with some elementary statistical methods of analysis of data viz. Measures of Central Tendency, Dispersion, Moments, Skewness, and Kurtosis and to interpret them.
CO3:	Analysis of data pertaining to attributes and to interpret the results.
CO4:	The aim of the course is to introduce fundamental concept of real analysis such as sequence, series of real numbers and their convergence, continuity,

	differentiability of real valued functions.
CO5:	To learn scientific view to conduct the survey in proper way to collect the data about specific perspective.

AG311: Dairy Science 3(2+1)

Course Outcomes:

CO1:	To make the students to learn about the dairy industry and marketing in India
CO2:	To make the students to learn about the technology of milk processing and various milk products.
CO3:	Students will get to learn the fundamental of cattle ranching and farming of milk production in the dairy industry
CO4:	Better Understand the basic components of dairy science.
CO5:	Students will learn about applications of membrane technology for improving quality of traditional products.

AG312: Fundamentals of Entomology-II 3(2+1)

Course Outcomes:

CO1:	To be able to identify morphological characteristics, feeding habit and habitat of agriculturally important insect-pest.
CO2:	To be able to apply concepts and analytical approaches in evolutionary biology, genetics and other areas of insect biology of the student's choice.
CO3:	categorize insects based on basic ecological, behavioural, morphological, physiological, or developmental attributes.
CO4:	To be able to examine insects deeply within a biological level of analysis and make strategies for successful pest management strategy.
CO5:	To be able to understand about different families and orders of class Insecta which cause economic losses for human beings.

SEMESTER IV

AG401: Crop Production Technology – II (*Rabi Crops)* 2 (1+1)

Course Outcomes:

CO1:	To know the Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of rabi crops.
CO2:	Identify weeds in rabi season crops, Pulses-chickpea, lentil, peas; oilseeds-rapeseed, mustard and sunflower; sugar crops-sugarcane, Medicinal and aromatic crops-mentha, lemon grass and citronella, Forage crops-berseem, lucerne and oat.
CO3:	Through proper knowledge of irrigation scheduling in rabi crops, additional area can be increased of low water requiring crops.
CO4:	Students will be able to know about the economic importance of medicinal and Aromatic crops in present sphere.
CO5:	It will be helpful to know about basic morphological characteristics of rabi crops.

AG402: Practical Crop Production – I (*Rabi Crops)* 2(0+2)

Course Outcomes:

CO1:	In the course study students will be acquainted with the knowledge of profitable crop production technology.
CO2:	Course content will help to students/farmers about ruminative crop production techniques.
CO3:	It helps to adopt diversified farming system according to available farming situation.
CO4:	It will assist to encourage the sustainable agriculture system.
CO5:	Profitable based farming system can we adopted with the help of course content

AG403: Principles of Seed Technology 3(2+1)

Course Outcomes:

CO1:	Start a seed production program for fulfil the requirement of quality seed in market and increase the income.
CO2:	Storage the pure variety seed to avoid the availability crises of pure variety seed due to adverse environmental conditions.
CO3:	To supply the disease-free seed in the market to get the environment friendly cultivation of crops.

CO4:	To increase the farm income by producing high yielding disease free quality seed and decrease the cost of cultivation also.
CO5:	Production of hybrid seed of different crops to increase the farm income.

AG404: Problematic Soils and their Management 2(1+1)

Course Outcomes:

CO1:	To provide an overview of waste lands and problematic soils in India and their management practices.
CO2:	Knowledge of various reclamation and management practices for the improvement of problematic soils.
CO3:	To make them aware of different factors responsible for their formation and properties associated with these soils.
CO4:	Students learn practically about the identification of problem soil.
CO5:	How to identify the problem and what reclamation methods are required to improve the soil health.

AG406: Renewable Energy and Green Technology 3(2+1)

Course Outcomes:

CO1:	To understand the role of renewable sources in agriculture sector.
CO2:	To understand the bio fuel production and their applications in today's world.
CO3:	To understand and utilizing the solar energy in various aspects.
CO4:	To educate the wind energy operation and its types.
CO5:	Able to understand the biomass energy generation and its technologies.

