

AGRICULTURE

<B.Sc. (Hons.) Agriculture>

Instructions: Total document to be prepared in Times New Roman font. The Heading should be Bold and font size 14, the Second heading (sub-heading) should be bold and size 12, and the body text should be 12 font size with single line spacing.

VISION

- To promote sustainable and eco-friendly agricultural practices that ensure food security, environmental conservation, and improved livelihoods for farming communities.
- To become a center of excellence in agricultural education, research, and innovation through the integration of modern technologies, smart farming, and climate-resilient approaches.
- To empower farmers, students, and stakeholders with scientific knowledge and practical skills for transforming rural economies and achieving inclusive agricultural growth.

MISSION

- To impart quality education and hands-on training in agricultural sciences, nurturing competent professionals capable of addressing present and future challenges in agriculture.
- To conduct cutting-edge research and promote innovative, eco-friendly technologies that enhance productivity, sustainability, and resilience in agricultural systems.
- To disseminate scientific knowledge, strengthen linkages with farming communities, and empower farmers through effective extension, capacity building, and participatory programs.

PROGRAMME EDUCATIONAL OBJECTIVES:

PEO1: Graduates will develop strong foundational knowledge and practical skills in agricultural sciences, enabling them to pursue successful careers in farming, agribusiness, research, and allied sectors, while continuously upgrading their knowledge through lifelong learning.

PEO2: Graduates will apply scientific principles and modern technologies to promote sustainable agriculture, environmental stewardship, and rural development, contributing to national food security and the well-being of farming communities.

PROGRAM SPECIFIC OUTCOME (PSOs)

PSO1: Graduates will be able to apply fundamental and advanced knowledge of crop production, soil management, plant protection, and agricultural technology to enhance farm productivity and sustainability.

PSO2: Graduates will apply scientific principles and modern technologies to promote sustainable agriculture, environmental stewardship, and rural development, contributing to national food security and the well-being of farming communities.

PROGRAMME OUTCOMES:

PO1: Ability to acquire a strong foundation in agricultural sciences, including crop production, soil science, horticulture, entomology, pathology, agricultural economics, and extension education.

PO2: Ability to develop hands-on skills in crop cultivation, soil and water management, pest and disease diagnosis, farm machinery operation, and agricultural data analysis.

PO3: Ability to identify, analyze, and solve agricultural problems related to productivity, sustainability, and resource management using scientific principles.

PO4: Ability to gain the ability to conduct experiments, collect and interpret data, and apply research methods for developing innovative solutions in agriculture.

PO5: Ability to use modern agricultural tools, equipment, and information and communication technologies (ICT), including precision farming, GIS, and remote sensing.

PO6: Ability to demonstrate ethical conduct, accountability, and social responsibility in agricultural practice and decision-making.

PO7: Ability to demonstrate ethical conduct, accountability, and social responsibility in agricultural practice and decision-making.

PO8: Ability to recognize rural life, farming systems, and the socio-economic conditions of farmers through experiential learning programs like RAW (Rural Agricultural Work Experience) and AELP (Agri Entrepreneurship Learning Programme).



Credit Definition

Type	Duration (in hours)	Credit
Lecture (L)	1	1
Tutorial (T)	0	0
Practical (P)	2	1

Total Credit Distribution for the Entire Programme

Semester	Credits										Credits/Semester
	MC	ME	Project	NM	NV	MDC	AEC	SEC	VAC	INT	
1	9	0	0	4	0	3	2	4	2	0	24
2	24	0	0	0	0	0	0	0	0	0	24
3	23	0	0	0	0	0	0	0	0	0	23
4	19	6	0	0	0	0	0	0	0	0	25
5	21	9	0	0	0	0	0	0	0	0	30
6	21	9	0	0	0	0	0	0	0	0	30
7	20	0	0	0	0	0	0	0	0	0	20
8	0	0	0	0	0	0	40	0	0	0	40
Credits/Course	137	24	0	4	0	3	42	4	2	0	216

Category Definition

Definition of Category/Type	Abbreviation
Major Compulsory	MC
Major Elective	ME
Non-Major Specific Subject Course	NM
Non-major Vocational Education and Training	NV
Multidisciplinary Courses	MDC
Ability Enhancement Courses	AEC
Skill Enhancement Courses	SEC
Value Added Courses	VAC
Internship	INT

