PEO's, PO's, and PSO and Course Outcome for B.Sc. (Hons) Agriculture

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1	Imparting subject-related knowledge along with developing a connection between practical solutions and theory
PEO 2	Encourage personal growth among students and boost their self-confidence, which will give them opportunities to be an integral part of the agro-industry
PEO 3	Making the agriculture-related subjects interesting through scientific and experimental evidence.
PEO 4	Develop problem-solving skills through practical applications and research

PROGRAMME OUTCOMES (POs)

PO 1	Imparting detailed knowledge of Agriculture and its allied branches
PO 2	Facilitating detailed study of various agriculture forestry, Livestock and other allied branches required to raise the income of farmers
PO 3	Providing detailed knowledge of agriculture in India and Indian farmers income generating enterprises
PO 4	Knowledge dissemination regarding various technique of farming and farming system in India
PO 5	Study of market and marketing of agricultural produce

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO 1	Understand the impact of the professional agricultural solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PSO 2	To demonstrate research based knowledge of the legal and ethical environment impacting agriculture organizations and exhibit an understanding and appreciation of the ethical implications of decisions
PSO 3	To demonstrate an understanding of and appreciation for the importance of the impact of globalization and diversity in modern agriculture organizations. Understanding of globalization, and NGO working

PSO 4	To demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems. Ability to work effectively with others. To develop analytical ability and team work spirit
PSO 5	To understand and analyze the current events and issues that are occurring in agriculture and how they affect futuristic agriculture
PSO 6	Enable to recognize and examine the relationships between inputs and outputs in their agricultural field to make effective and profitable decisions. To understand mechanics of agripreneurship.
PSO 7	Understand how all aspects of agriculture combine and are used by scientists, marketers, producers and understand how employer characteristics and decision-making at various levels enhance the success of an agricultural enterprise. To understand components of agri business and economics of market.
PSO 8	Able to demonstrate critical thinking and problem solving skills as they apply to a variety of animal and or plant production systems .To understand problem solving skills in crop production and animal husbandry.
PSO 9	Knowledge of Weather codes and Symbols, Reading and Recording of weather and climatic data. To get trained for climatologically records, Soil data, and Plant nutrition.
PSO 10	To develop critical and self-critical opinion and approach aiming at solving the most important practical problems in the field of plant protection by applying gained competencies and in accordance with high standards of academic integrity (ethics and moral) both in the profession and in society as a whole. To develop competence to work in Government, public and private sectors.
PSO 11	Demonstrate knowledge and understanding in the horticulture section: The breadth and depth of the profession of horticulture. Basic horticulture biology: taxonomy, anatomy, morphology, and physiology. The characteristics of the environment and their influence on plant growth and development. Current applications of horticultural principles and practices: propagation, pest management, production, maintenance, and business practices. Comprehensive knowledge of horticultural production.
PSO 12	This programme will also help students to enhance their employability for jobs in different sectors

Course Outcomes

Semester-1

AGR010 – Fundamentals of Agronomy	
CO 1	This is most important for understanding the basic principles and prentices of agronomy.
CO 2	This is much useful for study seed, sowing methods, tillage and tilth, crops, weeds, Crop nutrition, and soil-plant water relationship and other things which are important in agriculture.
CO 3	It suitable and closely related to soil science, seed technology, plant breeding, etc.
CO 4	It directly provided to Acquire knowledge of the sowing method, irrigation method, weed controlling, and which one is best in different situations.
CO 5	Learn the concepts of crop rotation and its principles, Growth, and development of crops, Plant ideotype, adaptation and distribution of crops
GPB030 – Fundamentals of Genetics	
CO 1	Understanding basic principles of Mendelian inheritance.
CO 2	Study cell division & chromosome segregation
CO 3	To explore the multifactorial inheritance.
CO 4	The knowledge required to design, execute, and analyze the results of genetic Experimentation in plant systems.
CO 5	To learn the concepts of Linkage concept of sex determination and sex linked inheritance.
CO 6	Understanding the role of genetic technologies in industries related to biotechnology, Pharmaceuticals, energy, and other fields.
SAC010 – Fundamentals of Soil Science	
CO 1	Demonstrate fundamental knowledge to identify problematic soils and associated problems.
CO 2	The objectives of this course are to introduce students to problematic soils, identify processes resulting in deterioration of soil physical and chemical properties, and to

	use the fundamentals of soil science disciplines for the reclamation of degraded soils.
CO 3	At the end of the course, the student will be able to identify problematic soils, set up a plan for their reclamation, and their post-reclamation management in a manner that is sustainable.
CO 4	The course is designed to shed light on the local Jordanian environment so that students are equipped to handle, reclaim, and manage problematic soils.
AEG010 – Introductory Soil and Water Conservation Engineering	
CO 1	This course gives various information related to erosion such as causes of soil erosion, its different types and different forms of water erosion and measure to control it by semi-permanent and permanent structures.
CO 2	Course gives the knowledge of soil loss equation and how it can be estimate by using various methods such as annual soil loss by using USLE equation.
CO 3	This course helps the students to learn about various agronomical measures to control erosion such as contour cropping, crop rotation and mulching.
CO 4	This course helps the student get the knowledge about designed of Bunding, terracing and Grassed waterways at different location with appropriate slope.
CO 5	Students able to understand about the wind erosion, its cause and different measures to tackle it such as windbreak and shelterbelt
AEC010 – Fundamentals of Agricultural Economics	
CO 1	Identify most important elements of business success in agriculture and food-processing as well as elements that determine economic role of agriculture in national economy.
CO 2	Propose methods of micro- and macroeconomic decision making in agriculture in different agro-ecological and agro-economic circumstances.
CO 3	Explain models of production, supply and demand of agricultural and food products on national and international markets
CO 4	Understand the concepts of consumer choice and how it affects the farm / ranch level agriculture firm.
CO 5	Understand the macroeconomics aspects of the economy as they affect the