AG407: Production Technology of Ornamental Crops, MAP and Landscaping 2(1+1)

Course Outcomes:

CO1:	To evaluate natural herbal products from an economic perspective.
CO2:	To use medicinal and aromatic herbs sustainably.
CO3:	To set up business related to medicinal, aromatic and landscaping.
CO4:	To develop effective ideas related to collecting, processing and marketing herbal natural sources.
CO5:	Students will Identify various ornamental, medicinal and aromatic plants.

AG408: Entrepreneurship Development and Business Communication 2(1+1)

Course Outcomes:

CO1:	Analyse the business environment in order to identify business opportunities.
CO2:	Identify the elements of success of entrepreneurial ventures.
CO3:	Consider the legal and financial conditions for starting a business venture.
CO4:	Evaluate the effectiveness of different entrepreneurial strategies.
CO5:	Specify the basic performance indicators of entrepreneurial activity.
CO6:	Explain the importance of marketing and management in small businesses venture.
CO7:	Interpret their own business plan.

AG409: Introductory Agro-meteorology and Climate Change 2(1+1)

Course Outcomes:

CO1:	Enhancement of students' knowledge on working out critical value of weather parameters on growth rate of any crop.
CO2:	Students can efficiently handle the database on 'crop-weather relationships.
CO3:	Entrepreneurship Skills: Expertise on climate resilience agriculture motivate students towards entrepreneurship.
CO4:	Agro meteorology studies the behaviour of the weather elements that have direct relevance to agriculture and their effect on crop production.
CO5:	Agro meteorology or Agricultural meteorology studies meteorological and hydrological factors in relation to agriculture.

AG410: Agri-Informatics 2(1+1)

Course Outcomes:

CO1:	Understanding the basic concept and application of computer in Agriculture
CO2:	Application of e-Agriculture for increasing farm income
CO3:	Developing knowledge of Agricultural database management system
CO4:	To develop weather based agro advisories to sustain crop production utilizing various.
CO5:	Developing knowledge of Agricultural database management system.

AG411: Poultry Production and Management: 3(2+1)

Course Outcomes:

CO1:	The students having rigorous practical experience in an organized institutional poultry farm for a period of 4-5 months became self-confident to go for entrepreneurship on poultry.
CO2:	Be a good advisor, planner, policymaker.
CO3:	Development of project involving small scale industries on poultry became easier.
CO4:	Economics of the farm can be better assessed by these professionals involved in skill course on poultry.
CO5:	Be a good advisor, planner, policymaker.

SEMESTER V

AG501: Rainfed and Dryland Agriculture 2(1+1)

Course Outcomes:

CO1:	Ability to define and discuss the characteristics and soil and climatic conditions prevalent in rainfed and dryland areas.
CO2:	Understanding about the extent of rain
CO3:	Knowledge about the management of crop, soil, water and other natural resources in rainfed/ dryland areas.
CO4:	Ability to interpret meteorological data and to plan crop production (e.g. choice of crops, irrigation) in rainfed/ dryland areas, accordingly.
CO5:	To know about rainfed/ dryland areas in UP and India.

AG502: Crop Improvement – I (*Kharif crops)* 2(1+1)

Course Outcomes:

CO1:	In this course Students learn importance of wild relative to produce new varieties of *kharif* crop.
CO2:	Learner learns Gene preservation method for further use to improve *kharif* crops.
CO3:	Learner learns to applies breeding method to improve *kharif* crops.
CO4:	Learner learns identification of resistance gene relate to *kharif* crop with high yield potential against Pest and pathogen and utilization genes.
CO5:	Learner learns new genetic approaches to achieve a definite ideotype of *kharif* crop.

