



**Faculty of Agricultural Sciences (IAS)
Siksha 'O' Anusandhan, Deemed to be University**

B.Sc.(Ag.) as per 4th Dean's committee (2013-14 to 2015-16)

Programme Outcomes:

- The agricultural graduates will be able to guide the farmers on selection of crops/ variety and provide production technologies based on agro-ecological situations and farmers resources.
- They develop the knowledge in providing solution to raising crops with respect to management of nutrients, water and disease and pests both in agronomical and horticultural crops.
- They acquire the skill to translate the crop- based scientific recommendation in farmers language and transmit them to the farming community for adoption.
- They develop basic knowledge on different courses related to different disciplines of agricultural sciences to pursue higher education in respective discipline of their interest and employment in different govt. and non-govt. sectors and also to take up agri-based entrepreneurship.

1st Year 1st Semester

AG 111 Introductory Agriculture 1(1+0)

Course Outcomes:

- At the end of session, students will understand the applicability of old and sustainable agril. practices in present day agricultural practices.
- Self employment capability through agro-entrepreneurship development
- Students can enhance their knowledge as well as develop eco-friendly farming system models

AG 112 Principle of Agronomy and Agricultural Meteorology 3(2+1)

Course Outcomes:

- Students are aware to understand the occurrence of different weather parameters, recording of data of weather elements and their interpretation in crop growth and production.
- Students will be acquainted with the weather forecast system, and can help the farmers in adopting necessary measures suggested through agro advisory service.
- Develops knowledge to Identify fertilizers, can advise farmers the crop based dose and commercial requirement and suitable farm implements for crops under different land types.

PB 111 Principles of Genetics 3(2+1)

Course Outcomes:

- Knowledge on the basic principles of heredity and variation.
- Understanding on cytogenetics, polyploidy, mutation and gene expression.
- Development of analytical, quantitative and problem solving skills from classical to molecular genetics.
- Help the students in understanding the upcoming courses related to plant breeding and genetics.

SC 111 INTRODUCTION TO SOIL SCIENCE 3(2+1)

Course Outcomes:

- Students will gain knowledge regarding soil physical properties and processes in relation to plant growth.
- They will get a brief overview on origin of the earth, rocks and minerals, weathering and soil formation.
- practical excellence in soil sampling and qualitative analysis of some important soil parameters.

AT-111 Fundamentals of Soil and Water Conservation Engineering 3(2+1)

Course Outcomes:

- Proper management of land and water will help to maintain the soil fertility by reducing the erosion and increasing moisture content
- Enhancement of economic benefit of the farmers of the area
- Surveying and levelling will help in demarcation of land area

PP 111 Agricultural Microbiology 3(2+1)

Course Outcomes:

- Acquired knowledge about different microbes
- Knowledge on different beneficial microorganisms involve in production of bio gas, bio-fertilizer, microbial pesticide and bio degradation.
- Familiarization of the students with basic knowledge of handling laboratory equipments, techniques and methods required in conducting experiments .

CP 111Crop Physiology: 3(2+1)

Course Outcomes:

- Details knowledge about the physiology of seed development, maturation and changes during seed development and physiological and biochemical changes during a seed life to a mature and during post-harvest changes.
- Physiology of crops is the fundamental importance as it provides basic knowledge of plant internal functions and various life processes along with different growth parameters and mineral nutrition of plants role in crop growth.

- Then one can better understand on physiological performances of crops in the field under agro climatic situations to predict yield and productivity.

HT 111 Production Technology of Fruit Crops 3(2+1)

Course Outcomes:

- Basic concepts of production technology along with different variety and its rootstock of tropical, sub-tropical and minor fruit crops.
- Different commercial propagation method with canopy management on fruit crops
- Different Intercultural operation which was suitable for fruit crops

1st Year 2nd Semester

AS-121 Statistics 2(1+1)

Course Outcomes:

- Brain exercise with basic statistical tools will develop the student's skill.
- Practical presentation of data in graphical way.

AS-122 Introduction to Computer Applications 2(1+1)

Course Outcomes:

- Establishment of consultancy farm
- Helping farmers in smart way

AG 121 Water Management including Micro-irrigation 3(2+1)

Course Outcomes:

- Know and understand the water management in field crops with some water saving technologies and increase water use efficiency without hampering to the yield.
- Students can recommend scientific based irrigation scheduling in crops and cropping systems keeping in view the water resource available with the farmers and adopting integrated water resource management approach both on station and on farm situations.
- Students will be acquainted with managing irrigation water in different crops for higher irrigation and field efficiency

CP 121 Principles of Seed Technology: 3(2+1)

Course Outcomes:

- Details knowledge about the growth, development and production strategy of different quality seeds.
- Different Technology used for processing of the seed and long term storage methods for better seed quality.

- Forecasting of demand of quality seed and market linkage for better availability of seed to the farmer.

AE-121 Principles of Agricultural Economics 2(2+0)

Course Outcomes:

- Students will learn the basic economic terminology related to major branches of
- Knowledge about basic working of the Indian economy at micro and macro level.
- Learn to apply these economic concepts in agricultural sector.

EE 121 Dimensions of Agricultural Extension 2(1+1)

Course Outcomes:

- Analyze the concepts, objectives and principles of extension education & agricultural extension
- Acquaint with different development programmes
- Analyze the present extension system implemented in the country and the ongoing developmental programmes
- Acquaint with the present extension approaches

PP 121 Plant Pathogens and Principles of Plant Pathology 4(3+1)

Course Outcomes:

- Learned about plant pathogens and their identification in laboratory.
- Development of knowledge in plant disease forecasting.
- Knowledge on different methods of disease management which will be helpful for formulating disease management strategy.
- Preparation of various fungicides.

SC 121 SOIL CHEMISTRY, SOIL FERTILITY AND NUTRIENT MANAGEMENT 3(2+1)

Course Outcomes:

- This course will provide various theoretical informations about soil chemistry, soil fertility and nutrient management, essential elements, nutrient transport, nutrient availability .
- They can evaluate soil fertility by using suitable methods.
- Analysis and recommendation some of the essential nutrients in soil.