	agricultural sector.
CO 6	Apply economics principles to understand the conduct and performance of the agricultural industry.
CO 7	Understand the law of utility and market structure, different types of market
HRT010 – Fundamentals of Horticulture	
CO 1	Students will be able to identify plant vegetative structure
CO 2	Students will understand basic principles, processes and plant propagation methods.
CO 3	Students will understand how to propagate plant, manage and harvest a variety of plant.
CO 4	Students will learn how horticulture relates to the economy and environments, both currently and in the future.
ENT010 – Fundamentals of Entomology	
CO 1	Know about arthropods and especially insects with their morphological features
CO 2	Understand how the morphology of an organ is related to its function
CO 3	The students should be well versed with the basic concepts of insect ecology, succession, population, ecosystem and insect-ecosystem interactions.
CO 4	Introduction; identification, biology and control of different insect pests like termites, cockroaches, silver-fish, cricket, beetle, moths, lice, bugs, grasshopper etc.
CO 5	The students will acquire good knowledge of basic concepts of insect behavior.
CO 6	Introduce the students to the basics of insect classification and biodiversity of different orders up to family level..
CO 7	To provide the concept of insect sampling, fluctuation; its measurement, principles; requirements and implementation of IPM.
CSE010 – Comprehension & Communication Skills in English	
CO 1	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.

CO 2	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.
CO 3	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.
CO 4	Students will prepare and present messages with the intent of persuading an audience. Students will able to analyze basic communication skills, intercultural communication skills, interpersonal communication skills and public- speaking skills.
CO 5	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.
RAH010 – Agriculture Heritage* (Remedial)*	
CO 1	Ancient Agricultural Practices & Its relevant to modern agriculture practices.
CO 2	Traditional Technical Knowledge.
CO 3	Our Journey (Developments) in Agriculture and Vision for the Future.
HVE010 – Human Values & Ethics (non gradial)**	
CO 1	Understand the significance of value inputs in a classroom and start applying them in their life and profession
CO 2	Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.
CO 3	Understand the value of harmonious relationship based on trust and respect in their life and profession
CO 4	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.
CO 5	Knows the importance of core human value and ethics and understand the concept of motivation and different theory of motivation

CO 6	Understand the concept and importance of self awareness , self satisfaction , Selfless service and spirituality
CO 7	Knows the self exploration and process of self exploration and understand the concepts of body, soul and ,mind
CO 8	Knows the aim of the life and analysis problems of life and decision making process.
CO 9	Understands the importance of identifying goal of life and steps to achieve goal

PED010 – NSS/NCC/Physical Education & Yoga Practices**

CO 1	To develop qualities of character, courage, comradeship, discipline, leadership, secular outlook.
CO 2	The ultimate goal of Yoga is moksha (liberation), although the exact definition of what form this takes depends on the philosophical or theological system with which it is conjugated.

Semester-II

APP010 – Fundamentals of Plant Pathology

CO 1	Student will acquaint about concepts of plant pathogens, major disease causing organisms and their etiology
CO 2	To provide specific knowledge about host pathogen interactions.
CO 3	Recognition of plant disease is the first step in doing something about them.
CO 4	To give specific knowledge about environment and disease development.

EXT010 – Fundamentals of Agricultural Extension Education

CO 1	Concept of Agriculture extension , principle and philosophy of Extension.
CO 2	Education; Extension Programme planning Meaning, Process, Principles and Steps in Programme Development.
CO 3	Extension systems in India: Extension efforts in Pre-independence era and post independence era.

CO 4	New trends in agriculture extension: privatization extension.
CO 5	Monitoring and evaluation – concept and definition, monitoring, and evaluation of Extension programmes, Transfer of Technology- Concept and models
CO 6	Agricultural development programme
CO 7	Community development and rural development
CO 8	Various Extension teaching method , communication and models of communication .
BPM030 – Agricultural Microbiology (BPM030)	
CO 1	The students were able to understand the basic microbial structure and function; and could study the comparative characteristics of prokaryotes and eukaryotes.
CO 2	Also, the students became acquainted with the various physical and chemical growth requirements of bacteria and fungi.
CO 3	Imparted the knowledge about the production and use of beneficial microorganisms in agriculture and industries.
CO 4	The students became aware of the significance of microorganisms in water and food.
EXT040 – Communication Skills and Personality Development	
CO 1	Students will analyze basic communication skills, written skills and oral presentation skills.
CO 2	Students will analyze intercultural communication skills.
CO 3	Students will analyze interpersonal communication skills.
CO 4	Students will analyze public speaking communication skills.
CO 5	Students will understand types of communication and models of communication.
CO 6	Students will understand the procedure of précis writing, indexing, abstracting, bibliography writing, footnote and note taking.
BPM010 – Fundamentals of Plant Biochemistry and Biotechnology (BPM010)	