AG503: Pests of Field Crops, Stored Grains and Their Management 3(2+1)

Course Outcomes:

CO1:	Students will learn the distribution, biology and bionomics of different insect pests
CO2:	Student able to identify the nature of damage, symptoms and management of different insect pests.
CO3:	Student will determine the insect infestation with the help of different identification methods.

CO4:	Students will able to calculate the doses of different formulation of pesticides through different methods.
CO5:	Students will learn the use of different plant protection appliances Students will able to identify.

AG504: Agricultural Marketing Trade and Prices 3(2+1)

Course Outcomes:

CO1:	To develop critical ability about economic principles in marketing of Agri commodities.
CO2:	To develop understanding of different types of markets & their role, Marketing organizations and market channel.
CO3:	To learn the problems of marketing of Agricultural produce.
CO4:	To understand the process of export and import of agriculture produce.
CO5:	To demonstrate the role of government and cooperative in Agricultural Marketing.

AG505: Protected Cultivation and Secondary Agriculture 2(1+1)

Course Outcomes:

CO1:	It will aware students about different aspects of greenhouse structures, their planning and design.
CO2:	Greenhouse equipment's, materials of construction.
CO3:	To understand engineering properties such as physical, thermal and aero and hydrodynamic nature of agricultural produce.
CO4:	To understand various drying methods for agricultural produce and moisture measurement.
CO5:	To understand material handling equipment's, their principle, working and collection.

AG506: Diseases of Field and Horticultural crops and their Management- I 3(2+1)

Course Outcomes:

CO1:	Student will know the common pathogens of different diseases. agribusiness firms and multinational companies.
CO2:	Student acquire the knowledge about etiology, and symptoms of these diseases which helps in diagnosis of the diseases of field and horticultural crops
CO3:	Skill Development: This course will help the students in accurate identification of the diseases under farmer field conditions and suggesting efficient and cost-effective management strategies against them.

CO4:	The course will help students for joining the plant protection related by knowing means of dispersal of these diseases suitable management methods can be applied.
CO5:	Eco-friendly and economically suitable management practices may be adopted.

AG507: Production Technology of Fruit and Plantation Crops 2(1+1)

Course Outcomes:

CO1:	Impart basic knowledge about the importance and management of fruits (Mango, Apple, Bael, Aonla, Pear, Guava, Pomegranate, etc.) and Plantation (Tea, Coffee, Cacao, Rubber, Cashew, Arecanut etc.) crops grown in India.
CO2:	Study of commercial varieties of regional, national and international importance, eco-physiological requirements,
CO3:	Recent trends in propagation, rootstock influence, planting system, cropping systems, root zone and canopy management, nutrient management, water management, fruit set and development, abiotic factors limiting fruit production, physiological of flowering, and remedies.

AG508: Communication Skills and Personality Development 2(1+1)

Course Outcomes:

CO1:	Students will analyse basic communication skills.
CO2:	Students will enhance their verbal and non-verbal communication.
CO3:	Students will analyse intercultural communication skills.
CO4:	Students will analyse public speaking communication skills.

AG509: Intellectual Property Rights 1(1+0)

Course Outcomes:

CO1:	Skill to understand the concept of intellectual property rights.
CO2:	Develops procedural knowledge to Legal System and solving the problem relating to intellectual property rights.

CO3:	Skill to pursue the professional programs in Company Secretaryship, Law, Business, Agriculture, International Affairs, Public Administration and Other fields.
CO4:	Employability as the Compliance Officer, Public Relation Officer and Liaison Officer.
CO5:	Establishment of Legal Consultancy and service provider.

AG510: Principles of Food Science and Nutrition 3(2+1)

Course Outcomes:

CO1:	Critically evaluates information on food science and nutrition issues appearing in the popular press.
CO2:	Discuss the important pathogen and spoilage microorganism in foods.
CO3:	To know about processing of egg, meat, chicken, and other food products.
CO4:	Identity and explain nutrients in foods and the specific functions in maintaining health.

