MARIS STELLA COLLEGE (AUTONOMOUS), VIJAYAWADA

A College with Potential for Excellence

NAAC Accredited & ISO 9001: 2015 Certified

PROGRAMME REGISTER

2020-2024

UG DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT

INDEX

UG PROGRAMMES OFFERED

S. No.	Programme	Combination offered	Programme code
1	B.Sc.	Agriculture and Rural Development	312

PROGRAMME OUTCOMES (POs) 2020-2024

At the end of the Programme students will have:

PO1: Essential Knowledge:

Comprehensive discipline knowledge and understanding, the ability to engage with different schools of thought and to apply their knowledge in practice including in multi-disciplinary or multi professional contexts.

PO2: Creative and critical thinking and problem solving abilities:

Be effective problem solvers, able to apply critical and evidence-based thinking to conceive innovative responses to future challenges.

PO3: Teamwork and communication skills:

Be able to convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

PO4: Motivation and preparation in life-long learning:

Exhibit life-long skills; broad based multiple career oriented general skills; self and field based learning skills; digital skills; social responsibility and compassionate commitment; preparedness for living, learning and working in any environment

PO5: Professionalism and leadership readiness:

Be able to engage in professional behaviour and have the potential to be entrepreneurial and take leadership roles in their chosen occupations and communities.

PO6: Intercultural and ethical competency:

Be responsible and effective global citizens whose personal values and practices are consistent with their roles as responsible members of society.

PO7: Self-awareness and emotional intelligence:

Be self-aware and reflective, flexible and resilient and act with integrity and takeresponsibility for their actions as empowered women.

PO8: Social responsibility:

Be sensitive to and demonstrate agency in matters of environment, gender and other social issues to promote an equitable society.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

2020-2024

At the end of the Programme students will be able to:

PSO1: Summarize the concepts, principles, classifications, theories and mechanisms.

PSO2: Discuss hypothesis, procedures, results and draw conclusions.

PSO3: Apply tools and techniques in solving problems, sample analysis and production.

PSO4: Develop communicative competence, creative and critical thinking, practical, technical and employability skills, social sensibility and responsibility on Agricultural practices.

Course Outcomes (COs)

2020-2024

S.no	SEM	Course Code	Course Title	Course outcomes
1	I	AGRO101	Fundamentals of Agronomy	**CO1:** Explain the history and development of agriculture in India.
				CO2: Explain crop production techniques and crop growth in relation to the environment.
				CO3: Outline the principles and practices of weed management.
				CO4: Discuss the classification, nomenclature, mode of action and selectivity of herbicides and compare the traditional and technology-supporte practices in agriculture.
2	I	AGRO101P	Fundamentals of Agronomy-Practical	**CO1:** Analyse the crop production techniques and crop growth in relation to the environment.
				CO2: Describe the Zero and minimum tillage: their basics and application.
				CO3: Explain Precision agriculture and Precision farming, their concepts and application.
3	I	BICM101	Plant Biochemistry and Soil Science	**CO1:** Explain scope and importance of biochemistry in agriculture and structural classification of biomolecules
				CO2: Summarize the properties and Mechanism of enzyme activity.
				CO3: Outline the metabolism of biomolecules.
				CO4: Classify rocks, minerals and soils and explain various aspects of soil and discuss importance of nitrogen,phosphorous and organic soil fertility.
4	I	BICM101P	Plant Biochemistry and Soil Science-Practical	**CO1:** Describe the Biochemistry as a discipline and milestone discoveries in life sciences that led to establishment of biochemistry as separate discipline.
				CO2: Explain about Fundamental properties of elements, their role in formation of biomolecules and in chemical reactions within living organisms.
				CO3: Discuss about plant cell structure, organization, and apply specific bio chemical functions to compartments of the plant cell and

				protein structures.
5	I	AECO141	Fundamentals of Agricultural Economics	**CO1:** Apply concepts and terms of economics to the agricultural sector.
				CO2: Explain characteristics of wealth, welfare, needs and surplus and laws of marginal utility
				CO3: Outline different aspects of demand and supply, essentials of market, pricing and competition.
				CO4: Summarize the concepts of national income, classification and cannons of taxation, features of public and private finance, sources of public revenue and public expenditure, concepts of inflation, types, causes and control of inflation.
6	I	HORT181	Fundamentals of Horticulture	**CO1:** Define, classify and outline the climate and soil conditions for horticultural crops.
				CO2: Explain principles and methods of plant propagation, training and pruning.
				CO3: Summarize principles and steps in establishment of various orchards and types an purposes of gardens and irrigation and fertilizer in horticulture crops.
				CO4: Discuss unfruitfulness, pollination and fertilization and List medicinal and aromatic plants, spices and condiments and explain the role of plant bio regulators.
7	I	HORT181P	Fundamentals of Horticulture-Practical	**CO1:** Explain plant vegetative structure.
				CO2: Describe the basic principles, processes and plant propagation methods.
				CO3: Explain propagating plant, manage and harvest a variety of plant.
8	I	AEXT191	Rural Sociology & Educational Psychology	**CO1:** Explain the relevance of rural, sociology in agricultural extension characteristics of rural society, classification and stratification of social groups.
				CO2: Outline cultural concepts and social values, classification and training of leaders.
				CO3: Summarize the meaning, scope and importance of educational psychology in agricultural extension.
				CO4: Explain meaning, definition and steps of extension teaching and risk benefit analysis and implicates the competence and professional ethics, collegiality and loyalty.
9.	II	AGRO 103	Agro meteorology	**Co1:** Explain the earth's atmosphere and

			and Climatic Change	weather variables
				CO2: Outline types of precipitation
				CO3: Summarize artificial rain making, monsoon mechanism and weather hazards.
				CO4: Relate weather conditions to agriculture
10	II	AGRO103P	Agro Meteorology and Climate Change- Practical	**CO1:** Classify Earth atmosphere, composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height.
				CO2: Explain Nature and properties of solar radiation, solar constant, depletion of solar radiation, short wave, long wave and thermal radiation, net radiation, albedo.
				CO3: Discuss about Atmospheric humidity, concept of saturation, Artificial rainmaking and types weather forecast and their uses.
11	II	GPBR111	Fundamentals of Genetics	**CO1:** Discuss details of cell cycle and structures of cell organelles.
				CO2: Explain heredity and laws of heritance in genetics.
				CO3: Compare gene interactions, recessive and dominant traits
				CO4: Outline the concepts of karyotype, sex linkage and mutations and central dogma of genetic material and genetic code.
12	II	GPBR111P	Fundamentals of Genetics- Practical	**CO1:** Explain about Pre Mendelian concepts of heredity.
				CO2: Summarize the Chromosome - Structure of chromosome, types of chromosomes.
				CO3: Explain about Linkage and cell cycles.
13	II	ENT0131	Fundamentals of Entomology- I	**CO1:** Classify insecta and account for their abundance and dominance
				CO2: Explain the morphology and anatomy of insects.
				CO3: Discuss the life cycle and endocrin systems of insects
				CO4: Summarize the taxonomical features in various orders of insecta.
14	II	ENT0131P	Fundamentals of Entomology-I-Practical	**CO1:** Explain History of Entomology in India
				CO2: Summarize the Structure and modifications of insect antennae, mouth parts, legs, wing venation, modifications and wing coupling apparatus.
				CO3: Classify the Types of reproduction in insects and classify insect taxonomy.
15	II	AENG151	Soil and Water	**CO1**: Discuss types of soil erosion, and control