FIRST YEAR

SEMESTER-I

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Deeksharambh (Induction cum Foundation course) *	AGRIU043T01	VAC	1	1	0	0
2	Floriculture and Landscaping (Skill Enhancement Course-I*)	AGRIU042P02	SEC	2	0	0	2
3	Seed Production and Testing Technology (Skill Enhancement Course-II*)	AGRIU042P03	SEC	2	0	0	2
4	Communication Skills	AGRIU041B04	AEC	2	1	0	1
5	Farming based livelihood systems	AGRIU030B05	MDC	3	2	0	1
6	Rural Sociology and Educational Psychology	AGRIU021T06	NM	2	2	0	0
7	Fundamentals of Agronomy	AGRIU011B07	MC	3	2	0	1
8	Fundamentals of Soil Science	AGRIU011B08	MC	3	2	0	1
9	Fundamentals of Horticulture	AGRIU011B09	MC	3	0	0	1
10	National Service Scheme (NSS-I)/ National Cadet Corps (NCC-I)	AGRIU041P10	AEC	1	0	0	1
11	Introductory mathematics*	AGRIU043T11	VAC	1	1	0	0
Total Credits				24 Credits			

SEMESTER-II

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Fundamentals of genetics	AGRIU101B01	MC	3	2	0	1
2	Agricultural microbiology	AGRIU101B02	MC	2	1	0	1
3	Soil and water conservation engineering	AGRIU101B03	MC	2	1	0	1
4	Fundamentals of crop physiology	AGRIU101B04	MC	2	1	0	1



5	Fundamentals of agricultural economics	AGRIU101T05	MC	2	2	0	0
6	Fundamentals of plant pathology	AGRIU101B06	MC	4	3	0	1
7	Fundamentals of entomology	AGRIU101B07	MC	4	3	0	1
8	Fundamentals of agricultural extension education	AGRIU101B08	MC	3	2	0	1
9	Communication skills and personality development	AGRIU101B09	MC	2	1	0	1
Total Credits				24 Credits			

SECOND YEAR

SEMESTER-III

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Crop production technology - I (kharif crops)	AGRIU201B01	MC	2	1	0	1
2	Fundamentals of plant breeding	AGRIU201B02	MC	3	2	0	1
3	Agricultural finance and cooperation	AGRIU201B03	MC	3	2	0	1
4	Agri- informatics	AGRIU201B04	MC	2	1	0	1
5	Farm machinery and power	AGRIU201B05	MC	2	1	0	1
6	Production technology for vegetables and spices	AGRIU201B06	MC	2	1	0	1
7	Environmental studies and disaster management	AGRIU201B07	MC	3	2	0	1
8	Statistical methods	AGRIU201B08	MC	2	1	0	1
9	Livestock and poultry management	AGRIU201B09	MC	4	3	0	1
Total Credits				23 Credits			

SEMESTER-IV (Sample)

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Crop production technology - II (<i>rabi crops</i>)	AGRIU201B10	MC	2	1	0	1

2	Production technology for ornamental crops, map and landscaping	AGRIU201B11	MC	2	1	0	1
3	Renewable energy and green technology	AGRIU201B12	MC	2	1	0	1
4	Problematic soils and their management	AGRIU201T13	MC	2	2	0	0
5	Production technology for fruit and plantation crops	AGRIU201B14	MC	2	1	0	1
6	Principles of seed technology	AGRIU201B15	MC	3	1	0	2
7	Farming system & sustainable agriculture	AGRIU201T16	MC	1	1	0	0
8	Agricultural marketing trade & prices	AGRIU201B17	MC	3	2	0	1
9	Introductory agro-meteorology & climate change	AGRIU201B18	MC	2	1	0	1
10	Agribusiness management (elective)	AGRIU201B19A	ME	3	2	0	1
11	Agrochemicals (elective)	AGRIU201B19B	ME	3	2	0	11
Total Credits				25 Credits			

THIRD YEAR

SEMESTER-V (Sample)