AG511: Geo-Informatics and Nanotechnology2(1+1)

Course Outcomes:

CO1:	The concept of "doing the right thing in the right place at the right time" has a strong intuitive appeal which gives farmers the ability to use all operations and crop inputs more effectively.
CO2:	More effective use of inputs results in greater crop yield and/or quality, without polluting the environment.
CO3:	Precision agriculture can address both economic and environmental issues that surround production agriculture today.
CO4:	Encourage the farmers to study of spatial and temporal variability of the input parameters using primary data at field level.
CO5:	Creating awareness amongst farmers about consequences of applying imbalanced doses of farm inputs like irrigation, fertilizers, insecticides and pesticides.

ELECTIVE COURSES

AGE51: Agribusiness Management 3(2+1)

Course Outcomes:

CO1:	To learn about the transformation of agriculture into agribusiness for raising Indian economy and new agricultural policy.
CO2:	To discuss the importance and needs of agro-based industries for development.
CO3:	To understand management functions, their roles and activities, organization culture.
CO4:	To understand management functions, their roles and activities, organization culture.
CO5:	To examine the components in a business plan and list the steps in implementation.

SEMESTER VI

AG601: Farming System, Precision Farming and Sustainable Agriculture 2(1+1)

Course Outcomes:

CO1:	To impart knowledge to the students on the fundamentals of farming systems, Precision Agriculture and sustainable agriculture.
CO2:	To study the various components of organic agriculture like Vermicompost, and Azolla farming.
CO3:	To learn the methods involved in preparation of cropping pattern and farming system to be adopted by the farmer.
CO4:	To understand the definition, concept, importance and advantages of sustainable agriculture in comparison to conventional agriculture.
CO5:	To develop basic understanding about HEIA, LEIA, LEISA and precision farming with their techniques for sustainability

AG602: Crop Improvement – II (*Rabi crops)* 2(1+1)

Course Outcomes:

CO1:	To learn about floral biology, emasculation and hybridization techniques in *Rabi* crops.
CO2:	To learn the importance of wild relatives to produce new varieties of *Rabi* crops.
CO3:	To understand to apply the breeding method to improve *Rabi* crops

CO4:	To understand hybrid seed production technology in *Rabi* crops.
CO5:	To learns the identification of resistance gene, related to *Rabi* crop with high yield potential against pest and pathogen and utilization of that genes.

AG603: Manures, Fertilizer and Soil Fertility Management 3(2+1)

CO1:	This course will provide insight into the history of soil fertility and plant nutrition, Classification, importance, preparation of manures and fertilizer, fertilizer recommendation approaches, INM, FCO, criteria of essentiality, role, deficiency and toxicity symptoms.
CO2:	They learn the mechanism of uptake and transport of minerals in plants, soil fertility evaluation, soil testing and critical level of nutrient in soil.
CO3:	They will also get acquainted with estimation of major and micronutrient in plant and soil.
CO4:	The students with general concepts and classification of manures and fertilizer.
CO5:	The students have knowledge about methods of fertilizer recommendation to crops.

AG604: Farm Management, Production and Resource Economics 2(1+1)

Course Outcomes:

CO1:	To learn about different type of farming systems.
CO2:	To learn about different principles of farm management
CO3:	To learn about different costs calculation of farm and agricultural produce.
CO4:	To learn about measurement of farm efficiency.
CO5:	To develop understand about farm budgeting procedures.

AG605: Diseases of Field and Horticultural crops and their Management- II 3(2+1)

Course Outcomes:

CO1:	Student will know the common pathogens of different diseases.
CO2:	Students acquire the knowledge about etiology, and symptoms of these diseases which helps in diagnosis of the diseases of field and horticultural crops.
CO3:	By knowing means of dispersal of these diseases suitable management methods can be applied.
CO4:	Eco-friendly and economically suitable management practices may be adopted.

CO5:	The course will help students for joining the plant protection related agribusiness firms and multinational companies.