CO 1	Role of cell organelles and their functions
CO 2	Functions of biomolecules and their utility in cell
CO 3	Identify the deficiency symptoms of biomolecules
CO 4	Synthesis pathways of biomolecules and regulations
CO 5	Identification of biomolecules in given sample
CO 6	Application of plant tissue culture in crop improvement
CO 7	Tackled the problems in convention breeding
CO 8	Plant tissue culture is a area of entrepreneurship
BPF010 – Introduction to Forestry	
CO 1	The students were imparted basic information about various harvesting, transportation and processing systems used in the management of forest resources and production of forest products
CO 2	The students became acquainted with the management plans with multiple objectives and constraints.
CO 3	The students could learn how to develop and apply siliviculture prescriptions appropriate to the management objectives.
CO 4	The students could understand analyze the forest inventory information and project future forest stand and tree conditions
BPM020 – Fundamentals of Crop Physiology (BPM020)	
CO 1	To understand basic principles of plant physiological form and functions as well as processes and its importance in crop production
CO 2	Role of crop physiology in crop health
CO 3	Identification of deficiency symptoms of nutrients
CO 4	To understand the metabolic and synthetic pathway of biomolecules
CO 5	To know the difference between C3, C4 and CAM plant

CO 6	Importance of growth Harmon in Agriculture

EXT020 – Rural Sociology & Educational Psychology

CO 1	Understand concept of rural sociology, its importance in agricultural extension, characteristics of Indian rural society
CO 2	Understand social groups, social stratification, culture, social values, social control and attitudes, leadership and training.
CO 3	Understand concept of educational psychology, intelligence, personality, perceptions, emotions, frustration, motivation, teaching and learning
CO 4	Acquaint with characteristics of rural society, village institutions and social organizations. Select lay leaders and train them.
CO 5	Assess personality types, leadership types and emotions of human beings iv. Create a training situation under village conditions

REM010 – Elementary Mathematics* (Remedial)*

CO 1	Demonstrate an understanding of the foundations of mathematics.
CO 2	Perform computations in higher mathematics.
CO 3	Read and understand middle-level proofs.
CO 4	Write and understand basic proofs.
CO 5	Develop and maintain problem-solving skills.
CO 6	Use mathematical ideas to model real-world problems.
CO 7	Communicate mathematical ideas with others.
CO 8	Utilize technology to address mathematical ideas.
CO9	Obtain a full-time position in a related field or placement.

Semester-III

AGR030 – Crop Production Technology – I *(Kharif Crops)*

CO 1	In the course study the students will be able to know about origin, geographical

	distribution, and economic importance of Kharif crops.
CO 2	In the course study the students will be able to know about Soil and climatic requirements, varieties, cultural practices and yield of Kharif crops.
CO 3	Analysis of comparative benefits of the different Kharif crops
CO 4	Constraints in production of oilseeds and pulses maybe identified through course content.
CO 5	Production technology of Kharif cereals and millets fulfill the need of human consumption and milch cattle.
GPB030 – Fundamentals of Plant Breeding	
CO 1	To understand about plant breeding- introduction and historical concepts.
CO 2	To learn about different plant breeding objectives.
CO 3	Establish the commercial plant breeding company to developed new superior crops Varieties.
CO 4	To learn the concept of self -incompatibility and male sterility.
CO 5	To study about the components of genetic variations.
CO 6	To study about the detail study of different farmer and plant breeder right rights
CO 7	To understand about plant breeding- introduction and historical concepts.
CO 8	Develop the insect and disease resistant varieties for environment friendly management of disease and insect
AEC020 – Agricultural Finance and Cooperation	
CO 1	Explain the broad feature of Indian financial institutions with instruments to control credit in the country.
CO 2	Effectively narrate the kinds and components of money with its regulatory system .Be aware of the functions, objectives and limitations of commercial bank.
CO 3	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.
CO 4	Understand the conditions of financial markets and its impact in the economy.
CO 5	Understand the macroeconomics aspects of the economy as they affect the agricultural sector.
CO 6	Apply economics principles to understand the conduct and performance of the agricultural industry.
SCA020 – Agriculture Informatics	
CO 1	Understand analogy of computer
CO 2	Basic knowledge of MS Office
CO 3	Some basic knowledge of Internet and WWW
CO 4	Use of IT application and different IT tools in Agriculture
CO 5	Use of Decision support systems, Agriculture Expert System and Soil Information Systems in Agriculture
AEG020 – Farm Machinery and Power	
CO 1	Students able to know about the importance and contribution of various sources of farm power and their availability in India.
CO 2	After completion of this course students were able to recognized different Components of IC Engines and various system associated with it such as cooling system, lubrication system fuel system and its components
CO 3	In This course student learns about different components of IC Engines of tractor such as gear box, clutch box, differential, final drive and their functions and components.
CO 4	This course gives information about various primary and secondary tillage systems which can operated manually or the help of animals and also power operated with their components.
CO 5	This course also gives information related sowing and various plant protection equipments such as seed drill, planter, sprayers and duster.
CO 6	It also gives brief knowledge about various harvesting and threshing equipment