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Principles of integrated pest and disease management	AGRIU401B01	MC	3	2	0	1
2	Manures, fertilizers and soil fertility management	AGRIU401B02	MC	3	2	0	1
3	Pests of crops and stored grain and their management	AGRIU401B03	MC	3	2	0	1
4	Diseases of field and horticultural crops and their management -I	AGRIU401B04	MC	3	2	0	1
5	Crop improvement-I (kharif crops)	AGRIU401B05	MC	2	1	0	1
6	Entrepreneurship development and business communication	AGRIU401B06	MC	2	1	0	1
7	Geoinformatics and nano-technology and precision farming	AGRIU401B07	MC	2	1	0	1
8	Practical crop production - I (kharif crops)	AGRIU401P08	MC	2	0	0	2
9	Intellectual property rights	AGRIU401T09	MC	1	1	0	0
10	Commercial plant breeding (elective)	AGRIU402B10A	ME	3	1	0	2



11	Landscaping (elective)	AGRIU402B10B	ME	3	2	0	1
12	System simulation and agro-advisory (elective)	AGRIU402B10C	ME	3	2	0	1
Total Credits				30Credits			

SEMESTER-VI (Sample)

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Rainfed agriculture & watershed management	1280015349	MC	2	1	0	1
2	Protected cultivation and secondary agriculture	1280015358	MC	2	1	0	1
3	Diseases of field and horticultural crops and their management - II	1280015360	MC	3	2	0	1
4	Post-harvest management and value addition of fruits and vegetables	1280015351	MC	2	1	0	1
5	Management of beneficial insects	1280015352	MC	2	1	0	1
6	Crop improvement - II (rabi crops)	1280015353	MC	2	1	0	1
7	Practical crop production - II (rabi crops)	1280015255	MC	2	0	0	2
8	Principles of organic farming	1280015362	MC	2	1	0	1
9	Farm management, production & resource economics	1280015361	MC	2	1	0	1
10	Principles of food science and nutrition	1280015157	MC	2	2	0	0
11	Agricultural journalism (elective)	1280015359A	ME	3	2	0	1
12	Biopesticides & biofertilizers (elective)	1280015359B	ME	3	2	0	1
13	Micro propagation technologies (elective)	1280015359C	ME	3	1	0	2
Total Credits				30 Credits			

FOURTH YEAR

SEMESTER-VII (Sample)

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Orientation and survey of village	1280016201	MC	1	0	0	1
2	Agromonomical interventions	1280016202	MC	3	0	0	3



3	Plant protection interventions	1280016203	MC	2	0	0	2
4	Soil improvement interventions (soil sampling and testing)	1280016204	MC	2	0	0	2
5	Fruit and vegetable production interventions	1280016205	MC	3	0	0	3
6	Food processing and storage interventions	1280016206	MC	1	0	0	1
7	Animal production interventions	1280016207	MC	1	0	0	1
8	Extension and transfer of technology activities	1280016208	MC	3	0	0	3
9	Agro-industrial attachment	1280016209	MC	4	0	0	4
Total Credits				20 Credits			

SEMESTER-VIII (Sample)

Sl No	Course Title	Code	Type	Credit	Type		
					L	T	P
1	Poultry production technology	1280017501D	AEC	10	0	0	10
2	Floriculture, landscaping and nursery	1280017501E	AEC	10	0	0	10
3	Agriculture waste management	1280017501G	AEC	10	0	0	10
4	Organic production technology	1280017501H	AEC	10	0	0	10
Total Credits				40 Credits			

COURSE CO-PO-PSO MAPPING

SEMESTER-I

COURSE 1 (Deeksharambh (Induction cum Foundation course))

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Recall the vision, mission, rules, and ethos of the institution.

CO2: Practice time management, study skills, and communication strategies for effective learning.

CO3: Compare diverse cultural, ethical, and environmental perspectives to appreciate unity in diversity.

CO4: Prioritize the role of discipline, leadership, and value-based living in achieving life goals.



CO5: Generate a personal action plan for academic excellence, personality development, and societal contribution.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	2	2	3	2	2	3	2	2
CO2	2	2	1	2	3	2	2	3	3	2	2
CO3	1	1	2	3	2	3	3	3	2	3	3
CO4	1	2	1	2	3	2	3	2	3	3	2
CO5	1	1	2	2	3	2	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 2 (Floriculture and Landscaping (Skill Enhancement Course I))

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Describe the fundamentals of floriculture.