2nd Year 3rd Semester

AG 211 Field Crops-I (*Kharif*) 3(2+1)

Course Outcomes:

- Students will develop knowledge of raising different field crops specific to *kharif*.
- Application skills in raising and managing *kharif* crops scientifically.
- Scope for agro-entrepreneurship.

PB 211 Principles of Plant Breeding 3(2+1)

Course Outcomes:

- Understanding various modes of reproduction in crop plants and their genetic consequences.
- Idea on various breeding methods followed for development of superior cultivars.
- Practical knowledge on emasculation and hybridization techniques in both self & cross pollinated crops for development of hybrids.

EN 211 Insect Morphology and Systematics 3(2+1)

Course Outcomes:

- Knowledge on basic morphology and anatomy of an insect
- Expertization on collection, preservation of insects and its body parts and dissection techniques of insect body parts.
- Basic ideas on classification of insects upto order level.

AE-211 Agricultural Finance and Co-operation 2(1+1)

Course Outcomes:

- Students will learn skills on financial economics tools used in agricultural finance.
- Gain knowledge about working of the financial sector of India.
- Able to analyse and apply the financial management tools in agriculture sector.

AT 211 Farm Power and Machinery 2(1+1)

Course Outcomes:

- Practical oriented skills to use various farm machineries and equipments in field
- Knowledge on various sources of power utilized at farm
- Knowledge of equipments utilized for land development works
- Practical oriented skills in operation and maintenance of farm power eg- tractor and power tiller

HT 211: Production Technology of Vegetables and Flowers: 3(2+1)

Course Outcomes:

- Outcome of this course is to get theoretical and practical knowledge on raising of different nursery in vegetables and flowers
- Get idea about production technology, Intercultural operation its canopy management of different vegetables and flowers.
- Planning and layout of gardens and garden designs for public and private areas.

AH 211 Live Stock Production and Management 3(2+1)

Course Outcomes:

- Employment as a manager of livestock and poultry farms.
- Establishment of independent dairy and poultry farms.
- Manufacturing of cattle and poultry feed

PP 211 Introductory Nematology 2 (1+1)

Course Outcomes:

- Student acquire the basic knowledge on handling laboratory appliances and develop skill of collection of soil, extraction of nematodes and staining
- Adequate identification of the symptoms of diseases inflicted by nematodes and take appropriate steps towards developing management strategies.
- Students will know the damage potential and biology of nematode taxa that are parasitic to plants.

NC 211/221/311/322NSS/NCC/Physical Education1(0+1)

Course Outcomes:

- The social leadership capability will be developed among the students
- Students will be aware about the social problems, stigmas and make the students capable to tackle them
- Students will be able to know various programmes related to society and their skills will be enhanced.

2nd Year 4th Semester

AG 221 Field crops-II (Rabi) 3(2+1)

Course Outcomes:

- Students will develop knowledge of raising different field crops specific to Rabi crops.
- Application skills in raising and managing *kharif* crops scientifically.
- Scope for agro-entrepreneurship.

SC 221 MANURES, FERTILIZERS AND AGROCHEMICALS3(2+1)

Course Outcomes:

- Students will understand the role of fertilizers and manures in supplying nutrients to plants so as to achieve high fertilizer use efficiency.
- This will also provide an overview of pesticides with reference to their classification, structure, mode of action, synthesis.
- They will have an overall idea on preparation of organic manures and composts which is needed for sustainable agriculture
- Practical experience in determining the nutrient content of fertilizers and manures and analysis of pesticides and herbicides.

EN 221: Insect Ecology and Integrated Pest Management Including Beneficial Insects3(2+1)

Course Outcomes:

- Knowledge on basic concepts of ecology
- Ideas on the basic tools, components of IPM which will create employability
- Knowledge on sampling techniques for the estimation of insect population and damage; Pest surveillance
- Identification of earthworms in vermiculture– visit to vermiculture unit;

AE-221 Agricultural Marketing, Trade and Prices2(1+1)

Course Outcomes:

- Students will learn the use of price analysis tools for agricultural market prices.
- Knowledge about practical application of marketing and price analysis tools in policy making.
- Develop an understanding on the working of markets from local to global level.

PP 221 Diseases of Field Crops and their Management3(2+1)

Course Outcomes:

- Development of knowledge on diagnosing different diseases of field crops based on the symptoms expressed in the field.
- Acquire the skill of collection and preservation of diseased specimens
- Development management strategies to tackle the diseases in field crops.

AT 221 Protected Cultivation and Post-Harvest Technology 2(1+1)

Course Outcomes:

- Design of Green house and their construction with different systems for hi-tech agriculture under controlled environment
- Handling and safe storage of agricultural product
- Practical skills on different post-harvest equipments

HT 221: Production Technology of Spices, Aromatic, Medicinal and Plantation Crops 3(2+1)

Course Outcomes:

- To developed an idea about identification, production technology and propagation of Spices, Aromatic, Medicinal and Plantation crops.
- Outcome of this course is to get knowledge on different processing method and distillation process of Spices, Aromatic, Medicinal and Plantation crops.
- Practical knowledge on selection of mother palm, and seed nuts in coconut and oil palm.

PB 221 Breeding of Field/Horticulture Crops 3(2+1)

Course Outcomes:

- Exposure to various conventional and modern plant breeding methods for the improvemet of important field/horticulture crops.
- Development of analytical, quantitative and problem solving skills related to plant breeding.
- Visit to seed production plots, AICRP plots of different field crops and getting a practical knowledge on hybrid development.

NC 211/221/311/322 NSS/NCC/Physical Education 1(0+1)

Course Outcomes:

- The social leadership capability will be developed among the students
- Students will be awared about the social problems, stigmas and make the students capable to tackle them
- Students will be able to know various programmes related to society and their skills will be enhanced.