			Conservation Engineering.	measures.
				CO2: Explain the concept of irrigation water measurements.
				CO3: Outline different water harvesting techniques.
16	II	AENG151P	Soil and Water Conservation Engineering-Practical	**CO1:** Outline the soil and water conservation and causes of soil erosion.
				CO2: Explain Wind erosion –Mechanics of wind erosion, types of soil movement.
				CO3: Summarize Open channel hydraulics, soil loss estimation and components of micro irrigation.
17	II	PATH171	Fundamentals of Plant Pathology-I	**CO1:** Explain the scope and concepts of plant pathology.
				CO2: Compare morphological and anatomical characters of fungi
				CO3: Outline the rules of nomenclature and classification of fungi.
				CO4: Identify viruses and classify plant Parasites and explain different plant nematodes and characters.
18	II	PATH171P	Fundamentals of Plant Pathology-I-Practical	**CO1:** Explain the Importance of plant diseases, scope and objectives of Plant Pathology.
				CO2: Summarize Diseases and symptoms due to abiotic causes. Fungi: General characters, definition of fungus, somatic structures.
				CO3: Explain basic methods of classification and reproduction and nematodes: General morphology and reproduction.
19	III	AGRO201	Crop Production Technology – I	**CO1:** Explain importance and special features of cereal crops in Andhra Pradesh.
				CO2: Outline the agronomical conditions for the cultivation of agricultural cereal crops.
				CO3: Summarize agronomic conditions to grow millet crops.
				CO4: Discuss the agronomic conditions and characteristics of various agricultural field crops necessary for the cultivation of pulses and lentils
20	III	AGRO201P	Crop Production Technology – I -Practical	**CO1:** Explain about Introduction and development of agriculture.
				CO2: outline about Nutrient management with special emphasis on nitrogen dynamics, micro nutrients -INM
				CO3: Learn about Harvesting -Yield attributes -yield - post harvest operations
21	III	GPBR211	Fundamentals of Plant Breeding	**CO1:** Explain historical development, concepts, nature and role of plant breeding and modes of reproduction.
				CO2: Discuss plant introduction and centres of

				origin/diversity.
				CO3: List and explain the different plant breeding methods.
				CO4: Summarize the development of resistance and tolerance mechanisms.
22	III	GPBR211P	Fundamentals of Plant Breeding- Practical	**CO1:** Explain about Historical developments, concept, nature and role of plant breeding
				CO2: Explain about Modes of reproduction and apomixes, Asexual reproduction (vegetative reproduction and apomixis) and sexual reproduction
				CO3: Outline about Modes of pollination, Classification of crop species and hybridization techniques.
23	III	AERD201	Economics for Rural Development	**CO1:** Explain the nature, scope and development of rural economics.
				CO2: Outline the features of rural resources management in India.
				CO3: Explain the different aspects of rural demography.
				CO4: Outline the nature and structure of rural occupations and the concept of work participation rates and unemployment.
24	III	ENTO231	Fundamentals of Entomology -II	**CO1:** Explain biotic and abiotic factors affecting insect ecology.
				CO2: Outline the methods of integrated pest management, surveillance and forecasting and principles of host-plant resistance.
				CO3: Summarize pest management tools and different methods of pest control and formulations of insecticides and application techniques.
25	III	ENTO231P	Fundamentals of Entomology- II - Practical	**CO1:** Explain about Biotic and biotic factors affecting insect ecology
				CO2: Outline about pest surveilliance pest forecasting recent methods.
				CO3: Explain about Beneficial insect and their mass multiplication
26	III	AECO241	Agricultural Finance and Co-Operation	**CO1:** Explain the concepts of agricultural finance, principles of credit and credit analysis
				CO2: Outline social control and nationalisation, lead bank schemes and crop loan systems.
				CO3: Outline the meaning and scope of financial inclusion and schemes and agencies for financing.
				CO4: Summarize the role of various international bodiesand features of

				crop insurance and agricultural projects and functions and role of cooperatives in the agricultural sector.
27	III	AECO241P	Agricultural Finance and Co-Operation - Practical	**CO1:**Definitions of agricultural finance and meaning and significance of micro and macro finance.
				CO2: Explain Credit analysis and World Bank (WB)- Objectives and functions.
				CO3: Learn social control and functions of RRBs in Andhra Pradesh.
28	III	AENG251	Farm Machinery and Power	**CO1:** Explain the working principles of different farm engines.
				CO2: Outline the ignition and power transmission system of I.C engines.
				CO3: Summarize ploughing, sowing, plant protection, harvesting and threshing equipment and seed cum fertilizer drills.
				CO4: Explain dusters and tractor mounted equipments.
29	III	AENG251P	Farm Machinery and Power -Practical	**CO1:** Explain Internal combustion engine, Different components and their functions
				CO2: Learn Ignition and power transmission system of I.C engine
				CO3: Explain sowing equipment, Seed cum fertilizer drills and sprayers
30	III	CPHY261	Eco- Physiology	**CO1:** Explain concepts and components of ecophysiology and its influence on crop distribution.
				CO2: Outline the impact of different environments on biotic and abiotic components.
				CO3: Distinguish between iconic and osmotic balance and types of competition in agriculture cropping.
				CO4: Explain the scope of allelopathy and phyto-remediation in agriculture
				CO5: Summarize the sources, effects of pollution, global warming on agricultural field crop productivity.
31	III	CPHY261P	Eco- Physiology - Practical	**CO1:** Explain about Basic principles of physiology and environment
				CO2: Outline about control mechanism and environment.
				CO3: Explain about impact of different environments on life processes and osmotic Balance
32	III	PATH271	Fundamentals of Plant Pathology-II	**CO1:** Explain the history, concepts, patterns of survival and dispersal of plant pathogens.
				CO2: Outline the phenomenon of infections and pathogenesis.

				CO3: Summarize the principles of plant disease management and different defence mechanisms.
				CO4: Explain methods of eradication for phytopathogens
33	III	PATH271P	Fundamentals of Plant Pathology- II-Practical	**CO1:** Explain about Survival of plant pathogens and kinds of inoculum primary and secondary inoculum, pattern of survival
				CO2: Outline about Toxins - pathotoxins, phytotoxins and vivotoxins, selective (host specific) and non-selective (host non-specific) Toxins
				CO3: Explain about Dispersal of plant pathogens - active dispersal
34	III	HORT281	Production Technology for Vegetables and Spices	**CO1:** Classify and explain the importance of vegetables and spices in human nutrition and national economy.
				CO2: Outline the agronomical practices for vegetables, fruits and spices.
				CO3: Summarize physiological disorders of vegetables, fruits and spices.
				CO4: Explain disease and pest control and in vegetables, fruits and spices and seed production techniques.
35	III	HORT281P	Production Technology for Vegetables and Spices- Practical	**CO1:** Explain about origin, and area climate, soil, improved varieties and cultivation practices
				CO2: Classify about Physiological disorders Disease and pest control and seed production.
				CO3: Learn about transplanting techniques, Planting distance, Fertilizer requirements Irrigation, Weed management, Harvesting, Yield, Storage
36	III	AEXT291	Fundamentals Of Agricultural Extension	**CO1:** Explain the concepts and development of different types of extension education.
				CO2: List and explain agriculture extension development programmes of GOI and new trends in agricultural extension.
				CO3: Summarize different systems and schemes for community and rural development.
				CO4: Examine programmes for social justice, women development and explain training in rural leadership, extension administration and also for professional qualification and communication models.
37	III	AEXT291P	Fundamentals Of Agricultural Extension -Practical	**CO1:** Explain about Education, Meaning, definition and Types
				CO2: Explain Objectives and principles of extension education.