CO2: Execute the knowledge of landscaping principles to develop aesthetic and functional garden layouts.

CO3: Detect suitable ornamental plants for different landscape purposes.

CO4: Dispute skills in nursery management for ornamental plants.

CO5: Generate the economics and market potential of floriculture ventures.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	2	1	3	2	1
CO2	3	3	2	2	2	2	1	1	3	3	2
CO3	2	3	2	3	3	2	2	1	3	3	3
CO4	2	3	3	3	3	2	2	2	3	3	3
CO5	2	3	3	3	3	3	2	2	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 3 (Seed Production and Testing Technologies (Skill enhancement course II))

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Describe the principles of seed production of different crop types.

CO2: Illustrate the knowledge of seed certification systems and related regulatory standards.

CO3: Examine seed testing techniques to evaluate physical and genetic purity.

CO4: Appraise practices for maintaining genetic purity and seed quality.

CO5: Create capacity building program for seed production of different crops.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	2	2	2	3	3	2
CO2	3	3	2	2	2	2	1	2	3	3	2
CO3	2	3	3	3	2	2	1	2	3	3	3
CO4	2	3	3	3	2	2	2	2	3	3	3
CO5	2	3	3	3	3	2	2	3	3	3	3

COURSE 4 (Communication Skills)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the principles of different types of communication for effective expression.

CO2: Demonstrate proficiency in listening, speaking, reading, and writing skills in academic and professional contexts.

CO3: Examine barriers to communication and formulate strategies to overcome them.

CO4: Check the effectiveness of communication in personal, and professional areas.

CO5: Design structured presentations, reports, and professional correspondence with clarity and confidence.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	3	2	2	3	2	2
CO2	2	3	2	3	2	3	2	3	3	2	3
CO3	2	3	3	3	2	3	3	3	3	3	3
CO4	2	3	3	3	3	3	3	3	3	3	3
CO5	1	2	2	2	3	3	3	3	3	2	3

COURSE 5 (Farming based Livelihood Systems)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Identify the present scenario of Indian Agriculture.



CO2: demonstrate prevalent farming systems in India contributing to livelihood.

CO3: Detect the components of farming system.

CO4: Monitor the feasibility of different farming systems for different agro-climatic zones.

CO5: Plan the different schemes and programs by Central and State Government, Public and Private organizations involved in promotion of farming-based livelihood opportunities.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	2	2	2	3	2	2
CO2	3	3	3	2	3	2	2	2	3	3	2
CO3	2	3	3	3	3	2	2	3	3	3	3
CO4	2	3	3	3	3	3	3	3	3	3	3
CO5	2	3	2	3	3	3	3	3	3	3	3

COURSE 6 (Rural Sociology and Educational Psychology)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the fundamental concepts of rural sociology and its relevance to rural development.

CO2: Classify the rural social institutions with influence to rural society, culture, and change.

CO3: Detect the influence of social change, leadership, and group dynamics on rural community development.

CO4: Monitor the impact of socio-psychological factors on adoption of innovations, decision-making, and rural development programs.

CO5: Compose problem-solving approaches to address rural issues.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	2	2	2	3	2	2
CO2	3	3	2	2	3	2	2	2	3	3	2
CO3	2	3	3	2	2	3	2	2	3	3	3
CO4	2	3	3	3	3	3	3	2	3	3	3
CO5	2	2	2	3	3	3	3	3	3	3	3

COURSE 7 (Fundamentals of Agronomy)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Discuss the fundamental concepts of agronomy.

CO2: Carry out agronomic practices for efficient utilization of natural resources and improved crop productivity.

CO3: Detect the impact of climate, soil, and agronomic practices on crop growth and yield.

CO4: Monitor the methods of integrated nutrient management.

CO5: Formulate soil-plant-water relationships and water use efficiency.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	2	1	3	2	1
CO2	3	3	2	2	2	2	1	1	3	3	2
CO3	2	3	2	3	3	1	1	1	3	3	2
CO4	2	3	2	3	3	2	2	1	3	3	3
CO5	2	3	3	3	2	3	1	2	3	3	3

COURSE 8 (Fundamentals of Soil Science)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Define the soil pedological and edaphological concepts.