3rd Year 5th Semester

AG 311 Farming Systems and Sustainable Agriculture 2(1+1)

Course Outcomes:

- Students are acquainted with the concept of farming system and IFS modules for different category of farmers with varying resources to generate year round income.
- Self employment capability through agro-entrepreneurship development by utilizing the by products from different enterprise.
- Students can enhance their knowledge as well as develop eco-friendly farming system models in a sustainable manner through resource recycling

AG 312 Practical Crop Production – I (*Kharif* crops) 1(0+1)

Course Outcomes:

- Students will gain the knowledge of selecting good quality seeds, manures, fertilizers, plant protection chemicals, farm machineries and irrigation management for different field crops in rainfed and irrigated farming.
- Students will get the benefit of imparting training to the farmers and farm women in their practical life after entering to the service at the state government and central government.
- Students can recommend scientific based crop management practices for different crops under varying farming situations both for resource poor and resource rich farmers.

SC 311 BIOCHEMISTRY3(2+1)

Course Outcomes:

- Students will gain a theoretical experience on the fundamental / elementary knowledge on structure and functions and metabolism of biomolecules.
- They will get a brief overview of the applications of biochemistry in different sectors.
- Practical excellence in determining the important biomolecules through different analytical methods.

EN 311: Crop Pests and Stored Grain Pests and Their Management 3(2+1)

Course Outcomes:

- Typical knowledge on identification of pests, their damage symptoms
- Knowledge on the different tools and techniques of IPM to manage the pests in field condition as well as stored condition.

AE 311 Fundamentals of Farm-Business Management2(1+1)

Course Outcomes:

- Students will learn the management aspect of agricultural businesses.
- Gain knowledge directly from business economics to evaluate projects and new ventures in agricultural sector.
- Able to work on projects of agricultural business management.

EE 311 Fundamentals of Rural Sociology and Educational Psychology 2 (2+0)

Course Outcomes:

- Understand concept of rural sociology, its importance in agricultural extension, characteristics of Indian rural society
- Understand social groups, social stratification, culture, social values, social control and attitudes
- Understand concept of educational psychology, intelligence, personality, perceptions and motivation
- Assess personality types, leadership types and emotions of human beings

HT-311: Post-harvest Management and Value Addition of Fruits and Vegetables 2(1+1)

Course Outcomes:

- To get some idea about different post-harvest practices likes sorting, grading and packaging.
- To get idea about different storage house and its method of storage in Fruits and Vegetables.
- Preparation of different value added product like jam, jelly, sauce, ketch up, chips, RTS, pickle etc.

PP 311 Diseases of Horticultural Crops and their Management 3(2+1)

Course Outcomes:

- Development of knowledge on diagnosing different diseases of horticultural crops based on the symptoms expressed in the field.
- Acquire the skill of collection and preservation of diseased specimens
- Development management strategies to tackle the diseases in horticultural crops.

EE 312 Extension Methodologies for Transfer of Agricultural Technology 2(1+1)

Course Outcomes:

- To describe the meaning of communication, classify the methods and explain the meaning, objectives, procedures involved in carrying out various individual, group and mass contact methods
- To describe various factors influencing selection of extension methods
- Know about various information tools and sources like internet, cyber cafes, kiosks, video and tele conferencing including agri journalism
- Describe the importance of capacity building of extension personnel and farmers and
- Explain the meaning of training and discuss various types of training to farmers and enumerate the objectives of Farmer's training centres, mandates of KVK.

NC 211/221/311/322 NSS/NCC/Physical Education 1(0+1)

Course Outcomes:

- The social leadership capability will be developed among the students
- Students will be aware about the social problems, stigmas and make the students capable to tackle them
- Students will be able to know various programmes related to society and their skills will be enhanced.

3rd Year 6th Semester

AE-321 Production Economics and Farm Management 2(1+1)

Course Outcomes:

- Students will have a detailed understanding about inputs and outputs in agriculture, agricultural and natural resource management.
- Knowledge about combination of inputs/outputs in production process, how can they be adjusted for optimized resource use and better profits.
- Able to understand and formulate farm plans through various farm management and optimization skills.

EE-321 Entrepreneurship Development and Communication Skills 2 (1+1)

Course Outcomes:

- To discern distinct entrepreneurial traits,
- To know the parameters to assess opportunities and constraints for new business ideas,
- They can know about decision making, managing the enterprise, motivation and entrepreneurship development
- Familiarize with govt. policies on small and medium enterprises, EXIM policies, capital system and its partnership different agro inputs industry, Indian agricultural processing and export industry
- Develop skills in grammar, communication skills, writing skill, presentation skills, public speaking, group discussion, organizing seminars and conferences.

PB 321 Principles of Plant Biotechnology 3(2+1)

Course Outcomes:

- Getting acquainted with various types micro-propagation methods and their application in crop improvement.
- Idea on recombinant DNA technology and various methods of gene transfer.
- Exposure to the field of oftransgenics and their application in crop improvement.
- Knowledge on various types of marker systems and their application in in crop improvement.

AG 322 Weed Management 2(1+1)

Course Outcomes:

- Students are enriched with recent developments in herbicide , their selectivity and mode of action, resistance development etc.
- Students will develop knowledge to select crop specific herbicides, their use, dose calculation and safe handling.
- Students can know the critical crop weed competition period, possible phyto-toxicity and residual effects of herbicides in different crops under different crop agro-ecological systems.