				CO3: Outline and understand extension efforts in pre-independence era Extension/ Agriculture development programmes.
38	IV	AGRO202	Crop Production Technology–II	**CO1:** Explain the cultivation of oil seed crops and their importance in Indian economy.
				CO2: Outline the cultivation of fibre crops and their importance in Indian economy.
				CO3: Summarize agronomical practices for sugar and tuber crops and their contribution to the Indian economy.
				CO4: Discuss farming practices for tobacco crops and their significance in the Indian economy and forage crops and their importance.
39	IV	AGRO202P	Crop Production Technology–II-Practical	**CO1:** Explain Importance of oilseed crops-edible and non – edible oils – nutritional value importance in Indian economy
				CO2: Explain Soil and climatic requirements - types - growth stages - land Preparation -seeds and sowing- seed treatment-seed rate-spacing-season-time and method of sowing varieties
				CO3: Classify Nutrient and Nursery management- water management- weed management yield attributes – yield- Harvesting – post harvest operations- quality considerations cropping systems
40	IV	AGRO203	Irrigation water management & farming systems	**CO1:** Summarize the farming and cropping systems in India
				CO2: List and explain different allied enterprises.
				CO3: Explain the techniques of sustainable agriculture and development of integrated farming systems, including models for different agri-climatic zones
				CO4: Discuss the properties and relationship of natural resources and their importance in ntegrated farming systd methods of irrigation.
41	IV	AGRO203P	Irrigation water management & farming systems - Practical	**CO1:** Explain Farming Systems, scope of farming system, importance and principles of farming system
				CO2: Classify Types of farming systems, advantages and limitations
				CO3: Summarize Allied enterprises on sericulture, moriculture and silkworm rearing and sustainability indicators.

42	IV	SSAC221	Manures, fertilizers and soil fertility	**CO1:** Discuss the conceptual framework of soil fertility and plant nutrition.
				CO2: Classify plant nutrients and explain nutrient cycles.
				CO3: Summarize the deficiency and toxicity symptoms in plants and corrective measures.
				CO4: Discuss the methods of soil fertility evaluation and plant analysis and mixed fertilizer application in Agriculture.
43	IV	SSAC221P	Manures, fertilizers and soil fertility - Practical	**CO1:** Explain History of soil fertility and plant nutrition Concepts of soil fertility, soil productivity.
				CO2: Explain essential nutrients, Classification and their functions in plants
				CO3: Outline Deficiency symptoms of nutrients, Corrective measures, Toxicity symptoms of different nutrients
44	IV	SMCA201	Statistical methods	**CO1:** Explain the importance and limitations of statistics in agriculture
				CO2: Interpret agricultural data using central tendency and dispersion measures.
				CO3: Explain the importance of probability and testing of hypothesis measures in agricultural field data.
				CO4: Apply the correlation and regression methods to interpret agricultural data and apply ANOVA and Sampling methods.
45	IV	SMCA201P	Statistical methods-Practical	**CO1:** Explain Importance of Statistics in agriculture - limitations of statistics.
				CO2: Classify about Frequency Distribution
				CO3: Outcome about Measures of Dispersion and testing of hypothesis
46	IV	PMRD202	Rural Development Planning and Management	**CO1:** Explain types of planning process in rural development.
				CO2: Discuss the decentralization of planning.
				CO3: Elaborate on different levels of planning.
				CO4: Discuss strategies for sustainable development in rural areas.
47	IV	LSPM201	Livestock and poultry management	**CO1:** Elaborate on the demographic distribution and population dynamics of livestock
				CO2: Explain the design and construction of livestock and poultry buildings.
				CO3: Categorize the breeds of livestock and explain their management.
				CO4: Discuss the nutritional and Disease management of livestock and poultry.
48	IV	LSPM201P	Livestock and poultry	**CO1:** Explain demographic distribution of live-stock population

			management - Practical	**CO2:** Outline Population dynamics of live-stock and role in Indian economy
				CO3: Classify Design and construction of live-stock and poultry buildings and Incubation, hatching and brooding
49	IV	AECO242	Agricultural Marketing, Trade and Prices	**CO1:** Explain different aspects of agricultural marketing.
				CO2: Discuss facilitating functions, market functionaries, supply chain management, market promotion
				CO3: Outline the factors affecting demand and supply of agricultural farm products
				segmentation, integration, cost, regulated markets and government interventions.
50	IV	AECO242P	Agricultural Marketing, Trade and Prices -Practical	**CO1:** Learn Demand and supply of agri commodities, factors affecting the demand and supply of farm products
				CO2: Understand Marketing process and Functions
				CO3: Understand Packing and packaging, branding, grading, standardization, FAQs major crop produce, quality control and labeling - AGMARK, HACCP FSSAI, CODEX and 4ps of marketing.
51	IV	AENG252	Renewable Energy and Green Technology	**CO1:** Explain the classification, advantages an disadvantages of renewable energy sources.
				CO2: Classify gasifiers and briquettes and explain the uses.
				CO3: Outline the methods of tapping solar energy and its applications
				CO4: Summarize the types, construction and applications of wind mills and biomass.
52	IV	AENG252P	Renewable Energy and Green Technology - Practical	**CO1:** Importance of biomass, classification of energy production - Principles o combustion, pyrolysis and gasification
				CO2: Classification, types of biogas plants.
				CO3: Explain Types of gasifiers and solar energy.
53	IV	HORT282	Production Technology for ,Medicinal and Aromatic plants	**CO1:** Explain the principles of land scaping and importance of ornamental plants.
				CO2: Discuss the production technology of different types of ornamental crops
				CO3: Examine the production technology of medicinal and aromatic crops.
				CO4: Discuss the methods of value addition in ornamental, medicinal and aromatic crops
54	IV	HORT282P	Production	**CO1:** Explain the Importance and scope of ornamental crops and landscaping

			Technology for Medicinal and Aromatic Plants - Practical	**CO2:** Outline the Principles of landscaping
				CO3: Explain Production technology of cut and loose flowers under protected conditions
55	IV	AEXT292	Entrepreneurship Development and Business	**CO1:** Explain concepts of entrepreneur, entrepreneurship and its development in the Indian agricultural sector.
				CO2: Outline the use of SWOT analysis to assess agri-enterprises and various skills reuired for successful entrepreneurship.
				CO3: Summarize governmental and non-governmental agencies in entrepreneurship development in Indian agricultural sector.
				CO4: Classify the types of agri entreprises and supply chain and markrting management.
56	IV	AEXT292P	Entrepreneurship Development and Business - Practical	**CO1**: Concept of entrepreneur, entrepreneurship
				CO2: Explain characteristics of entrepreneurs-opportunities for entrepreneurship and rural entrepreneurship
				CO3: Learn Entrepreneurship development programmes (EDPs), SWOT Analysis.
57	V	AGRO301	Geo Informatics and nanotechnology	**CO1:** Explain AGRO Precision agriculture: concepts and techniques-Issues and concerns for Indian agriculture
				CO2: Explain AGRO Geo-informatics-definition, concepts, tools and techniques and their use in Precision Agriculture.
				CO3: Explain AGRO crop discrimination and Yield monitoring techniques
				CO4: Analyse AGRO Spatial data and their management in GIS & AGRO application of nanotechnology in Agriculture- tillage, seed, water, fertilizers, plant protection for scaling-up farm Productivity.
58	V	AGRO301P	Geo Informatics and nanotechnology-Practical	**CO1:** Explain the SSAC GIS software, spatial data creation and editing and processing Software
				CO2: Summarise AGRO Supervised and unsupervised classification and acreage estimation.
				CO3: Explain soil fertility based on GIS & outline productivity and management zones and fertilizers recommendations based of VRT and STCR techniques.
59	V	BICM300	Principles of food	**CO1:** Explain Concepts of food science -