HRT030 – Production Technology for Vegetables and Spices	
CO 1	Students will understand practical knowledge on specialized production techniques of vegetables and spices.
CO 2	Students understand will Importance of vegetables & spices in human nutrition improved and national economy.
CO 3	Students will knowledge about quality requirement and production and techniques
CO 4	Managing skill for solving field problems.
BPE010 – Environmental Studies and Disaster Management	
CO 1	Appreciate concepts and methods from ecological and physical sciences and their Application in environmental problem solving. Interdisciplinary branches of environment and their scopes.
CO 2	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.
CO 3	Ecosystem Links between environmental components and their role and types of Ecosystems.
CO 4	Types of biodiversity, their values, depletion and conservation methods.
CO 5	Basic Structure of atmosphere and their functions Current problems related issues context in solving environmental issues such as environmental health, food and agriculture, energy, waste and pollution, climate change, management, Basic knowledge about water recourses, current problems related issues, water born diseases, technologies of water treatment.
CO 6	Composition of solid waste, sources of generation, collection and disposal methods of solid waste, recycling, reuse of wastes
CO 7	Urban problems related to energy, Water conservation, rain water harvesting, and watershed management. Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion.
CO 8	Public awareness. Human Population and the Environment: population growth, variation among nations, population explosion, Family Welfare Programme. Environment and human health: Human Rights, Value Education, HIV/AIDS. Women and Child Welfare Role of Information Technology in Environment and

	human health.
CO 9	Meaning and nature of natural disasters, their types and effects and management.
SCA010 – Statistical Methods	
CO 1	Acquaintance with some basic concepts in statistics.
CO 2	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.
CO 3	Analysis of data pertaining to attributes and to interpret the results.
AHP010 – Livestock and Poultry Management	
CO 1	Develop and evaluate animal production and management systems by integrating Knowledge of animal genetics, nutrition, reproduction, and other relevant disciplines and applying scientific and quantitative reasoning to solve real-world challenges.
CO 2	Locate, critically evaluate, and apply information from scholarly animal science literature and other sources to expand personal understanding and knowledge of animal sciences, providing a foundation for lifelong learning.
CO 3	Create and interpret graphs, tables and diagrams illustrating scientific data and concepts, and understand basic concepts relating to the design and analysis of research in the animal sciences.
CO 4	Communicate effectively about animal sciences to a range of audiences, both orally and in Writing, using appropriate traditional and emerging media.
CO 5	Engage actively and effectively in discussion of complex issues relevant to the animal science by understanding and appreciating:
Semester-IV	
AGR040 – Crop Production Technology –II *(Rabi Crops)* (AGR040)	
CO 1	In the course study, students will be acquainted with the knowledge of profitable crop Production technology.

CO 2	To know the Origin, geographical distribution, economic importance, soil and climatic Requirements, important varieties, pest, and diseases resistance varieties, cultural practices, and yield of Rabi crops
CO 3	Identify different weeds in rabi season crops Pulses-chickpea, lentil, peas; oilseeds-rapeseed,Mustard and sunflower; sugar crops-sugarcane, and Forage crops-berseem, lucerne and oat with details study on improving their package and practices and storages technologies.
CO 4	Through proper knowledge about irrigation scheduling in Rabi season crops, the additional area can Increase of low water required crops.
CO 5	It will be helpful to know about the basic morphological characteristics of rabi crops.

HRT040 – Production Technology for Ornamental Crops, MAP and Landscaping

CO 1	To impart basic knowledge about the production technology of ornamental crops grown in India.
CO 2	Detailed Knowledge to students Importance and scope of ornamental crops, medicinal and aromatic plants and landscaping.
CO 3	To understand the scientific cultivation methods of different ornamentals crops like rose, gerbera, carnation, lilium and orchids under protected conditions.
CO 4	To understand the scientific cultivation methods of Medicinal crops like asparagus, aloe, costus, cinnamomum, periwinkle, isabgol etc.
CO 5	To know more about use of medicinal and aromatic herbs sustainably.
CO 6	To know more about origin, area, climate, soil, improved varieties and cultivation practices such as time and methods of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, weed management, harvesting and yield.
CO 7	To study the crops like aromatic crops like lemongrass, mint, lemongrass, citronella, palmarosa, ocimum, geranium, vetiver etc.
CO 8	Know about landscaping and its features.
CO9	To know more about Processing and value addition in ornamental crops and MAPs produce.

AEG030 – Renewable Energy and Green Technology	
CO 1	To understand the role of renewable sources in agriculture sector.
CO 2	To understand the bio fuel production and their applications in today's world.
CO 3	To understand and utilizing the solar energy in various aspects.
SAC030 – Problematic Soils and their Management	
CO 1	Demonstrate fundamental knowledge to identify problematic soils and associated problems.
CO 2	The objectives of this course are to introduce students to problematic soils, identify processes resulting in deterioration of soil physical and chemical properties, and to use the fundamentals of soil science disciplines for the reclamation of degraded soils.
CO 3	At the end of the course, the student will be able to identify problematic soils, set up a plan for their reclamation, and their post-reclamation management in a manner that is sustainable.
CO 4	The course is designed to shed light on the local Jordanian environment so that students are equipped to handle, reclaim, and manage problematic soils.
HRT020 – Production Technology for Fruit and Plantation Crops	
CO 1	To know importance and scope of fruit and plantation crop industry in India.
CO 2	Understand the scientific cultivation methods of different fruit crops like mango, banana, citrus, grape, guava, litchi, papaya, apple, pear, peach etc.
CO 3	To understand the scientific cultivation methods of plantation crops like coconut, arecanut, cashew, tea, coffee & rubber.
CO 4	To know more about origin, area, climate, soil, improved varieties and cultivation practices such as time and methods of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, weed management, harvesting and yield.
CO 5	To know about different propagation techniques in fruit crops & plantation crops.
CO 6	To Understanding the concept of High density plantation in different fruit crops.
CO 7	To know about canopy management of different fruit crops