SC 321 ENVIRONMENTAL SCIENCE2(1+1)

Course Outcomes:

- This course will make the students aware of different environmental concerns like pollution, conservation, etc and will create a pro-environmental attitude.
- Learning about the ways to manage important and frequently occurring disasters of India.
- Ability to conduct various qualitative and quantitative tests for waste samples collected from the locality

AT 321 Renewable Energy 2(1+1)

Course Outcomes:

- Knowledge on Energy sources, biogas plants, Gasifiers, Briquettes
- A brief knowledge on Solar energy and its application
- Appreciate the need of Wind energy, its various components, classifications and applications

HT 321 Urban Agriculture and Horticulture 2(1+1)

Course Outcomes:

- Outcome of this course is to get knowledge on growing of fruits, flowers and vegetables in pots and its maintenance.
- Calculation of cost benefit ratio under different situation of city farming
- Preparation of formulations of pesticides and it's use in the management of pests and diseases of potted plants

SS-321 Comprehension and communication skills in English 2(1+1)

Course Outcomes:

- To improve soft skills like communication skills, interpersonal skills, presentation skills etc.
- To learn the skills designed to help the candidates to express themselves better in academic and professional careers.
- To be trained in professional writing with enriched vocabulary and expertise in conversation, interviews, presentations, group discussions etc.

- Students will be able to prepare their curriculum vitae and job applications which will help them in building their professional career.

NC 211/221/311/322 NSS/NCC/Physical Education 1(0+1)

Course Outcomes:

- The social leadership capability will be developed among the students
- Students will be aware about the social problems, stigmas and make the students capable to tackle them
- Students will be able to know various programmes related to society and their skills will be enhanced.

4th Year 7th Semester

RAWE-411 Rural Agricultural Work Experience (RAWE) 20(0+20)

Course Outcomes:

- Develop a team work and build competency in understanding real life situations,
- Learn about management of different components,
- Develop problem solving attitude, art of creative thinking, time management, art of listening, positive use of feedback, observation power, managing conflicts, working in local institutions, working with other organizations etc.

4th Year 8th Semester

Experiential Learning Programme

EL 421-CP (1-4) Crop Production

CP-1 Seed Production Technology: 3(1 + 2)

Course Outcomes:

- Adequate practical knowledge on seed production of both OPVs and Hybrids.
- Provide knowledge regarding seed quality control and seed quality enhancement techniques.
- Visit to different seed processing units and seed production plots will enable students to involve themselves in both public and private sector seed enterprises.

CP-2 Integrated Farming System 3(1+2)

Course Outcomes:

- Students are acquainted with the concept of farming system and IFS modules for different category of farmers with varying resources to generate year round income.
- Self employment capability through agro-entrepreneurship development by utilizing the by products from different enterprise.
- Students can enhance their knowledge as well as develop eco-friendly farming system models in a sustainable manner through resource recycling

CP(3) Water management 4 (1+3)

Course Outcomes:

- Students will be acquainted with managing irrigation water in different crops for higher irrigation and field efficiency
- Students will be able to recommend suitable water saving technologies and irrigation methods with an aim to produce more crop per drop.
- Students can adopt scientific based irrigation scheduling in crops and cropping systems as part of their entrepreneurship with an approach on high-tech agriculture.

CP-4 SOIL MANAGEMENT: CONSERVATION, PROBLEMATIC SOIL, AND SOIL QUALITY 4(1+3)

Course Outcomes:

- This course will impart knowledge about soil erosion, soil quality, problematic soils their extent, distribution and nature in India and management.
- The students pursuing this course will be able to assess the problematic soils through qualitative and quantitative analysis of various soil parameters.
- Assessment and various methods of management of the detected problematic soils

ABM-1 Management of Agro based Industry 4(1+3)

Course Outcomes:

- Learning different managerial aspects of Agro-based industries
- Knowledge about the innovative ways to start the new enterprises

ABM 6: Project Formulation, Evaluation and Monitoring 3(1+2)

Course Outcomes:

- Learn about tools and techniques for preparing and evaluating agribusiness projects.
- On other hand they can learn monitoring and evaluation as effective tools for enriching quality of interventions through their role in decision making and learning.
- They will also learn about various computer applications, IT and data base management techniques.

EL 421-CPT (1-4) Crop Protection

CPT 1: IPM and Management of Post-harvest insect and Non-insect pests 4 (2+2)

Course Outcomes:

- Development of skill to estimate ETL, EIL, GEP, and determination of population size as well as different sampling procedures.
- Awareness about importance of post-harvest management of insect pests of different crops and familiarization with different storage structures.
- Profound knowledge on pest scouting in field condition which will be helpful in further future for the employment purpose.

CPT-2 IDM and Management of Important Plant Diseases4(2+2)

Course Outcomes:

- Student will know about collection of disease samples and raising of pure culture of pathogen.
- Knowledge on application patterns of chemicals and equipment used for it.
- Knowledge on management of Post-harvest disease of grains, vegetables and fruits.

CPT-3 Mushroom Cultivation 3(0+3)

Course Outcomes:

- Basic knowledge on commercially grown mushroom
- Knowledge on Preparation of mother culture, spawn, substrate etc to develop entrepreneurship.
- Knowledge on economics and constraints of mushroom cultivation.
- Knowledge on Preparation of a Business Model of mushroom enterprise

CPT 4: Bio control Agents and Bio pesticides 3 (1+2)

Course Outcomes:

- This course will provide the knowledge on importance, identification, extraction and mass production of different biocontrol agents.
- Ideas of preparation of antimicrobial bio-pesticides and methods of testing bio-formulation under different field condition.
- Knowledge on use of different plant products in pest control

ABM-1 Management of Agro based Industry 4(1+3)

Course Outcomes:

- Learning different managerial aspects of Agro-based industries
- Knowledge about the innovative ways to start the new enterprises

ABM 6: Project Formulation, Evaluation and Monitoring 3(1+2)

Course Outcomes:

- Learn about tools and techniques for preparing and evaluating agribusiness projects.
- On other hand they can learn monitoring and evaluation as effective tools for enriching quality of interventions through their role in decision making and learning.
- They will also learn about various computer applications, IT and data base management techniques.

EL 421-PHT (1-4) Post Harvest Technology and Value addition

PHT-1: Post Harvest Technology of fruits and vegetables 3 (1+2)

Course Outcomes:

- To get some idea about different post harvest practices like sorting, grading and packaging
- Aim to get knowledge about different storage house and its methods for different fruits and vegetables.
- Preparation of different value added product like jam, jelly, sauce, ketch up, chips, RTS, pickle etc.