			science and nutrition	Definitions of food, specific nutrients in foods and their functions
				CO2: Explain food physical characteristics
				CO3: Outline food composition**.**
				CO4: Explain biomolecules of Carbohydrates, Proteins, Fatty acids and food additives.
60	V	BICM300P	Principles of food science and nutrition- Practical	**CO1:** Explain concepts of food science
				CO2: Discuss food composition
				CO3: Explain structure and functions of proteins, fats and oils.
61	V	GPBR311	Crop improvement-I	**CO1:** Explain Introduction – General Breeding Objectives, Concepts of breeding self-pollinated, cross pollinated and vegetatively propagated crops
				CO2: Discuss Cereals, Rice, Origin, Distribution of species – Wild relatives and forms –Breeding objectives – Major breeding procedures
				CO3: Explain Cereals - Wheat and Barley - Origin – Distribution of species – Wild relatives and forms – Breeding objectives – Major breeding procedures
				CO4: Outline Pulses and oilseeds- coconut,oilpalm- Pigeonpea - Origin – Distribution of species – Wild relatives and form – Breeding objectives – Major breeding procedures
62	V	GPBR311P	Crop improvement-I -Practical	**CO1:** Explain Hybridization techniques and precautions to be taken, Floral morphology, selfing, emasculation and crossing techniques i field crops.
				CO2: Explain Hybridization techniques and precautions to be taken, Floral morphology, selfing, emasculation and crossing techniques i Millets
				CO3: Explain Hybridization techniques and precautions to be taken, Floral morphology, selfing, emasculation and crossing techniques in Peas
63	V	SSAC321	Problematic soils and their management	**CO1:** Discuss Problem soils –Definition – Different types of problematic soils
				CO2: Explain Salt affected soils – Origin and Formation
				CO3: Identify Saline soils – Visual symptoms fo identification of saline soils
				CO4: Outline Sodic soils - Visual symptoms for

				identification of sodic soils & examine acid soils.
64	V	SSAC321P	Problematic soils and their management Practical	**CO1:** Explain identification of problematic soils and their management
				CO2: Discuss infiltration rates of light soils and infiltration rates of heavy soils
				CO3: Explain pH, EC of acid, saline and sodic Soils
65	V	AENG351	Protected cultivation and postharvest technologies	**CO1:** Explain Definition, greenhouse effect, advantages of green houses.
				CO2: Outline types of greenhouses - Greenhouses based on shape, utility, construction, covering materials and cost, shade nets.
				CO3: Summarize criteria and constructional details of greenhouses - Construction of pipe framed greenhouses, material requirement, preparation of materials and procedure of erection.
				CO4: Explain Irrigation system used in greenhouses - Rules of watering, hand watering, perimeter watering, overhead sprinklers, boom watering and drip irrigation
66	V	AENG351P	Protected cultivation and postharvest technologies- Practical	**CO1:** Explain different types of greenhouses based on shape and functions and systems of green houses.
				CO2: Discuss postharvest technology
				CO3: Explain determination of moisture content in grains
67	V	ENTO331	Pests of field crops and stored grain management	**CO1:** Discuss general account on nature and type of damage by different arthropod pests
				CO2: Explain Economic Entomology and Economic Classification of Insect Pests
				CO3: Describe Pests of rice
				CO4: Explain Pests of sorghum and other millet & examine pests of cotton.
68	V	ENTO331P	Pests of field crops and stored grain management - Practical	**CO1:** Explain identification and symptoms of damage by various phytophagous insects
				CO2: Summarise Calculations on the doses of insecticides and their application techniques
				CO3: Explain pests of pulse crop and their damage symptoms. Identification of insect pests of oil seed crops and their damage Symptoms
69	V	PATH371	Diseases of field crops and their management-I	**CO1:** Explain Rice diseases
				CO2: Explain Maize diseases
				CO3: Explain Sorghum diseases

				CO4: Summarize Bajra, Sugarcane, Bengal gram and Tobacco diseases
70	V	PATH371P	Diseases of field crops and their management-I - Practical	**CO1:** Explain symptoms, identification and histopathologicalstudies of rice, Wheat, Sorghum and Bajra diseases.
				CO2: Explain symptoms, identification and histopathological studies of Maize and Finger millet
				CO3: Explain symptoms, identification and histopathological studies of Sugarcane and ground nut
71	V	PATH372	Integrated pest and disease management	**CO1:** Summarize and present Concepts of IPM
				CO2: Discuss the importance of ecological and evolutionary knowledge in IPM success.
				CO3: Explain Classification of fungicides based on chemical group and antibiotics.
				CO4: Summarize Integrated disease management in important crops and explain implementation and impact of IPM.(IPM module insect pest)
72	V	PATH372P	Integrated pest and disease management - Practical	**CO1:** Explain plant diseases based on symptoms and signs
				CO2: Discuss biocontrol agents.
				CO3: Explain IDM and Non-IDM methods for plant diseases control
73	V	RERD303	Rural industrialization and entrepreneurship	**CO1:** Discuss Rural Industrialisation 14 hours Concept, Need and Importance
				CO2: Explain growth of Rural Industries in India – Gandhian Approach and Modern Approach
				CO3: Identify Problems and Remedies of Rural Industrialisation.
				CO4: Examine Growth and Structure of Rural Industries, Current Status, Measures to Sustain Growth, Sickness – Remedial Measures and outline the definition, role and present position.
74	V	CPHY361	Environmental studies and disaster management	**CO1:** Understand environmental studies- Definition- Scope and importance
				CO2: Explain natural resources, Renewable and non-renewable resources.
				CO3: Explain resources, Sources, uses and over utilization of surface and groundwater - Dams – Benefits and problems – Sustainable management of water.
				CO4: Explain threats to biodiversity – Habitat loss – Poaching of wild life – Man-wild life

				conflicts – Conservation of biodiversity – In situ and ex situ & environmental pollution, Causes, effects and control of air and water pollution tolerable limits for toxic gases in air.
75	V	CPHY361P	Environmental studies and disaster management - Practical	**CO1:** Explain Collection, processing and storageof effluent samples
				CO2: Discuss Determination of chemical oxyge demand in waste water sample and total dissolved solids in waste water sample.
				CO3: Outline temporary hardness of waste water sample by titration.
76	VI	AGRO303	Rainfed Agriculture and watershed management	**CO1:** Understand about rainfed agriculture and its introduction, problem and prospects in India.
				CO2: Describe farming practices that rely on rainfall for water.
				CO3: Understand objective, principles and component of watershed management.
				CO4: Explain Conservation of soil by adopting latest soil conservation techniques will help in obtaining higher production of Rainfed crops and introduction of improved soil and moisture conservation.
77	VI	AGRO303P	Rainfed Agriculture and watershed management - Practical	**CO1:** Discuss climatic classification, rainfall Analysis
				CO2: Explain onset and withdrawal of monsoon and cropping pattern for different areas
				CO3: outline meteorological data for rainfall Variability
78	VI	SMCA301	Agriculture Informatics	**CO1:** Explain Windows explorer- Creating folder - Copy and paste functions - Control panel Notepad -WordPad etc.
				CO2: Summarize MS word - Creating a document, saving and editing.
				CO3: Discuss Use of options from tool bars – Format - Insert and tools (Spelling and Grammar) - Alignment of paragraphs and text.
				CO4: Explain to Creating a table - Merging of cells - columns and row width - Formats etc.
79	VI	SMCA301P	Agriculture Informatics -Practical	**CO1:** Explain the basics of computer and tool Bars
				CO2: Discuss Notepad, MS word and Excel
				CO3: Explain creating a table, Merging of cells, columns and row width Formats
80	VI	GPBR312	Crop Improvement-II and seed technology	**CO1:** Explain origin, distribution and different breeding methods