CO2: Demonstrate various soil physical properties and their impact on plant growth.

CO3: Infer the process of soil reaction influence nutrient availability and plant growth

CO4: Select the inorganic and organic soil colloids, their chemistry and behaviour.

CO5: Improve practical skills in soil sampling, analysis, texture determination, and pH testing.



COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	1	2	1	3	2	1
CO2	3	3	2	2	3	1	1	1	3	3	2
CO3	3	3	2	3	3	2	1	2	3	3	3
CO4	2	3	2	3	3	2	2	2	3	3	3
CO5	2	3	3	3	3	3	2	2	3	3	3

COURSE 9 (Fundamentals of Horticulture)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the basics of horticulture.

CO2: Illustrate the principles of plant propagation, and orchard establishment.

CO3: Integrate cultural, and intercultural operations for different horticultural crops.

CO4: Check post-harvest practices for quality maintenance and reducing losses.

CO5: Improve practical skills in grafting, budding, layering, nursery raising, and garden maintenance.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	1
CO2	3	3	2	2	2	2	1	1	3	3	2
CO3	3	3	2	3	2	2	2	2	3	3	3
CO4	2	3	2	3	3	2	2	2	3	3	3
CO5	2	3	3	3	3	3	2	2	3	3	3

COURSE 10 (National Service Scheme I (NSS I))

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Discuss the principles of the National Service Scheme

CO2: Execute skills in organizing community service programs related to health, environment, literacy, and rural development.

CO3: Organize a sense of social responsibility, civic consciousness, and commitment to voluntary service.

CO4: Monitor social issues.



CO5: Compose innovative ideas for solving community problems.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	2	1	3	2	2	3	2	2	2
CO2	2	3	3	2	3	3	3	3	3	3	3
CO3	2	2	3	2	3	3	3	3	3	3	3
CO4	1	2	3	3	2	3	3	3	2	3	3
CO5	2	2	2	2	3	3	3	3	2	2	3

COURSE 11 (Introductory mathematics (need based))

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain fundamental concepts of algebra, geometry, trigonometry, and calculus relevant to applied sciences.

CO2: Execute basic algebraic operations.

CO3: Distinguish measurements of straight lines and circles.

CO4: Prioritize positive attitude towards learning of mathematics.

CO5: Compile logical reasoning, problem-solving, and quantitative skills for higher-level courses.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	2	1	1	3	2	2
CO2	3	3	2	2	2	2	1	2	3	3	3
CO3	3	3	3	3	2	2	2	2	3	3	3
CO4	2	3	3	3	2	3	2	2	3	3	3
CO5	3	3	3	3	3	3	2	3	3	3	3

SEMESTER-II

COURSE 1 (Fundamentals of Genetics)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the fundamental concepts of heredity, variation, and the basic principles of genetics that govern inheritance in living organisms.



CO2: Apply genetic principles to solve problems related to monohybrid, dihybrid, and test crosses, using Punnett squares and probability laws.

CO3: Analyze the structure, function, and replication mechanisms of genetic material (DNA and RNA) and their role in gene expression.

CO4: Evaluate the impact of chromosomal abnormalities, mutations, and genetic disorders on inheritance and crop improvement.

CO5: Develop genetic hypotheses and predict the outcomes of specific genetic crosses or breeding experiments.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	2
CO2	3	3	2	2	2	2	1	1	3	3	2
CO3	3	3	3	2	2	2	2	2	3	3	3
CO4	2	3	3	3	3	2	2	2	3	3	3
CO5	2	3	3	3	3	3	2	2	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 2 (Agricultural Microbiology)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the basic concepts of microbiology relevant to agriculture.

CO2: Illustrate the morphology and physiology of agriculturally important microbes through laboratory experiments.

CO3: Compare the interactions between microorganisms and plants, including symbiotic and non-symbiotic associations such as nitrogen fixation and mycorrhizae.

CO4: Verify the applications of beneficial microorganisms in biofertilizers, biopesticides, composting, and sustainable agriculture.

CO5: Develop skills for isolation, identification, and maintenance of microbial cultures for agricultural and environmental applications.



MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	1
CO2	3	3	2	2	2	2	1	1	3	3	2
CO3	3	3	3	3	2	2	2	2	3	3	3
CO4	2	3	2	3	3	2	2	2	3	3	3
CO5	2	3	3	3	3	3	2	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 3 (Soil and Water Conservation Engineering)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the fundamental principles of soil erosion, its types, causes, and factors affecting erosion by water and wind.

CO2: Utilize various soil and water conservation measures suitable for different land conditions and rainfall patterns.

CO3: Differentiate the hydrological processes involved in runoff, infiltration, and sediment transport affecting soil and water conservation.

CO4: Check different engineering and agronomic methods for controlling soil erosion and conserving water resources.

CO5: Plan appropriate soil and water conservation structures such as contour bunds, terraces, check dams, and waterways based on field conditions.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	3	2	1	1	3	2	2
CO2	3	3	2	1	3	2	2	1	3	3	2
CO3	3	3	3	2	2	2	2	2	3	3	3
CO4	2	3	3	3	2	2	2	2	3	3	3
CO5	2	2	3	3	3	3	2	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 4 (Fundamentals of Crop Physiology)



COURSE OUTCOMES:

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

CO1: Describe the basic concepts of plant physiology.

CO2: Apply physiological principles to improve water-use efficiency, nutrient uptake, and stress management in crop production systems.

CO3: Analyze the influence of internal and external factors such as light, temperature, and water on physiological processes and crop productivity.

CO4: Evaluate the physiological basis of yield formation, stress tolerance, and adaptation mechanisms in crop plants.

CO5: knowledge Integrate of crop physiology with breeding and agronomic practices for enhancing crop yield and sustainability.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	1
CO2	3	3	2	2	2	2	1	2	3	3	2
CO3	3	3	3	2	2	2	2	2	3	3	3
CO4	2	3	3	3	3	2	2	2	3	3	3
CO5	2	2	3	3	2	3	2	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 5 (Fundamentals of Agricultural Economics)

COURSE OUTCOMES:

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

CO1: Define key economic concepts and principles relevant to agriculture, such as demand, supply, utility, and production.

CO2: Illustrate the applications of micro and macro- economics in the agricultural sector.

CO3: Relate the behavior of producers and consumers in agricultural markets using economic theories and models.

CO4: Prioritize various agricultural policies and their impact on farmers, markets, and rural development.



CO5: Formulate economic strategies to enhance farm profitability and sustainability under changing economic and environmental conditions.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	2
CO2	3	3	2	2	2	2	1	1	3	3	2
CO3	3	3	3	2	2	2	2	2	3	3	3
CO4	2	3	3	3	3	2	2	2	3	3	3
CO5	2	2	3	2	3	3	3	3	3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 6 (Fundamentals of Plant Pathology)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Define the basic concepts of plant pathology.

CO2: Classify different types of plant pathogens using laboratory and field observations.

CO3: Relate the mechanisms of pathogenesis and the role of host–pathogen interactions in disease development.

CO4: Evaluate the effects of environmental factors on the occurrence and spread of plant diseases.

CO5: Compose the knowledge of plant pathology for developing sustainable and eco-friendly disease management strategies in crop production.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	1
CO2	3	3	2	2	2	2	1	1	3	3	2
CO3	3	3	3	3	2	2	2	2	3	3	3
CO4	2	3	3	3	3	2	2	2	3	3	3
CO5	2	2	3	3	3	3	2	3	3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL



COURSE 7 (Fundamentals of Entomology)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Define the basic concepts, terminology, and scope of entomology and its significance in agriculture.

CO2: Demonstrate skills in their collection, preservation, and labeling.

CO3: Analyze the role of insects in agro-ecosystems and their interactions with crops and the environment.

CO4: Evaluate the economic importance of insects in terms of crop loss, pollination, and biological control.

CO5: Apply entomological knowledge for developing integrated pest management (IPM) and eco-friendly pest control strategies.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	1	1	2	3	2	1
CO2	3	3	2	1	2	1	1	1	3	3	2
CO3	3	3	2	2	2	1	1	2	3	3	2
CO4	2	2	3	2	3	2	2	3	3	3	3
CO5	2	3	3	3	3	2	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 8 (Fundamentals of Agricultural Extension Education)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the philosophy, need, and importance of extension education in transferring agricultural innovations to farmers.