PHT-2: Unit operation for quality value, addition, processing and development of new products 4(1+3)

Course Outcomes:

- Develops idea about different value added products related to fruits and vegetables.
- Capability to meet food requirements of a growing population by eliminating losses , making more nutritive food items from raw commodities.
- Develop idea about maturity indices, methods of storage, packaging principles of preservation, canned products, bottling, freezing, dehydration and drying.

PHT-3: Integrated storage management of fruits, flowers and vegetables. 4 (2+2)

Course Outcomes:

- To get some idea about different post harvest practices like sorting, grading and packaging of fruits, flowers and vegetables.
- Aim to get knowledge about different storage house and its methods for different fruits, flowers and vegetables.
- They learnt about pre and post harvest treatment for improvement of shelf life.

PHT-4: Post Harvest handling of flowers. 3 (1+2)

Course Outcomes:

- Students acquired knowledge on different post harvest treatments, grading and packing techniques for extending shelf life of flowers.
- The main objective is to get idea about drying and preservation methods of commercial flowers.
- They got sufficient knowledge about storage, distillation of essential oil as they have physically visited different cold storage and preservation unit.

ABM-1 Management of Agro based Industry 4(1+3)

Course Outcomes:

- Learning different managerial aspects of Agro-based industries
- Knowledge about the innovative ways to start the new enterprises

ABM 6: Project Formulation, Evaluation and Monitoring 3(1+2)

Course Outcomes:

- Learn about tools and techniques for preparing and evaluating agribusiness projects.
- On other hand they can learn monitoring and evaluation as effective tools for enriching quality of interventions through their role in decision making and learning.
- They will also learn about various computer applications, IT and data base management techniques.

EL 421- ABM (1-5) Agri-Business Management

ABM-1 Management of Agro based Industry 4(1+3)

Course Outcomes:

- Learning different managerial aspects of Agro-based industries
- Knowledge about the innovative ways to start the new enterprises

ABM-2 Marketing Management (Agricultural Import- Export Policy of Govt. Of India and Business Laws) (1+2)

Course Outcomes:

- Learn various aspects of marketing management
- Develop marketing strategies for efficient marketing
- Formulate policy with regard to marketing management.

ABM-3 Financial Management of Agribusiness (1+3)

Course Outcomes:

- Students will learn skills on financial management in agribusiness enterprises
- Gain knowledge about the managerial aspects of the agricultural business enterprises
- Able to analyse and apply the financial management tools in agriculture sector.

ABM 6: Project Formulation, Evaluation and Monitoring 3(1+2)

Course Outcomes:

- Learn about tools and techniques for preparing and evaluating agribusiness projects.
- On other hand they can learn monitoring and evaluation as effective tools for enriching quality of interventions through their role in decision making and learning.
- They will also learn about various computer applications, IT and data base management techniques.

CP-2Integrated Farming System3(1+2)

Course Outcomes:

- Students are acquainted with the concept of farming system and IFS modules for different category of farmers with varying resources to generate year round income.
- Self employment capability through agro-entrepreneurship development by utilizing the by products from different enterprise.
- Students can enhance their knowledge as well as develop eco-friendly farming system models in a sustainable manner through resource recycling

PHT-1: Post Harvest Technology of fruits and vegetables 3 (1+2)

Course Outcomes:

- To get some idea about different post harvest practices like sorting, grading and packaging
- Aim to get knowledge about different storage house and its methods for different fruits and vegetables.
- Preparation of different value added product like jam, jelly, sauce, ketch up, chips, RTS, pickle etc.

EL 421-CA (1-5) Commercial Agriculture

CA-1: Commercial floriculture 3(0+3)

Course Outcomes:

- Students have learnt about different propagation practices in commercial flowers.
- They have got the idea about different cultural practices followed in annual flowers as they have raised the crop in their practical field.

CA-2: Commercial fruit production 3(1+2)

Course Outcomes:

- Basic concept of production technology along with different varieties and its rootstock of tropical, subtropical and minor fruit crops.
- Different commercial propagation methods with canopy management on fruit crop.
- Different intercultural operations which was suitable for fruit crops.

CA-3: Propagation and nursery management of horticultural crops 3 (1+2)

Course Outcomes:

- To know about the basic principle in plant propagation of horticultural crops
- Practical, hand on experience in plant propagation methods
- Principle, practices and skill required in the culture and management of nursery plant

CA-4: Cultivation of commercially important Medicinal & Aromatic Plants 2(1+1)

Course Outcomes:

- To get practical idea about identification of different medicinal and aromatic plants.
- To know about the standardized methods for raising nursery of different medicinal and aromatic plants.
- Better knowledge on field preparation and intercultural operation along with different harvesting method and its isolation and extraction process of chemical constituents from medicinal & aromatic plants

CA-5: Commercial vegetable production 3(1+2)

Course Outcomes:

- Basic concepts on nursery management, quality planting material production.
- Identification of different vegetable crops and their varieties
- To develop knowledge about transplanting of vegetable seedlings in main field, seed extraction, seed production, intercultural operations in case of vegetable crops.
- To develop knowledge about harvesting, grading, packaging and storage of different vegetable crops.

ABM-2 Marketing Management (Agricultural Import- Export Policy of Govt. Of India and Business Laws) (1+2)

Course Outcomes:

- Learn various aspects of marketing management
- Develop marketing strategies for efficient marketing
- Formulate policy with regard to marketing management.

ABM 6: Project Formulation, Evaluation and Monitoring 3(1+2)

Course Outcomes:

- Learn about tools and techniques for preparing and evaluating agribusiness projects.
- On other hand they can learn monitoring and evaluation as effective tools for enriching quality of interventions through their role in decision making and learning.
- They will also learn about various computer applications, IT and data base management techniques.