				CO2: Discuss adopted for the development of varieties / hybrids in various field and horticultural crops
				CO3: Explain about the plant genetic resources, centers of diversity and breeding for resistance to biotic and abiotic stresses
				CO4: Learn about the procedure of production of hybrid seed in different crops.
81	VI	GPBR312P	Crop Improvement-II and seed technology -Practical	**CO1:** Explain Hybridization techniques and precautions to be taken - Floral morphology, selfing, emasculation and crossing techniques in field crops.
				CO2: Summarise Floral biology, anthesis, pollination, selfing, emasculation and crossing techniques in field crops.
				CO3: Explain Floral biology, anthesis, pollination, selfing, emasculation and crossing techniques in vegetables.
82	VI	ENTO332	Pests of Horticultural crops and beneficial insects	**CO1:** Explain all major pests of crops as regard their taxonomic position, distribution, host range, life history, nature and symptoms of damage.
				CO2: Explain Seasonal abundance and their management.
				CO3: Discuss minor pests their taxonomic position, nature and symptoms of damage
				CO4: Explain Management have been covered with additional information wherever necessary.
83	VI	ENTO332P	Pests of Horticultural crops and beneficial insects- Practical	**CO1:** Explain identification, symptoms and management of insect pests of solanaceous an malvaceous vegetables
				CO2: Explain identification, symptoms and management of insect pests of crucifers and cucurbits
				CO3: Discuss identification, symptoms and management of insect pests of tuber crops and chili
84	VI	PATH373	Diseases of horticultural crops and their management-II	**CO1:** Explain Guava, Papaya, Ber and Sapota diseases
				CO2: Discuss Citrus, Guava, Papaya, Ber and Sapota diseases
				CO3: Explain Banana diseases
				CO4: Summarize Pomegranate diseases and vegetables diseases
85	VI	PATH373P	Diseases of	**CO1:** Explain symptoms, Identification and

			horticultural crops and their management-II - Practical	histopathological studies of citrus and mango.
				CO2: Explain symptoms, Identification and histopathological studies of Ber, guava and sapota diseases.
				CO3: Discuss symptoms, Identification and histopathological studies of papaya, banana and pomegranate diseases.
86	VI	HORT381	Post-harvest management of Fruits and vegetables	**CO1:** Explain Various methods of packaging-packaging materials and transport, Packaging Technology
				CO2: Discuss various Methods of storage-precooling, pre storage treatments, low temperature storage, controlled atmosphere storage
				CO3: Explain Chemicals used in Ripening
				CO4: Summarize Irradiation and low cost storage structures
87	VI	HORT381P	Post-harvest management of Fruits and vegetables -Practical	**CO1:** Explain different types of packaging containers for shelf-life extension
				CO2: Explain preparation of jams and jelly
				CO3: Discuss preparation of RTS
88	VI	AEXT391	Communication and Personality Development	**CO1:** Explain Nonverbal communication skills - Practicing conscious body postures and movements.
				CO2: Overview of verbal communication skills.
				CO3: Learn Practicing listening and note taking and writing skills.
				CO4: Practicing oral presentation skills & practicing writing of field diary and lab record-indexing, footnote and bibliographic procedures.
89	VI	AEXT391P	Communication and Personality Development-Practical	**CO1:** Explain communication and nonverbal communication skills
				CO2: Explain verbal communication skills
				CO3: Discuss oral communication skills
90	VI	AECO341	Farm Management and Resource economics	**CO1:** Assist farm managers in determining the best use of resources, given the changing needs, values and goals of the society.
				CO2: Explain policy makers in determining the consequences of alternative public policies on output, profits and resource use on farms.
				CO3: Evaluate the uses of theory of firm for improving farm management and understanding the behaviour of the farm as a profit maximizing entity.

				CO4: Evaluate the effects of technical and institutional changes on agricultural production and resource use.
91	VI	AECO341P	Farm Management and Resource economics-Practical	**CO1:** Explain d ifferent methods computation of depreciation cost of farm assets.
				CO2: Explain selection of most profitable enterprise combination.
				CO3: Discuss farm holding surveys.
92	VI	AMBE373	Agriculture Microbiology	**CO1:** Understand about Nutritional media and their preparations
				CO2: Explain isolation of azotobacter from soil
				CO3: Explain isolation of Rhizobium from legume root nodule
				CO4: Explain staining and microscopic examination of microbes.
93	VI	AMBE373P	Agricultural Microbiology-Practical	**CO1:** Explain microbiology and equipments
				CO2: Summarise methods of sterilization
				CO3: Explain staining and microscopic examination of biofertilizer organism
94	VI	BICM302	Fundamentals of Plant Biotechnology	**CO1:** Assist in micro propagation units
				CO2: Determine the structures of proteins
				CO3: Determine the structures and functions of RNA and DNA
				CO4: Explain about enzyme activity
95	VI	BICM302P	Fundamentals of Plant Biotechnology-Practical	**CO1:** Identify plant diversity and their conservation through invitro propagation and maintenance of plant tissue culture laboratory.
				CO2: Discuss the widely exploited techniques in molecularbiology like isolation of plant genomic DNA, their separation by gel electrophoresis, amplification of separated DNA by polymerase chain reaction, construction of phylogenetic trees to study genetic relatedness, construction of genome maps using markers.
				CO3: Explain genetic engineering techniques and the importance of using GMOs as bioreactors for the inexpensive production of pharmaceuticals and neutraceuticals.
96	VII	RAWE	Rural Agricultural work Experience and Agro-Industrial Attachment (AIA)	**CO1:** Learn to get an on-campus training from various faculties before step into the village attachment and Agro-industrial attachment
				CO2: Learn and understand issues related to farming and rural development in a natural setting on real-time basis.

				CO3: Attach with the agri related industries and make them know about the functioning them.
				CO4: Propose a project based on his interest and concerned specialists will assist them to complete their project.
97	VIII	AELP	Agriculture Experiential Learning Programme	**CO1:** Produce biocontrol agents like Trichoderma, Pseudomonas and bio-fertilisers like phosphor-bacteria for commercial marketing
				CO2: Produce hybrid seeds of vegetables for commercial production and marketing.
				CO3: Analyse soil health and provide management solutions to farmers.
				CO4: Produce, Mushrooms, honey and vermicompost using their practical knowledge on commercial bee keeping.
98	I	20SDCVP2	Vermicompost production	**CO1:** Identify raw materials needed for vermicomposting.
				CO2: Demonstrate the preparation and management of vermicompost beds.
				CO3: Explain nutrient value of vermicompost and advantages and disadvantages of vermicomposting.
99	II	20SDCZN2	Zero Budget Natural farming	**CO1:** Explain the methods of preparation of zer budget natural farming, nutritive value and advantages and disadvantages.
				CO2: Identify the materials used to make natural fertilizers.
				CO3: Demonstrate procedure for the preparation of natural fertilizers.
100	III	20SDCBK2	Bee keeping	**CO1:** Explain suitable bee keeping species for bee keeping
				CO2: Discuss maintain the bee hives
				CO3: Outline methodologies of extracting, preservation and marketing of honey and other products of honey bee.
101	IV	20SDCMC2	Mushroom cultivation	**CO1:** Explain important types of Mushrooms and their cultivation
				CO2: Explain maintenance of mushroom in hygienic and scientific way
				CO3: Explain value added products of mushroom
102	III	20LSCEE2	Environmental education	**CO1:** Explain the concept of environmental ecology and education.
				CO2: To Grasp the significance of environmental education.