GPB020 – Principles of Seed Technology

CO 1	Start a seed production program for fill full the requirement of quality seed in market and increase the income.
CO 2	Storage the pure variety seed to avoid the availability crises of pure variety seed due to adverse environmental conditions.
CO 3	To supply the disease free seed in the market to get the environment friendly cultivation of crops.
CO 4	To increase the farm income by producing high yielding disease free quality seed and decrease the cost of cultivation also.
CO 5	Production of hybrid seed of different crops to increase the farm income.

AGR050 – Farming System & Sustainable Agriculture

CO 1	The student will be able to explain the major aspects of agricultural practices and traditions through time and throughout the world.
CO 2	Students will be able to explain in general the relationships among culture, economics, politics, science, and agricultural development.
CO 3	To understand various enterprises including farming system.
CO 4	Students studied types of farming, crop rotation and other practices of field.
CO 5	To show how agricultural scientists are attempting to minimize agricultural pollution and sustain food production adequate for the world's population

AEC030 – Agricultural Marketing Trade & Prices

CO 1	Optimization of Resource use and Output Management
CO 2	Increase in Farm Income
CO 3	Growth of Agro-based Industries
CO 4	Adoption and Spread of New Technology
CO 5	Addition to National Income

AGR020 – Introductory Agro-meteorology & Climate Change

CO 1	To understand roles of agro-meteorology in agriculture and impact of abiotic factors in crop production.
CO 2	Agro-meteorology studies forecasting of weather and crop planning.
CO 3	Agro-meteorology studies the behavior of the weather elements that have direct relevance to agriculture and their effect on crop production.
CO 4	To understand various types of meteorological instruments.
CO 5	Weather and climate are the factors determining the success or failure of agriculture.

ETC004 – Elective Course-Soil, Plant, Water and Seed Testing

CO 1	Study about principles of different instruments like pH, EC, spectrophotometer, Flame photometer etc.
CO 2	Study of soil analysis, soil sampling, plant analysis, water analysis and seed germination testing.
CO 3	Analysis of irrigation water for better irrigation
CO 4	Study about seed vigour, seed viability and seed germination.

Semester-V

AGR060 – Practical Crop Production – I (*Kharif* crops)

CO 1	In the course study, students will be acquainted with the knowledge of profitable crop Production technology.
CO 2	Course content will help to students/farmers about ruminative crop production techniques.
CO 3	It helps to adopt diversified farming system according to available farming situation.
CO 4	It will assist to encourage the sustainable agriculture system
CO 5	Profitable based farming system can we adopted with the help of course content

AGR090 – Geoinformatics and Nano-technology for Precision Farming

CO 1	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.
CO 2	More effective use of inputs results in greater crop yield and/or quality, without polluting the environment.
CO 3	Precision agriculture can address both economic and environmental issues that surround production agriculture today.
CO 4	Encourage the farmers to study of spatial and temporal variability of the input parameters using primary data at field level.
CO 5	Creating awareness amongst farmers about consequences of applying imbalanced doses of farm inputs like irrigation, fertilizers, insecticides and pesticides.

GPB040 – Crop Improvement-I *(Kharif Crops)*

CO 1	In this course Students learn importance of wild relative to produce new varieties of kharif crop.
CO 2	Learner learns Gene preservation method for further use to improve kharif crops.
CO 3	Learner learns to applies breeding method to improve kharif crops.
CO 4	Learner learns identification of resistance gene relate to kharif crop with high yield potential against Pest and pathogen and utilization genes.
CO 5	Learner learns new genetic approaches to achieve a definite ideotype of kharif crop.

APP020 – Diseases of Field and Horticultural Crops and their Management -I

CO 1	Student will know the common pathogens of different diseases.
CO 2	Student acquire the knowledge about etiology, and symptoms of these diseases which helps in diagnosis of the diseases of field and horticultural crops
CO 3	By knowing means of dispersal of these diseases suitable management methods can be applied.
CO 4	Eco-friendly and economically suitable management practices may be adopted.

APP040 – Principles of Integrated Pest and Disease Management

CO 1	Students will know principles and utilization of integrated pest management of field crops.
CO 2	To study IPDM tools and principles.
CO 3	To explore IPM strategies for management of disease
CO 4	To acquire the bio-agent with high multiplication rate.
CO 5	To learn the concepts of sustainable farming and less ecological hazards.
CO 6	To gain knowledge about the plant disease and pest management through non-chemical approaches.

ENT020 – Pests of Crops and Stored Grain and their Management

CO 1	Familiarized with identification of different insect pest of field, horticulture, ornamentals, vegetables and stored grains at the field level.
CO 2	Understand how insects affect animal and Plant health and agricultural production, and be able to safely manipulate populations of beneficial and destructive species in habitats and in production agro-ecosystems with minimal environmental impact.
CO 3	To be able about the biology, diversity, distribution of insects, and their relationships to crop and the environment condition of a particular area.
CO 4	To understand identification of nature of damage and symptoms caused by the pest so suitable technique of pest management can be apply for effective control.
CO 5	Management of crop pest through Integrated Pest Management approach without side effect on plant, animal and environment health.