Mapping of POs vrs. COs

Name of the Course	Course Code	Course Outcomes	PO1	PO2	PO3	PO4
Introductory Agriculture (Ancient, Heritage, Agriculture, Scenario and gender equity in Agriculture)	AG 111	CO1	✓	✓		
		CO2				✓
		CO3	✓			
Principles of Agronomy and Agricultural Meteorology	AG 112	CO1	✓	✓		
		CO2	✓		✓	
		CO3	✓			
Principles of Genetics	PB 111	CO1	✓			
		CO2	✓			
		CO3	✓			✓
		CO4	✓			✓
Introduction to Soil Science	SC 111	CO1	✓			
		CO2	✓			
		CO3	✓			✓
Fundamentals of soil and water conservation engineering	AT 111	CO1	✓	✓		
		CO2	✓		✓	
		CO3	✓			✓
Agricultural Microbiology	PP 111	CO1		✓		✓
		CO2		✓	✓	✓
		CO3				✓
Crop Physiology	CP 111	CO1	✓			
		CO2	✓	✓		
		CO3	✓	✓		
Production technology of fruit crops	HT 111	CO1	✓		✓	
		CO2	✓		✓	✓
		CO3	✓		✓	

Agricultural Statistics	AS 121	CO1				✓
		CO2				✓
Introduction to computer and application	AS 122	CO1				✓
		CO2			✓	✓
Water management including micro irrigation	AG 121	CO1	✓	✓		
		CO2		✓	✓	
		CO3	✓	✓		
Principles of Seed Technology	CP 121	CO1	✓	✓		✓
		CO2			✓	✓
		CO3			✓	
Principles of Agril. Economics	AE 121	CO1				✓
		CO2				✓
		CO3			✓	✓
Dimensions of Agril. Extension	EE 121	CO1			✓	
		CO2			✓	
		CO3			✓	✓
		CO4			✓	✓
Plant Pathogens and Principles of Plant Pathology	PP 121	CO1		✓		✓
		CO2		✓	✓	✓
		CO3		✓	✓	
		CO4				✓
Soil Chemistry, Soil Fertility and Nutrient Management	SC 121	CO1		✓		
		CO2		✓		
		CO3		✓	✓	
Field Crops-I (kharif)	AG 211	CO1	✓	✓		
		CO2	✓	✓	✓	

		CO3				✓
Principles of Plant Breeding	PB 211	CO1	✓			
		CO2	✓			
		CO3	✓		✓	✓
Insect Morphology and Systematics	EN 211	CO1		✓		
		CO2		✓		✓
		CO3		✓		
Agricultural Finance and Co-operation	AE 211	CO1			✓	✓
		CO2				✓
		CO3			✓	
Farm power and machinery	AT 211	CO1				✓
		CO2				✓
		CO3	✓			✓
		CO4				✓
Production Technology of Vegetables & Flowers	HT 211	CO1	✓			
		CO2	✓			
		CO3	✓			✓
Livestock Production and Management	AH 211	CO1				✓
		CO2				✓
		CO3				✓
Introductory Nematology	PP 211	CO1				✓
		CO2		✓		
		CO3		✓		
NSS/NCC/Physical Education*	NC 211	CO1				✓
		CO2				✓
		CO3				✓
Field Crops-II (Rabi)	AG 221	CO1	✓	✓		

		CO2	✓	✓	✓	
		CO3				✓
Manures, Fertilizers and Agrochemicals	SC 221	CO1		✓		
		CO2		✓		
		CO3	✓			✓
		CO4		✓		✓
Insect Ecology & Integrated pest management including beneficial insects	EN 221	CO1	✓			
		CO2			✓	✓
		CO3				✓
		CO4		✓		
Agricultural marketing, Trade and Prices	AE 221	CO1			✓	
		CO2				✓
		CO3			✓	✓
Diseases of Field Crops and their management	PP 221	CO1		✓		✓
		CO2		✓		
		CO3		✓		✓
Protected cultivation & post harvest technology	AT 221	CO1			✓	✓
		CO2			✓	✓
		CO3			✓	✓
Production technology of spices, Aromatics, Medicinal and Plantation crops	HT 221	CO1	✓	✓		✓
		CO2				✓
		CO3	✓			✓
Breeding of Field / Horticultural crops	PB 221	CO1	✓			✓
		CO2				✓
		CO3	✓			✓
NSS/NCC/Physical Education*	NC 221	CO1				✓
		CO2				✓
		CO3				✓

Farming Systems and Sustainable Agriculture	AG 311	CO1	✓		✓	
		CO2				✓
		CO3	✓			
Practical Crop Production-I (Kharif Crops)	AG 312	CO1	✓	✓		
		CO2			✓	✓
		CO3			✓	
Biochemistry	SC 311	CO1		✓		
		CO2				✓
		CO3				✓
Crop Pests and stored grain pests and their management	EN 311	CO1		✓		
		CO2		✓		✓
Fundamentals of Farm-Business Management (Including product development, Appraisal and Monitoring)	AE 311	CO1				✓
		CO2				✓
		CO3				✓
Fundamentals of Rural Sociology and Educational Psychology	EE 311	CO1				✓
		CO2				✓
		CO3				✓
		CO4				✓
Post harvest management and value addition of fruits and vegetables	HT 311	CO1		✓	✓	✓
		CO2			✓	✓
		CO3			✓	✓
Disease of Horticultural crops and their management	PP 311	CO1		✓		✓
		CO2		✓		
		CO3		✓		✓
Extension Methodologies for Transfer of Agricultural Technology	EE 312	CO1				✓
		CO2				✓

		CO3				✓
		CO4			✓	✓
		CO5			✓	✓
NSS/NCC/Physical Education*	NC 311	CO1				✓
		CO2				✓
		CO3				✓
Production Economics & Farm management	AE 321	CO1		✓		
		CO2		✓	✓	
		CO3			✓	✓
Entrepreneurship Development and Communication Skills	EE 321	CO1				✓
		CO2				✓
		CO3				✓
		CO4			✓	✓
		CO5			✓	✓
Principles of Plant Biotechnology	PB 321	CO1	✓			✓
		CO2				✓
		CO3	✓			
		CO4	✓			✓
Practical Crop Production-II (Rabi Crops)	AG 321	CO1	✓	✓		
		CO2			✓	✓
		CO3			✓	
Weed management	AG 322	CO1		✓		
		CO2		✓	✓	
		CO3		✓	✓	✓
Environmental Science	SC 321	CO1				✓
		CO2				✓
		CO3				✓