				CO3: Summerise the environmental education with regard to Indian Policies
103	IV	20LSCED2	Entrepreneurship Development	**CO1:** Explain concepts of entrepreneur, entrepreneurship, and its development in the Indian agricultural sector
				CO2: Outline the use of SWOT analysis to assess agri-entreprisesand various skills required for successful entrepreneurship
				CO3: Summerise governmental and non-governmental agencies in entrepreneurship development in the Indian agriculture sector

Mapping of COs with PSOs and & POs

S.No.	Sem	Course Code	Course Title	COs	PSOs	POs
1	I	AGRO101	Fundamentals of agronomy	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
2	I	AGRO101P	Fundamentals of agronomy-practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
3	I	BICM101	Fundamentals of Plant Biochemistry and Soil Science	CO1	PSO1, PSO2, SO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
4	I	BICM101P	Fundamentals of Plant Biochemistry and Soil Science-Practical	CO1	PSO1, PSO2, SO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO3, PO4, PO5
5	I	AECO141	Fundamentals of Agricultural economics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
6	I	HORT181	Fundamentals of Horticulture	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

7	I	HORT181P	Fundamentals of Horticulture-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
8	I	AEXT191	Rural Sociology & Educational Psychology.	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
9	II	AGRO102	Agro Meteorology and Climate Change	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
10	II	AGRO102P	AgroMeteorology and Climate Change- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
11	II	GPBR111	Fundamentals of Genetics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5, PO6
12	II	GPBR111P	Fundamentals of Genetics- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
			Fundamentals of	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

13	II	ENTO131	Entomology- I	CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
14	II	ENTO131P	Fundamentals of Entomology- I-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
15	II	AENG151	Soil and Water Conservation engineering	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
16	II	AENG151P	Soil and Water Conservation engineering-practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
17	II	PATH171	Fundamentals of Plant Pathology-I	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
18	II	PATH171P	Fundamentals of Plant Pathology-I-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
19	III	AGRO201	Crop Production Technology -I	CO1	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5, PO6

20	III	AGRO201P	Crop Production Technology-I - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
21	**III**	GPBR211	Fundamentals of Plant Breeding	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO6.
22	**III**	GPBR211P	Fundamentals of Plant Breeding-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
23	**III**	**AERD201**	Economics for Rural development	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
24	III	**ENTO231**	Fundamentals of Entomology- II	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
25	III	**ENTO231P**	Fundamentals of Entomology-II-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
			Agricultural	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2,	PO1, PO2, PO3,

26	III	**AECO241**	Finance and Cooperation		PSO3, PSO4	PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5, PO6
27	III	**AECO241P**	Agricultural Finance and Cooperation- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
28	III	**AENG251**	Farm machinery and Power	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
29	III	**AENG251P**	Farm machinery and Power - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
30	III	**CPHY261**	Eco-Physiology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO5	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
31	III	**CPHY261P**	Eco-Physiology - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
			Fundamentals of	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5

32	**III**	**PATH271**	Pathology-I	CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
33	**III**	**PATH271P**	Fundamentals of Pathology-I-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
34	III	**HORT281**	Production Technology for Vegetables and spices	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
35	III	**HORT281P**	Production Technology for Vegetables and spices-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
36	III	AEXT291	Fundamentals of Agricultural Extension	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
37	III	AEXT291P	Fundamentals of Agricultural Extension - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
38	IV	**AGRO202**	Crop Production technology-II	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2,	PO1, PO2, PO3,

					PSO3	PO4
39	IV	**AGRO202P**	Crop Production technology-II-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
40	IV	AGRO203	Irrigation, water management & farming systems	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
41	IV	AGRO203P	Irrigation, water management & farming systems - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
42	IV	**SSAC221**	Manures, Fertilizers and soil fertility	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
43	IV	**SSAC221 P**	Manures, Fertilizers and soil fertility- Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
44	IV	**SMCA201**	Statistical Methods	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

45	IV	**SMCA201P**	Statistical Methods-Practical	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
46	IV	**PMRD202**	Rural Development Planning & Management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
47	IV	**LSPM201**	Live-stock and Poultry management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
48	IV	**LSPM201P**	Live-stock and Poultry management-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
49	**IV**	**AECO242**	Agricultural Marketing, Trade and Prices	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
50	**IV**	**AECO242P**	Agricultural Marketing, Trade and Prices-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
51	IV	**AENG252**	Renewable Energy and Green Technology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
52	IV	**AENG252P**	Renewable Energy and Green Technology- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
53	**IV**	**HORT282**	Production technology for Medicinal and Aromatic plants	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
54	**IV**	**HORT282P**	Production technology for Medicinal and Aromatic plants- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
55	**IV**	**AEXT292**	Entrepreneurship development and business	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
56	**IV**	**AEXT292P**	Entrepreneurship development and business- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
57	**V**	**AGRO301**	Geo Informatics and nanotechnology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
			Geo Informatics	CO1	PSO1, PSO2,	PO1, PO2, PO3,

			and nanotechnology - Practical		PSO3, PSO4	PO4, PO5
58	**V**	**AGRO301P**		CO2	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
59	**V**	**BICM300**	Principles of food science and nutrition	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
60	**V**	**BICM300P**	Principles of food science and nutrition- Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
61	**V**	**GPBR311**	Crop improvement-I	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO4	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
62	**V**	**GPBR311P**	Crop improvement-I -Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
63	**V**	**SSAC321**	Problematic soils and their management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
			Problematic soils	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

64	**V**	**SSAC321P**	and their management-Practical	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
65	**V**	**AENG351**	Protected cultivation and postharvest technologies	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
66	**V**	**AENG351P**	Protected cultivation and post harvest technologies-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
67	**V**	**ENTO331**	Pests of field crops and stored grain management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
68	**V**	**ENTO331P**	Pests of field crops and stored grain management-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
69	**V**	**PATH371**	Diseases of field and Horticultural crops and their management-I	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
70	**V**	**PATH371P**	Diseases of field crops and their management-I-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2,	PO1, PO2, PO3,

					PSO3, PSO4	PO4, PO5
71	**V**	**PATH372**	Integrated pest and disease management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
72	**V**	**PATH372P**	Integrated pest and disease management-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
73	**V**	**RERD303**	Rural industrialization and entrepreneurship	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
74	**V**	**CPHY361**	Environmental studies and disaster management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
75	**V**	**CPHY361P**	Environmental studies and disaster management-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
76	**VI**	**AGRO303**	Rainfed Agriculture and watershed management	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

77	**VI**	**AGRO303P**	Rainfed Agriculture and watershed management-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
78	**VI**	**SMCA301**	Agriculture Informatics	CO1	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
79	**VI**	**SMCA301P**	Agriculture Informatics-Practical	CO1	PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
80	**VI**	**GPBR312**	Crop Improvement-II and seed technology	CO1	PS01, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
81	**VI**	**GPBR312P**	Crop Improvement-II and seed technology-Practical	CO1	PS01, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
82	**VI**	**ENTO332**	Pests of Horticultural crops and beneficial insects	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
			Pests of Horticultural crops	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4

83	**VI**	**ENTO332P**	and beneficial insects- Practical	CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
84	**VI**	**PATH373**	Diseases of horticultural crops and their management-II	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
85	**VI**	**PATH373P**	Diseases of horticultural crops and their management-II-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
86	**VI**	**HORT381**	Post-harvest management of Fruits and vegetables	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
87	**VI**	**HORT381P**	Post-harvest management of Fruits and vegetables - Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
88	**VI**	**AEXT391**	Communication and Personality Development	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
89	**VI**	**AEXT391P**	Communication and Personality Development Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO2	PSO1, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, PSO2,	PO1, PO2, PO3,

				CO4	PSO3, PSO4	PO4, PO5, PO6
90	**VI**	**AECO341**	Farm Management and Resource economics	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
91	**VI**	**AECO341P**	Farm Management and Resource economics-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4
92	**VI**	**AMBE373**	Agriculture Microbiology	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
93	**VI**	**AMBE373P**	Agriculture Microbiology-Practical	CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
94	**VI**	**BICM302**	Fundamentals of Plant Biotechnology	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4,	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO4	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
95	**VI**	**BICM302P**	Fundamentals of Plant Biotechnology-Practical	CO1	PSO1, PSO2, PSO3	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, PSO2, PSO3, PSO4,	PO1, PO2, PO3, PO4
				CO3	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4
				CO1	PSO1, PSO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

96	**VII**	**RAWE**	Rural Agricultural work Experience and Agro-Industrial Attachment (AIA)	CO2	PSO1, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
				CO4	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5, PO6
97	**VIII**	**AELP**	Agriculture Experiential Learning Programme	CO1	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO4	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
98	I	**20SDCVP2**	Vermicomposting	CO1	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
99	II	**20SDCZF2**	Zero Budget Natural farming	CO1	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
100	III	**20SDCBK2**	Bee keeping	CO1	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
101	IV	**20SDCMC2**	Mushroom cultivation	CO1	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
102	IV	**20LSCEE2**	Environmental education	CO1	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO2	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
103	IV	**20LSCED2**	Entrepreneurship Development	CO1	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