SAC020 – Manures, Fertilizers and Soil Fertility Management

CO 1	Knowledge of different manure and fertilizers used in different crops according to soil condition
CO 2	To understand essentiality of plant nutrients and mechanism of nutrient transport to plant and factor affecting nutrient availability.
CO 3	To be able about procedure of soil testing and establish soil testing laboratory in future as a entrepreneur.

EXT030 – Entrepreneurship Development and Business Communication

CO 1	Understands the identify and define problems and opportunities.
CO 2	Effectively communicate business issues, management concepts.
CO 3	To identify a business problem.
CO 4	To study SWOT analysis and its advantages.
CO 5	To study proposal writing.
CO 6	To study the decision making process.
CO 7	To learn the concepts of Entrepreneurship development and business communication.
CO 8	To gain knowledge about the functions of Entrepreneur.
SCA030 – Intellectual Property Rights	
CO 1	Skill to understand the concept of intellectual property rights.
CO 2	Develops procedural knowledge to Legal System and solving the problem relating to intellectual property rights.
CO 3	Skill to pursue the professional programs in Company Secretary ship, Law, Business, Agriculture, International Affairs, Public Administration and Other fields.
CO 4	Employability as the Compliance Officer, Public Relation Officer and Liaison Officer.
CO 5	Establishment of Legal Consultancy and service provider.
ETC005 – Landscaping (Elective Course)	
CO 1	To develop an understanding of the plant material in Landscape Design.
CO 2	Examine the characteristics of Plants with reference to the plant material in design.
CO 3	Field trips with experts are required to identify the specific characteristics of the plants.
CO 4	Students are required to prepare a herbarium.
CO 5	Understanding of the profession of landscape architecture through a dynamic,

	interactive, online and live format
CO 6	To study about management of garden.
CO 7	To study about plant propagation-methods ornamental plants.
CO 8	To study about Principles and methods of training and pruning
CO 9	To identify importance and scope; horticulture.
CO 10	To identify the garden tools.
CO 11	To identify the horticultural crops.

Semester-VI

AGR070 – Practical Crop Production –II (*Rabi* crops)

CO 1	In the course study, students will be acquainted with the knowledge of profitable crop Production technology.
CO 2	To study of Identify different Rabi season weeds and crop bound weeds and their control measures and their economic value,
CO 3	Through proper knowledge about irrigation scheduling in Rabi season crops, the additional area can Increase of low water required crops
CO 4	It will be helpful to know about basic morphological characteristics of Rabi crops.
CO 5	In the course study, students will be acquainted with the knowledge of profitable crop Production technology.

AGR080 – Principles of Organic Farming

CO 1	In the course study students will be acquainted with the knowledge of concept and principles of organic production technology and Role of organic farming in National economy.
CO 2	Selection of crops and varieties cereals pulses and commercial for organic farming and increase production of organic products
CO 3	Details study and get practical knowledge of Vermicompost production methodology; harvesting

CO 4	It provided details knowledge on Indigenous technology knowledge (ITK); Quality analysis of organic inputs and products; Relative economics of organic production programmes Socio-economic impacts
CO 5	It in provided details Practical knowledge as well theoretical knowledge on Indigenous technology knowledge (ITK); Quality analysis of organic inputs and products; Relative economics of organic production programmes Socio-economic impacts
CO 6	Explain certification process and standard of organic produce: Certification process is assurance initiative
AGR100 – Rainfed Agriculture & Watershed Management	
CO 1	The term Rain fed agriculture is used to describe farming practices that rely on rainfall for water.
CO 2	A major study into water use by agriculture, known as the Comprehensive Assessment of Water Management in Agriculture, coordinated by the International Water Management Institute, noted a close correlation between hunger, poverty and water. However, it concluded that there was much opportunity to raise productivity from rainfed farming.
CO 3	Rainfall water can be use for a larger area by suitable watershed management techniques
CO 4	Conservation of soil by adopting latest soil conservation techniques will help in obtaining higher production of Rainfed crops
GPB050 – Crop Improvement-II *(Rabi crops)*	
CO 1	In this course Students learn importance of wild relative to produce new varieties of Rabi crop.
CO 2	Learner learns Gene preservation method for further use to improve Rabi varieties.
CO 3	Learner learns to applies breeding method to improve Rabi crops.
CO 4	Learner learns identification of resistance gene relate to Rabi crop with high yield potential against Pest and pathogen and utilization genes.
CO 5	Learner learns new genetic approaches to achieve a definite ideotype of Rabi crop.
APP030 – Diseases of Field and Horticultural Crops and their Management-II	

CO 1	Student will know the common pathogens of different diseases.
CO 2	Student acquires the knowledge about etiology, and symptoms of these diseases which helps in diagnosis of the diseases of field and horticultural crops.
CO 3	By knowing means of dispersal of these diseases suitable management methods can be applied.
CO 4	Eco-friendly and economically suitable management practices may be adupted.