AG606: Post-Harvest Management and Value Additions of Fruits and Vegetables 2(1+1)

CO1:	Facilitate deeper understanding on principles and methods of postharvest management of horticultural crops.
CO2:	Maturity indices, harvesting practices for specific market requirements, influence of pre- and post-harvest practices, respiration, transpiration loss.
CO3:	Physiology and biochemical change during ripening, senescence, ethylene evolution and ethylene management, factors leading to post-harvest loss and its control, pre-cooling.
CO4:	Study of postharvest loss and their control.
CO5:	Teach the physiology and principle of fruit and vegetable preservation. Fundamentals of preservation (principles and practices). Micro-organism associated with spoilage of fruits and vegetables. Source of micro-organism, conditions, infection and control.

AG607: Watershed and Wasteland Management 2(1+1)

Course Outcomes:

CO1:	This course is designed to provide a basic understanding of the impact of water and water-related issues in a global, economic, environmental, and societal context.
CO2:	It will provide the necessary knowledge and skills required for managing water resources.
CO3:	We anticipate that this course will help the participants appreciate water's importance as a precious resource.
CO4:	Describe the components of solid waste management and the laws governing it.
CO5:	Explain the operation, and maintenance of sanitary landfill.

AG-608: Beneficial Insects and Pest of Horticultural Crops and their Management 3(2+1)

Course Outcomes:

CO1:	To be able to understand types of silkworms and their biology Studentscan adopt sericulture, apiculture and lac culture as an entrepreneur.

CO2:	To understand the commercial rearing methods of beneficial insects, required equipment and their seasonal management Student will learn the social behaviour of honey bee.
CO3:	To be able to understand the different developmental stages and seasonal history of insect pests attacking horticultural and vegetable crops
CO4:	To identify and understand the use of different biocontrol agents for sustainable agriculture.
CO5:	Student able to apply their knowledge in the identification and management of diseases of beneficial insects

AGT-609: Educational Tour 2 (0+2)

Course Outcomes:

CO1:	Students will learn about the concept at site.
CO2:	Students will demonstrate the ability to communicate effectively both orally and in writing.
CO3:	Students will be able to demonstrate critical thinking and problem-solving skills.
CO4:	Students will have opportunity to learn about the facts and figures of various components under the tour.

AGE-61: Elective Course Protected cultivation 3(2+1)

Course Outcomes:

CO1:	Students will be able to understand various technical and management aspects of protected cultivation of horticultural crops.
CO2:	Helps to develop low cost protected structures for enhancing productivity of horticultural crops.
CO3:	Providing skills for designing of infrastructure for protected cultivation in different agro-climatic conditions.
CO4:	Students will learn production techniques of fruits, vegetables and flowers under protected structure in on and off seasons.
CO5:	To impart knowledge regarding recent advances in crop management under protected structure.

SEMESTER VII

AG-701: Rural Agricultural Work Experience and Agro-industrial Attachment 20 (0+20)

Course Outcomes:

CO1:	Understand the agricultural farming ecosystem.
CO2:	Acquaintance of students with farmer's ground problems and situations.
CO3:	Acquire first-hand knowledge on agricultural innovations through demonstrations and farmers survey and practical exposure with KVK/NGO/Training centres/ vocational institutes.
CO4:	To know the current scenario of government, private and NGO activities in rural development aspects in the villages.
CO5:	To learn the procedure of undertaking socio-economic studies of rural inhabitants and to have sound knowledge about agro-industrial operations of various agro-based industries in rural sustenance.

SEMESTER VIII

AG-801: Experiential Learning Programme (ELP) Hand on Training (HOT) 20 (0+20)

Course Outcomes:

CO1:	To impart hands on training to undergraduate students in bakery and confectionery.
CO2:	To cultivate capabilities and build entrepreneurship spirit and business management skills among students for creating employment
CO3:	To build the confidence and ability to work in Project Mode.
CO4:	To acquire enterprises management capabilities.
CO5:	It helps students in development of interpersonal skills.