				CO2	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5
				CO3	PSO1, SO2, PSO3, PSO4	PO1, PO2, PO3, PO4, PO5

Mapping of Courses with PSOs

Course Title	Course Code	PSO1	PSO2	PSO3	PSO4
Fundamentals of agronomy	**AGRO101**	✔	✔	✔	✔
Fundamentals of agronomy-Practical	**AGRO101P**	✔	✔	✔	✔
Fundamentals of Plant Biochemistry and Soil Science	**BICM101**	✔	✔	✔	✔
Fundamentals of Plant Biochemistry and Soil Science-Practical	**BICM101P**	✔	✔	✔	✔
Fundamentals of Agricultural Economics	**AECO141**	✔	✔	✔	✔
Fundamentals of Horticulture	**HORT181**	✔	✔	✔	✔
Fundamentals of Horticulture-Practical	**HORT181P**	✔	✔	✔	✔
Rural Sociology, Educational Psychology and Human Values	**AEXT191**	✔	✔	✔	✔
Introductory Agro Meteorology and Climate Change	**AGRO102**	✔	✔	✔	✔
Introductory Agro Meteorology and Climate Change-Practical	**AGRO102P**	✔	✔	✔	✔
Fundamentals of Genetics	**GPBR111**	✔	✔	✔	✔
Fundamentals of Genetics-Practical	**GPBR111P**	✔	✔	✔	✔

Fundamentals of Entomology 1	**ENTO131**	✔	✔	✔	✔
Fundamentals of Entomology 1 -Practical	**ENTO131P**	✔	✔	✔	✔
Soil and Water Conservation Engineering	**AENG151**	✔	✔	✔	✔
Soil and Water Conservation Engineering -Practical	**AENG151P**	✔	✔	✔	✔
Fundamentals of Plant Pathology -1	**PATH171**	✔	✔	✔	✔
Fundamentals of Plant Pathology -1- Practical	**PATH171P**	✔	✔	✔	✔
Crop Production -1	**AGRO201**	✔	✔	✔	✔
Crop Production -1 -Practical	**AGRO201P**	✔	✔	✔	✔
Fundamentals of Plant breeding	**GPBR211**	✔	✔	✔	✔
Fundamentals of Plant breeding -Practical	**GPBR211P**	✔	✔	✔	✔
Economics for Rural development	**AERD201**	✔	✔	✔	✔
Fundamentals of Entomology -1	**ENTO231**	✔	✔	✔	✔
Fundamentals of Entomology -1 -Practical	**ENTO231P**	✔	✔	✔	✔
Agricultural Finance and Co-Operation	**AECO241**	✔	✔	✔	✔
Agricultural Finance and Co-Operation -Practical	**AECO241P**	✔	✔	✔	✔
Farm machinery and Power	**AENG251**	✔	✔	✔	✔
Farm machinery and Power-Practical	**AENG251P**	✔	✔	✔	✔
Eco-Physiology	**CPHY261**	✔	✔	✔	✔
Eco-Physiology -Practical	**CPHY261P**	✔	✔	✔	✔
Fundamentals of Plant Pathology	**PATH271**	✔	✔	✔	✔
Fundamentals of Plant Pathology -Practical	**PATH 271P**	✔	✔	✔	✔
Production Technology for Vegetables and Spices	**HORT281**	✔	✔	✔	✔
Production Technology for Vegetables and Spices-Practical	**HORT281P**	✔	✔	✔	✔

Fundamentals of Agricultural Extension	**AEXT291**	✔	✔	✔	✔
Fundamentals of Agricultural Extension- Practical	**AEXT291P**	✔	✔	✔	✔
Crop Production Technology - II	**AGR0202**	✔	✔	✔	✔
Crop Production Technology - II -Practical	**AGR0202P**	✔	✔	✔	✔
Irrigation water management, Farming systems and sustainable agriculture	**AGRO203**	✔	✔	✔	✔
Irrigation water management, Farming systems and sustainable agriculture -Practical	**AGRO203P**	✔	✔	✔	✔
Manures, Fertilizers and soil fertility Management	**SSAC221**	✔	✔	✔	✔
Manures, Fertilizers and soil fertility Management -Practical	**SSAC221P**	✔	✔	✔	✔
Statistical Methods	**SMCA201**	✔	✔	✔	✔
Statistical Methods- Practical	**SMCA201P**	✔	✔	✔	✔
Rural Development Planning & management	**PMRD202**	✔	✔	✔	✔
Livestock and Poultry Management	**LSPM201**	✔	✔	✔	✔
Livestock and Poultry Management- practical	**LSPM201P**	✔	✔	✔	✔
Agricultural Marketing, Trade, Prices	**AECO242**	✔	✔	✔	✔
Agricultural Marketing, Trade, Prices - Practical	**AECO242P**	✔	✔	✔	✔
Renewable Energy and Green Technology	**AENG252**	✔	✔	✔	✔
Renewable Energy and Green Technology - Practical	**AENG252P**	✔	✔	✔	✔
Production technology of Ornamental crops, medicinal, Aromatic plants	**HORT282**	✔	✔	✔	✔
Production technology of Ornamental crops, medicinal, Aromatic plants -Practical	**HORT282P**	✔	✔	✔	✔

Entrepreneurship development and business communication	**AEXT292**	✔	✔	✔	✔
Entrepreneurship development and business communication -Practical	**AEXT292P**	✔	✔	✔	✔
Geo informatics and Nanotechnology for precision farming and practical crop production	**AGRO301**	✔	✔	✔	✔
Geo informatics and Nanotechnology for precision farming and practical crop production -Practical	**AGRO301P**	✔	✔	✔	✔
Principles of food science and nutrition	**BICM300**	✔	✔	✔	✔
Principles of food science and nutrition -Practical	**BICM300P**	✔	✔	✔	✔
Crop Improvement-I and Intellectual Property Rights	**GPBR311**	✔	✔	✔	✔
Crop Improvement-I and Intellectual Property Rights-Practical	**GPBR311P**	✔	✔	✔	✔
Problematic soils and their management	**SSAC321**	✔	✔	✔	✔
Problematic soils and their management -Practical	**SSAC321P**	✔	✔	✔	✔
Protected cultivation and post- harvest technologies	**AENG351**	✔	✔	✔	✔
Protected cultivation and post- harvest technologies-Practical	**AENG351P**	✔	✔	✔	✔
Pests of field crops and stored grain and their management	**ENTO331**	✔	✔	✔	✔
Pests of field crops and stored grain and their management -Practical	**ENTO331P**	✔	✔	✔	✔
Diseases of field and horticultural crops and their management-I	**PATH371**	✔	✔	✔	✔
Diseases of field and horticultural crops and their management-I-Practical	**PATH371P**	✔	✔	✔	✔
Principles of Integrated pest and disease management	**PATH372**	✔	✔	✔	✔
Principles of Integrated pest and disease management -	**PATH372P**	✔	✔	✔	✔