ENT030 – Management of Beneficial Insects

CO 1	Students can adopt apiculture, sericulture and Lac culture as an entrepreneur according to agro climatic zone.
CO 2	To understand commercial methods of rearing, equipment, seasonal management, insect- pest and disease and important species for commercial use of honey bee, silkworm and Lac insect.
CO 3	Identification of different bio control agents (Predator, Parasite and Parasitoids) and their use for sustainable pest management.
CO 4	Learn about mass multiplication technique of biological control agents and established a bio control lab in future as an entrepreneur.

HRT050 – Post-harvest Management and Value Addition of Fruits and Vegetables

CO 1	Understand the post harvest technology of horticultural crops.
CO 2	Understand the value addition of horticulture crops.
CO 3	Understand the work space, tool and equipment design for PHT and value addition.
CO 4	Study the various factors affecting the quality of product.
CO 5	Study the various preservation methods.
CO 6	Study the various certification and accreditation i.e. FPO, ISO and other leveling

AEG040 – Protected Cultivation and Secondary Agriculture

CO 1	To get knowledge about green house technology, types of green houses and

	construction of green houses.
CO 2	Course will give the knowledge of Green house equipments, materials of construction for traditional and low cost green houses.
CO 3	Course will give the knowledge of substrates, types of benches and containers.
CO 4	This course will help the students to learn about Irrigation systems used in greenhouses, fertigation, and shade net house in protected cultivation.
CO 5	By this course student get the concepts of cleaning and grading moisture measurement.
CO 6	Students will be able to understand the material handling equipment, principle and working.
AEC040 – Farm Management, Production & Resource Economics	
CO 1	The course contains a comprehensive treatment of the traditional agricultural production economics topics employing both detailed graphics and differential calculus.
CO 2	Focus on the neoclassical factor-product, factor-factor and product- product models, and is suitable for an advanced undergraduate or a beginning graduate –level course in static production economics.
CO 3	Understand limited resources available in the economy. Realize the need to exploit and utilize through development and improvement of production techniques.
CO 4	Make them aware of the availability of rich natural endowments to achieve sustainable agricultural development with this knowledge they can challenge the problems of unemployment inequality shortage of food productions, poverty and be useful to compete advanced agricultural economies.
CO 5	Gain knowledge of the causes of regional variations in productivity and production, social and economic inequality, size of land holdings and lack of quality inputs etc. And suggest appropriate measures for the whole economy.
FSC010 – Principles of Food Science and Nutrition (FSC010)	
CO 1	Critically evaluates information on food science and nutrition issues appearing in the popular press

CO 2	Discuss the important pathogen and spoilage microorganism in foods.
CO 3	Discuss basic principles and practices of cleaning and sanitation in food preparation operation.
CO 4	Identity and explain nutrients in foods and the specific functions in maintaining health

ETC011 – Hi-tech. Horticulture (Elective Course)

CO 1	To impart basic knowledge about the importance Nursery management and mechanization.
CO 2	To know more about the techniques of micro propagation of horticultural crops.
CO 3	To know more about Modern field preparation and planting methods.
CO 4	To know more about protected cultivation: advantages, controlled conditions, method and techniques.
CO 5	To study the micro irrigation systems and its components; EC, pH based fertilizer scheduling
CO 6	Know about Components of precision farming: Remote sensing, Geographical Information System (GIS), Differential Geo-positioning System (DGPS), Variable Rate applicator (VRA), application of precision farming in horticultural crops.
CO 7	To study the canopy management and high density orcharding

Semester-VII

Rural Agricultural Work Experience and Agro-industrial Attachment (RAWE &AIA)

Component-1: Rural Agricultural Work Experience (RAWE)

CO 1	Rural awareness
CO 2	Field experience
CO 3	Knowledge on field based research and extension methodologies
CO 4	Exposure to administration and management issues in context of rural and agricultural development

CO 5	Acquainted with recent advancement in research and extension
CO 6	Updating and collecting information through different methods
CO 7	Understanding rural life
CO 8	Learning of bottom-up approach in planning
CO 9	Learning the techniques of stakeholders' participation in developmental programmes
CO 10	Understanding local institutions and their need
CO 11	Conflict management and negotiation skill
CO 12	Management of different components of farming system
CO 13	Impact of rural and agricultural development on rural livelihood
CO 14	Knowledge on gender mainstreaming in agriculture

Component:2 Agro-industrial Attachment (AIA)

CO 1	Acquaintance with industry and staff
CO 2	Study of structure, functioning, objective and mandates of the industry
CO 3	Study of various processing units and hands-on trainings under supervision of industry staff
CO 4	Ethics of industry
CO 5	Employment generated by the industry
CO 6	Contribution of the industry promoting environment
CO 7	Learning business network including outlets of the industry
CO 8	Skill development in all crucial tasks of the industry

Semester-VIII

Module-1: Production Technology for Bio-Agents and Bio Fertilizers (ELP/M—01)