CO2: Identify the social, cultural, and economic factors influencing the adoption of agricultural technologies.

CO3: Apply principles of communication, motivation, and learning to improve farmer participation and behavior change.

CO4: Evaluate the effectiveness of extension programs and communication strategies in addressing farmers' needs.



CO5: Develop extension programs and strategies that promote sustainable agriculture, community empowerment, and rural livelihood improvement.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	3	2	1	1	3	2	2
CO2	3	3	2	1	3	2	2	1	3	3	2
CO3	2	2	3	3	2	3	2	2	3	3	3
CO4	2	3	3	2	3	3	3	2	3	3	3
CO5	2	3	3	2	3	3	3	3	3	3	3
1. LOW 2. MODERATE 3. SUBSTANTIAL											

COURSE 9 (Communication Skills and Personality Development)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the importance of verbal and non-verbal communication in personal, academic, and professional contexts. (*Understanding*)

CO2: Demonstrate effective oral, written, and presentation skills for professional and interpersonal communication.

CO3: Analyze different communication situations for effective interaction.

CO4: Verify factors influencing personal growth and professional behaviour.

CO5: Integrate communication skills and personality traits to build a positive professional image and achieve career success.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	1	1	1	2	2	3	3	2	1	1
CO2	2	2	1	2	2	2	3	3	2	2	1
CO3	1	1	2	1	2	3	3	3	2	2	1
CO4	2	2	2	2	3	2	3	3	2	2	1
CO5	2	2	3	2	3	3	3	3	3	2	2
1. LOW 2. MODERATE 3. SUBSTANTIAL											

SEMESTER-III

COURSE 1 (Crop Production Technology – I (*kharif crops*))



COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Outline the classification of kharif season crops.

CO2: Illustrate economic importance of major kharif crops.

CO3: Integrate the knowledge about the package of practices for individual kharif crops.

CO4: Verify agronomic principles to improve productivity and resource-use efficiency of kharif crops.

CO5: Improve practical skills through hands-on training for improvement of kharif crops.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	2
CO2	3	3	2	2	2	2	2	1	3	3	3
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	2	3	2	2	3	2	2	2	2	3	3
CO5	2	2	3	3	2	2	3	3	3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 2 (Fundamentals of Plant Breeding)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Summarize the historical aspect of plant breeding.

CO2: Utilize breeding procedures in self- and cross-pollinated crops.

CO3: Appraise different population improvement schemes.

CO4: Reconstruct the requirements in breeding for biotic and abiotic stress tolerant crops.

CO5: Compose the principles regarding modern molecular approaches.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	2
CO2	3	3	2	2	2	2	2	1	3	3	3



CO3	3	3	3	3	2	2	2	2	3	3	3
CO4	2	2	3	3	2	2	2	2	2	3	3
CO5	2	2	2	2	3	3	3	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 3 (Agricultural Finance and Cooperation)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Categorize the functioning of financial institutes.

CO2: Demonstrate the different credit needs and its role in Indian Agriculture.

CO3: Examine the biological and economic laws in agricultural production.

CO4: Monitor various appraisal techniques in investment of agricultural projects.

CO5: Formulate the government provided subsidized loans, grants, and other financial incentives to support the agricultural sector.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	3	2	1	2	3	2
CO2	3	3	2	2	2	2	2	1	2	3	3
CO3	2	3	3	2	2	2	2	2	2	3	3
CO4	2	2	2	2	2	3	3	2	2	2	3
CO5	2	3	2	3	2	3	3	2	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 4 (Agri-Informatics)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Describe fundamentals of computers and ICT tools.

CO2: Execute computer applications in agricultural practices.

CO3: Design skills in information and communication technology (ICT) for agriculture.

CO4: Organize hands-on skills through practical exercises.

CO5: Compile e-governance and agricultural knowledge management.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES	PROGRAMME SPECIFIC OUTCOMES
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ES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	2	1	1	1	3	2	2
CO2	2	3	2	3	2	2	3	2	3	3	2
CO3	2	3	3	3	2	2	2	2	3	3	3
CO4	2	2	3	3	2	2	2	2	3	3	3
CO5	2	2	2	2	3	3	3	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 5 (Farm Machinery and Power)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Summarize the principles of farm power and machinery.