Practical					
Rural Industrialization and entrepreneurship	**RERD303**	✔	✔	✔	✔
Environmental studies and disaster management	**CPHY361**	✔	✔	✔	✔
Environmental studies and disaster management - Practical	**CPHY361P**	✔	✔	✔	✔
Rainfed agriculture, watershed management and principles of organic farming	**AGRO303**	✔	✔	✔	✔
Rainfed agriculture, watershed management and principles of organic farming -Practical	**AGRO303P**	✔	✔	✔	✔
Agriculture Informatics	**SMCA301**	✔	✔	✔	✔
Agriculture Informatics- Practical	**SMCA301P**	✔	✔	✔	✔
Crop improvement-II and principles of seed technology	**GPBR312**	✔	✔	✔	✔
Crop improvement-II and principles of seed technology- Practical	**GPBR312P**	✔	✔	✔	✔
Pests of Horticultural crops and their management and beneficial insects	**ENTO332**	✔	✔	✔	✔
Pests of Horticultural crops and their management and beneficial insects - Practical	**ENTO332P**	✔	✔	✔	✔
Diseases of field and horticultural crops and their management-II	**PATH373**	✔	✔	✔	✔
Diseases of field and horticultural crops and their management-II -Practical	**PATH373P**	✔	✔	✔	✔
Post-harvest management and value addition of fruits and vegetables	**HORT381**	✔	✔	✔	✔
Post-harvest management and value addition of fruits and vegetables -Practical	**HORT381P**	✔	✔	✔	✔
Communication skills and personality development	**AEXT391**	✔	✔	✔	✔
Communication skills and personality development - Practical	**AEXT391P**	✔	✔	✔	✔

Farm management, production and resource economics	**AECO341**	✔	✔	✔	✔
Farm management, production and resource economics -Practical	**AECO341P**	✔	✔	✔	✔
Agriculture Microbiology	**AMBE373**	✔	✔	✔	✔
Agriculture Microbiology-Practical	**AMBE373P**	✔	✔	✔	✔
Fundamentals of plant biotechnology	**BICM302**	✔	✔	✔	✔
Fundamentals of plant biotechnology - Practical	**BICM302P**	✔	✔	✔	✔
Rural Agricultural work Experience and Agro-Industrial Attachment (AIA)	**RAWE**	✔	✔	✔	✔
Agriculture Experiential Learning Programme	**AELP**	✔	✔	✔	✔
Vermicomposting	**20SDCVP2**	✔	✔	✔	✔
Zero Budget Natural farming	**20SDCZF2**	✔	✔	✔	✔
Bee keeping	**20SDCBK2**	✔	✔	✔	✔
Mushroom cultivation	**20SDCMC2**	✔	✔	✔	✔
Environmental education	**20LSCEE2**	✔	✔	✔	✔
Entrepreneurship development	**20LSCED2**	✔	✔	✔	✔

Mapping of Courses with POs

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
AGRO101	✔	✔	✔	✔	✔	✔		
AGRO101P	✔	✔	✔	✔	✔			
BICM101	✔	✔	✔	✔	✔			
BICM101P	✔	✔	✔	✔	✔			
AECO141	✔	✔	✔	✔	✔			
HORT181	✔	✔	✔	✔	✔			
HORT181P	✔	✔	✔	✔	✔			
AEXT191	✔	✔	✔	✔	✔			
AGRO102	✔	✔	✔	✔	✔			
AGRO102P	✔	✔	✔	✔	✔			
GPBR111	✔	✔	✔	✔	✔	✔		
GPBR111P	✔	✔	✔	✔	✔	✔		
ENTO131	✔	✔	✔	✔	✔	✔		
ENTO131P	✔	✔	✔	✔	✔	✔		
AENG151	✔	✔	✔	✔	✔	✔		
AENG151P	✔	✔	✔	✔	✔	✔		
PATH171	✔	✔	✔	✔	✔	✔		
PATH171P	✔	✔	✔	✔	✔	✔		
AGRO201	✔	✔	✔	✔	✔	✔		
AGRO201P	✔	✔	✔	✔	✔	✔		
GPBR211	✔	✔	✔	✔	✔	✔		
GPBR211P	✔	✔	✔	✔	✔	✔		
AERD201	✔	✔	✔	✔	✔	✔		
ENTO231	✔	✔	✔	✔	✔	✔		
ENTO231P	✔	✔	✔	✔	✔	✔		
AECO241	✔	✔	✔	✔	✔	✔		
AECO241P	✔	✔	✔	✔	✔	✔		
AENG251	✔	✔	✔	✔	✔			
AENG251P	✔	✔	✔	✔	✔			
CPHY261	✔	✔	✔	✔	✔			
CPHY261P	✔	✔	✔	✔	✔			
PATH271	✔	✔	✔	✔	✔			
PATH 271P	✔	✔	✔	✔	✔			
HORT281	✔	✔	✔	✔	✔			
HORT281P	✔	✔	✔	✔	✔			
AEXT291	✔	✔	✔	✔	✔			
AEXT291P	✔	✔	✔	✔	✔			
AGR0202	✔	✔	✔	✔	✔			
AGR0202P	✔	✔	✔	✔	✔			
AGRO203	✔	✔	✔	✔	✔			
AGRO203P	✔	✔	✔	✔	✔			
SSAC221	✔	✔	✔	✔	✔			

SSAC221P	✔	✔	✔	✔	✔			
SMCA201	✔	✔	✔	✔	✔			
SMCA201P	✔	✔	✔	✔	✔			
PMRD202	✔	✔	✔	✔	✔			
LSPM201	✔	✔	✔	✔	✔			
LSPM201P	✔	✔	✔	✔	✔			
AECO242	✔	✔	✔	✔	✔			
AECO242P	✔	✔	✔	✔	✔			
AENG252	✔	✔	✔	✔	✔			
AENG252P	✔	✔	✔	✔	✔			
HORT282	✔	✔	✔	✔	✔			
HORT282P	✔	✔	✔	✔	✔			
AEXT292	✔	✔	✔	✔	✔			
AEXT292P	✔	✔	✔	✔	✔			
AGRO301	✔	✔	✔	✔	✔			
AGRO301P	✔	✔	✔	✔	✔			
BICM300	✔	✔	✔	✔	✔			
BICM300P	✔	✔	✔	✔	✔			
GPBR311	✔	✔	✔	✔	✔			
GPBR311P	✔	✔	✔	✔	✔			
SSAC321	✔	✔	✔	✔	✔			
SSAC321P	✔	✔	✔	✔	✔			
AENG351	✔	✔	✔	✔	✔			
AENG351P	✔	✔	✔	✔	✔			
ENTO331	✔	✔	✔	✔	✔			
ENTO331P	✔	✔	✔	✔	✔			
PATH371	✔	✔	✔	✔	✔			
PATH371P	✔	✔	✔	✔	✔			
PATH372	✔	✔	✔	✔	✔			
PATH372P	✔	✔	✔	✔	✔			
RERD303	✔	✔	✔	✔	✔	✔		
CPHY361	✔	✔	✔	✔	✔			
CPHY361P	✔	✔	✔	✔	✔			
AGRO303	✔	✔	✔	✔				
AGRO303P	✔	✔	✔	✔				
SMCA301	✔	✔	✔	✔				
SMCA301P	✔	✔	✔	✔				
GPBR312	✔	✔	✔	✔	✔			
GPBR312P	✔	✔	✔	✔	✔			
ENTO332	✔	✔	✔	✔				
ENTO332P	✔	✔	✔	✔				
PATH373	✔	✔	✔	✔				
PATH373P	✔	✔	✔	✔				
HORT381	✔	✔	✔	✔				
HORT381P	✔	✔	✔	✔				
AEXT391	✔	✔	✔	✔	✔	✔		

AEXT391P	✔	✔	✔	✔	✔	✔		
AECO341	✔	✔	✔	✔	✔			
AECO341P	✔	✔	✔	✔	✔			
AMBE373	✔	✔	✔	✔	✔			
AMBE373P	✔	✔	✔	✔	✔			
BICM302	✔	✔	✔	✔	✔			
BICM302P	✔	✔	✔	✔	✔			
RAWE	✔	✔	✔	✔	✔	✔		
AELP	✔	✔	✔	✔	✔			
20SDCVP2	✔	✔	✔	✔	✔			
20SDCZF2	✔	✔	✔	✔	✔			
20SDCBK2	✔	✔	✔	✔	✔			
20SDCMC2	✔	✔	✔	✔	✔			
20LSCEE2	✔	✔	✔	✔	✔			
20LSCED2	✔	✔	✔	✔	✔			