CO 1	Got the knowledge about various types of bio-agent in field crops and how to release bio-agent in field.
CO 2	Identified bio-agents and understanding the benefits of biological control
CO 3	Student studied about different kind of bio-fertilizer and done the practical work for their methods of preparation.
CO 4	Students learned about bio fertilizer and bio agent companies and also about their future.
Module-2: Seed Production and Technology (ELP/M—02)	
CO 1	Start a seed production program for fill full the requirement of quality seed in market and increase the income.
CO 2	Storage the pure variety seed to avoid the availability crises of pure variety seed due to adverse environmental conditions.
CO 3	To supply the disease free seed in the market to get the environment friendly cultivation of crops.
CO 4	To increase the farm income by producing high yielding disease free quality seed and decrease the cost of cultivation also.
CO 5	Production of hybrid seed of different crops to increase the farm income.
Module-3: Mushroom Cultivation Technology (ELP/M—03)	
CO 1	Students will know about identification and nomenclature of mushroom.
CO 2	Identify edible types of mushroom.
CO 3	Gain the knowledge of cultivation of different types of edible mushrooms and spawn Production.
CO 4	Manage the diseases and pests of mushrooms.
CO 5	Learn a means of self-employment and income generation.
Module-4: Poultry Production Technology (ELP/M—06)	
CO 1	Students able to know about the importance and contribution of poultry in meat sector in India as well as whole world.

CO 2	After completion of this course students were able to recognized different characteristics Indian and foreign breeds of chicken.
CO 3	This course helps the students about different aspects of poultry such as its management of chicks, broiler and layer, their feeding and water requirement and feed manufacturing.
CO 4	This course gives information about various environmental conditions and different equipment used to maintain those conditions.
CO 5	This course also gives information related to housing requirement of poultry such as floor space, different housing system their advantages and disadvantages.
CO 6	By studying this course student also able to know about various disease and vaccination which are used for poultry at different stage of their life.
Module-5: Commercial Horticulture (ELP/M—07)	
CO 1	Students will be able to identify plant propagation structure.
CO 2	Students will understand basic principles, processes and plant propagation methods.
CO 3	Students will understand how to propagate plant in nursery and its management.
CO 4	Students will understand how to produce quality planting material.
CO 5	Students will learn how commercialize horticulture crops for enhance the economy.
Module-6: Food Processing (ELP/M—09)	
CO 1	To understand about planning and execution of a market survey
CO 2	To learn about preparation of processing schedule and preparation of project module based on market information.
CO 3	To learn about calculation of capital costs, source of finance, assessment of working capital requirements and other financial aspects.
CO 4	To understand about identification of sources for procurement of raw material.
CO 5	To learn about production and quality analysis of fruits and vegetables products at commercial scale**.**
CO 6	To learn about packaging, labeling, pricing and marketing of products

Module-7: Agriculture Waste Management (ELP/M—10)

CO 1	Students are aware of the definition of waste management and fundamentals like RRR.
CO 2	Students are introduced to best management practices in agriculture.
CO 3	The student acquires knowledge of various waste management methods like MBO, land filling, composting and incineration.
CO 4	Investigate environmental impacts of traditional farming and agriculture.
CO 5	Examining the benefits of waste management in the fields and ensuring the maximum profit from agriculture.
CO 6	To reduce the cost of agriculture by studying the methods of making the remaining waste useful in agricultural work

Module-8: Organic Production Technology (ELP/M—11)

CO 1	In the course study, students will be acquainted with the knowledge of concept and principles of organic production technology and Role of organic farming in National economy.
CO 2	Selection of crops and varieties cereals, pulses and commercial for organic farming and increase production of organic products
CO 3	Details study and get practical knowledge of Vermicompost production methodology; harvesting, storing and packing of vermin compost; Management of residue under organic farming; Aerobic and anaerobic methods of compost making
CO 4	It provided details knowledge on Indigenous technology knowledge (ITK); Quality analysis of organic inputs and products; Relative economics of organic production programmes Socio-economic impacts, marketing and export potential of organic products
CO 5	It provided details Practical knowledge as well theoretical knowledge on Indigenous technology knowledge (ITK); Quality analysis of organic inputs and products; Relative economics of organic production programmes Socio-economic impacts, marketing and export potential of organic products
CO 6	Explain certification process and standard of organic produce: Certification process is assurance initiative, intended to assure quality, prevent fraud and promote commerce, based onset of standard and ethics

Module-9: Nursery Management (ELP/M—12)

CO 1	To impart basic knowledge about principles and practices of propagation and nursery management for Horticultural Crops.
CO 2	To know more about the techniques of Nursery raising in field.
CO 3	To study the different method of Seed treatments for breaking dormancy and inducing vigorous seedling growth.
CO 4	To know more about Media for nursery bed preparation and seed sowing.
CO 5	To know more about Propagation/nursery structures, humidifiers, greenhouses, glasshouses, hot beds, cold frames, poly-houses.
CO 6	To Understand the Nursery techniques, and method of plants propagation in nursery beds.
CO 7	To know more about use of nursery tools, implements.
CO 8	To know more about Propagation through specialized organs, corm, runners, suckers.
CO9	To Understand the Maintenance of nursery records.

SUGGESTED CAREER OPPORTUNITIES

1. Agriculture Field Officer in Nationalized Bank
2. Career in State Agriculture Department like RAEO, RHEO, FEO, Agriculture Supervisor, Assistant Agriculture Officer etc.
3. Technical Assistant and Project assistant in Agricultural Research Station
4. Quality Control Officer in State/Central Warehouse Corporation
5. Junior and Senior trainee in National Seed Corporation
6. Trainee National Fertilizer limited
7. Assistant Manager IFFCO
8. Trainee Food Corporation of India

9. Marketing Representative, Sales Manager, Agriculture field manager, Territory manager, HR in corporate sectors like Fertilizer Company, Pesticides Company, Seed Industries etc