Renewable Energy	AT 321	CO1				✓
		CO2				✓
		CO3				✓
Urban Agriculture and Horticulture	HT 321	CO1	✓	✓		
		CO2			✓	✓
		CO3		✓		
Comprehension and Communication Skills in English	SS 321	CO1				✓
		CO2				✓
		CO3				✓
		CO4				✓
NSS/NCC/Physical Education*	NC 322	CO1				✓
		CO2				✓
		CO3				✓
Rural Agricultural Work Experience	RAWE-411	CO1				✓
		CO2				✓
		CO3			✓	✓
Crop Production	EL 421- CP (1-4)					
Seed Production Technology	CP-1	CO1	✓			✓
		CO2	✓		✓	✓
		CO3				✓
Integrated Farming System	CP-2	CO1	✓		✓	
		CO2				✓
		CO3	✓		✓	
Water Management (Watershed Micro-irrigation Problematic Water)	CP-3	CO1		✓		
		CO2	✓	✓	✓	
		CO3	✓	✓	✓	

Soil Management (Conservation Problematic soil, Soil quality)	CP-4	CO1	✓			
		CO2	✓			✓
		CO3	✓			
Management of Agro-based industry (Minor)	ABM-1	CO1				✓
		CO2				✓
Project formulation, Evaluation and Monitoring(Minor)	ABM-6	CO1				✓
		CO2			✓	✓
		CO3				✓
Crop Protection	EL 421- CPT (1-4)					
IPM and management of post harvest insect and non-insect pests	CPT-1	CO1		✓		✓
		CO2		✓	✓	✓
		CO3				✓
IDM and Management of important Plant diseases	CPT-2	CO1				✓
		CO2		✓		✓
		CO3		✓		✓
Mushroom Cultivation	CPT-3	CO1			✓	✓
		CO2				✓
		CO3			✓	
		CO4				✓
Bio-control agencies and bio-pesticide (mass multiplication and uses)	CPT-4	CO1		✓		✓
		CO2		✓		✓
		CO3		✓		
Management of Agro-based industry (Minor)	ABM-1	CO1				✓
		CO2				✓
Project formulation, Evaluation and Monitoring (Minor)	ABM-6	CO1				✓
		CO2			✓	✓
		CO3				✓
Post Harvest Technology and Value addition	EL 421-PHT (1-5)					

Post harvest Technology of Fruits and vegetables	PHT-1	CO1				✓
		CO2				✓
		CO3			✓	✓
Unit operation for quality value addition processing and development of new products	PHT-2	CO1			✓	✓
		CO2				✓
		CO3			✓	✓
Integrated storage management of fruits, flowers and vegetables	PHT-3	CO1			✓	✓
		CO2			✓	
		CO3		✓		
Post harvest handling of flowers	PHT-4	CO1			✓	✓
		CO2			✓	✓
		CO3				✓
Management of Agro-based industry (Minor)	ABM-1	CO1				✓
		CO2				✓
Project formulation, Evaluation and Monitoring (Minor)	ABM-6	CO1				✓
		CO2			✓	✓
		CO3				✓
Agri-Business Management	EL 421- ABM (1-5)					
Management of Agro-based industry	ABM-1	CO1				✓
		CO2				✓
Marketing Management (Agricultural Import-Export Policy of Govt. of India & Business Laws)	ABM-2	CO1				✓
		CO2			✓	✓
		CO3				✓
Financial Management of Agri-Business	ABM-3	CO1				✓
		CO2				✓
		CO3			✓	✓
Project formulation, Evaluation and Monitoring	ABM-6	CO1				✓
		CO2			✓	✓

		CO3				✓
Integrated Farming System (Minor)	CP-2	CO1	✓		✓	
		CO2				✓
		CO3	✓		✓	
Post harvest Technology of Fruits and vegetables (Minor)	PHT-1	CO1				✓
		CO2				✓
		CO3			✓	✓
Commercial Agriculture	EL 421-CA (1-5)					
Commercial floriculture	CA-1	CO1	✓			✓
		CO2	✓			✓
Commercial fruit production	CA-2	CO1	✓			✓
		CO2	✓			✓
		CO3	✓			
Propagation and nursery management of horticultural crops	CA-3	CO1	✓			
		CO2	✓			✓
		CO3	✓			✓
Cultivation of commercially important medicinal & aromatic plants	CA-4	CO1	✓			
		CO2	✓			✓
		CO3	✓			✓
Commercial Vegetable Production	CA-5	CO1	✓			✓
		CO2	✓			
		CO3	✓		✓	
		CO4	✓		✓	
Marketing Management (Agricultural Import-Export Policy of Govt. of India & Business Laws)(Minor)	ABM-2	CO1				✓
		CO2			✓	✓
		CO3				✓
Project formulation, Evaluation and Monitoring (Minor)	ABM-6	CO1				✓
		CO2			✓	✓
		CO3				✓

Mapping of COs vrs. Employability/ Entrepreneurship/ Skill development

Name of the Course	Course Code	Employability	Entrepreneurship	Skill development
Introductory Agriculture (Ancient, Heritage, Agriculture, Scenario and gender equity in Agriculture)	AG 111	Y		
Principles of Agronomy and Agricultural Meteorology	AG 112	Y		Y
Principles of Genetics	PB 111	Y		
Introduction to Soil Science	SC 111	Y		
Fundamentals of soil and water conservation engineering	AT 111	Y		Y
Agricultural Microbiology	PP 111	Y		Y
Crop Physiology	CP 111	Y		
Production technology of fruit crops	HT 111	Y	Y	Y
Agricultural Statistics	AS 121	Y		Y
Introduction to computer and application	AS 122	Y		Y
Water management including micro irrigation	AG 121	Y		Y
Principles of Seed Technology	CP 121	Y		
Principles of Agril. Economics	AE 121	Y		
Dimensions of Agril. Extension	EE 121	Y		Y
Plant Pathogens and Principles of Plant Pathology	PP 121	Y		
Soil Chemistry, Soil Fertility and Nutrient Management	SC 121	Y		Y
Field Crops-I (kharif)	AG 211	Y	Y	Y
Principles of Plant Breeding	PB 211	Y		Y
Insect Morphology and Systematics	EN 211	Y		
Agricultural Finance and Co-operation	AE 211	Y		
Farm power and machinery	AT 211	Y	Y	Y
Production Technology of Vegetables & Flowers	HT 211	Y	Y	Y
Livestock Production and Management	AH 211	Y	Y	Y
Introductory Nematology	PP 211	Y		
NSS/NCC/Physical Education*	NC 211			Y
Field Crops-II (Rabi)	AG 221	Y	Y	Y
Manures, Fertilizers and Agrochemicals	SC 221	Y	Y	Y
Insect Ecology & Integrated pest management including beneficial insects	EN 221	Y	Y	Y
Agricultural marketing, Trade and Prices	AE 221	Y		

Diseases of Field Crops and their management	PP 221	Y		Y
Protected cultivation & post harvest technology	AT 221	Y	Y	Y
Production technology of spices, Aromatics, Medicinal and Plantation crops	HT 221	Y	Y	Y
Breeding of Field / Horticultural crops	PB 221	Y		Y
NSS/NCC/Physical Education*	NC 221			Y
Farming Systems and Sustainable Agriculture	AG 311	Y	Y	Y
Practical Crop Production-I (Kharif Crops)	AG 312	Y	Y	Y
Biochemistry	SC 311	Y		
Crop Pests and stored grain pests and their management	EN 311	Y		Y
Fundamentals of Farm-Business Management (Including product development, Appraisal and Monitoring)	AE 311	Y		
Fundamentals of Rural Sociology and Educational Psychology	EE 311	Y		
Post harvest management and value addition of fruits and vegetables	HT 311	Y	Y	Y
Disease of Horticultural crops and their management	PP 311	Y		Y
Extension Methodologies for Transfer of Agricultural Technology	EE 312	Y		Y
NSS/NCC/Physical Education*	NC 311			Y
Production Economics & Farm management	AE 321	Y		
Entrepreneurship Development and Communication Skills	EE 321	Y		Y
Principles of Plant Biotechnology	PB 321	Y		
Practical Crop Production-II (Rabi Crops)	AG 321	Y	Y	Y
Weed management	AG 322	Y		Y
Environmental Science	SC 321	Y		
Renewable Energy	AT 321	Y		Y
Urban Agriculture and Horticulture	HT 321	Y	Y	Y
Comprehension and Communication Skills in English	SS 321	Y		Y
NSS/NCC/Physical Education*	NC 322			Y
Rural Agricultural Work Experience	RAWE-411	Y		Y
Crop Production	EL 421-CP (1-4)			
Seed Production Technology	CP-1	Y	Y	Y
Integrated Farming System	CP-2	Y	Y	Y

Water Management (Watershed Micro-irrigation Problematic Water)	CP-3	Y	Y	Y
Soil Management (Conservation Problematic soil, Soil quality)	CP-4	Y	Y	Y
Management of Agro-based industry (Minor)	ABM-1	Y	Y	Y
Project formulation, Evaluation and Monitoring(Minor)	ABM-6	Y	Y	Y
Crop Protection	EL 421-CPT (1-4)			
IPM and management of post harvest insect and non-insect pests	CPT-1	Y	Y	Y
IDM and Management of important Plant diseases	CPT-2	Y	Y	Y
Mushroom Cultivation	CPT-3	Y	Y	Y
Bio-control agencies and bio-pesticide (mass multiplication and uses)	CPT-4	Y	Y	Y
Management of Agro-based industry (Minor)	ABM-1	Y	Y	Y
Project formulation, Evaluation and Monitoring (Minor)	ABM-6	Y	Y	Y
Post Harvest Technology and Value addition	EL 421-PHT (1-5)			
Post harvest Technology of Fruits and vegetables	PHT-1	Y	Y	Y
Unit operation for quality value addition processing and development of new products	PHT-2	Y	Y	Y
Integrated storage management of fruits, flowers and vegetables	PHT-3	Y	Y	Y
Post harvest handling of flowers	PHT-4	Y	Y	Y
Management of Agro-based industry (Minor)	ABM-1	Y	Y	Y
Project formulation, Evaluation and Monitoring (Minor)	ABM-6	Y	Y	Y
Agri-Business Management	EL 421-ABM (1-5)			
Management of Agro-based industry	ABM-1	Y	Y	Y
Marketing Management (Agricultural Import-Export Policy of Govt. of India & Business Laws)	ABM-2	Y	Y	Y
Financial Management of Agri-Business	ABM-3	Y	Y	Y
Project formulation, Evaluation and Monitoring	ABM-6	Y	Y	Y
Integrated Farming System (Minor)	CP-2	Y	Y	Y
Post harvest Technology of Fruits and vegetables (Minor)	PHT-1	Y	Y	Y
Commercial Agriculture	EL 421-CA (1-5)			
Commercial floriculture	CA-1	Y	Y	Y
Commercial fruit production	CA-2	Y	Y	Y
Propagation and nursery management of horticultural crops	CA-3	Y	Y	Y

Cultivation of commercially important medicinal & aromatic plants	CA-4	Y	Y	Y
Commercial Vegetable Production	CA-5	Y	Y	Y
Marketing Management (Agricultural Import-Export Policy of Govt. of India & Business Laws)(Minor)	ABM-2	Y	Y	Y
Project formulation, Evaluation and Monitoring (Minor)	ABM-6	Y	Y	Y