CO2: Compare knowledge of tillage and seedbed preparation implements.

CO3: Demonstrate safety measures in handling farm machinery.

CO4: Monitor field capacity and performance tests on selected implements and machines.

CO5: Design suitable machinery for small, medium, and large farms to enhance productivity.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	2	1	1	2	3	2	2
CO2	3	3	3	2	2	1	1	2	3	3	2
CO3	3	3	3	3	2	2	2	2	3	3	3
CO4	2	3	3	2	3	2	2	2	3	3	3
CO5	2	2	3	3	2	3	2	2	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 6 (Production Technology for Vegetables and Spices)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain production technology of vegetables and spices crops.

CO2: Execute to carry-out the knowledge about botany and taxonomy of vegetables and spices crops.

CO3: Appraise the principles and methods of quality seed production of vegetables and spices crops.

CO4: Verify the types of vegetable gardening with special reference to kitchen gardening.



CO5: Compose the knowledge about commercial varieties/hybrids.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	2	1	1	2	3	2	2
CO2	3	3	2	2	2	1	1	2	3	3	2
CO3	3	3	3	3	2	2	2	2	3	3	3
CO4	2	3	3	2	3	2	2	2	3	3	3
CO5	2	2	3	3	2	3	2	2	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 7 (Environmental Studies and Disaster Management)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Explain the structure and functions of ecosystems, environmental pollution, and disaster management systems.

CO2: Demonstrate the use of environmental management practices in agriculture and rural development.

CO3: Examine the causes, consequences, and interrelationships of pollution, climate change, and biodiversity loss.

CO4: Monitor the role of community participation, ICT, and early warning systems in disaster risk reduction.

CO5: Design disaster management strategies that integrate prevention, preparedness, response, and recovery phases.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	3	2	1	1	3	3	2
CO2	2	3	2	2	3	2	1	1	3	3	3
CO3	2	3	2	2	3	3	1	1	3	3	3
CO4	2	2	3	2	3	3	2	2	2	3	3
CO5	1	2	1	1	3	3	3	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 8 (Statistical Methods)

COURSE OUTCOMES:



At the end of the course students will be able to

CO1: Recall fundamental concepts of statistics.

CO2: Apply statistical tools for analyzing real-life data sets.

CO3: Compare experimental data using ANOVA and regression models to identify significant factors.

CO4: Monitor statistical results.

CO5: Design statistical experiments for prediction and decision-making in research problems.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	1	1	1	3	2	2
CO2	3	3	2	1	2	2	1	1	3	3	2
CO3	3	3	3	2	2	2	2	2	3	3	3
CO4	2	3	3	3	3	2	2	2	3	3	3
CO5	2	2	3	3	3	3	2	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 9 (Livestock and Poultry Management)

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Recall the different breeds of livestock and poultry along with their characteristics and utility.

CO2: Demonstrate skills in handling, housing, and managing different categories of animals and birds.

CO3: Examine production records and health indicators in livestock and poultry farms.

CO4: Monitor principles of breeding and selection to improve genetic potential of livestock and poultry.

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	2	2	2	2	3	2	2



CO2	3	3	3	2	3	2	2	2	3	3	2
CO3	2	3	2	3	3	2	2	2	3	3	3
CO4	2	2	3	3	3	2	3	3	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

SEMESTER IV

COURSE 1 (Crop Production Technology – II (*rabi crops*))

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Describe the importance, distribution, and classification of major rabi crops grown in India.

CO2: Demonstrate knowledge of improved varieties, seed and nutrient management, and cropping systems for higher productivity.

CO3: Relate the influence of environmental and agronomic factors on crop growth, yield, and quality.

CO4: Examine different crop management practices for sustainability, profitability, and resource use efficiency.

CO5: Design sustainable and profitable livestock and poultry production plans integrating scientific management practices.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	2	1	1	3	2	2
CO2	3	3	2	2	2	2	2	1	3	3	3
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	2	3	2	2	3	2	2	2	2	3	3
CO5	2	2	3	3	2	2	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 2 (Production Technology for Ornamental Crops, MAP and Landscaping))

COURSE OUTCOMES:

At the end of the course students will be able to

CO1: Describe the morphological and physiological requirements of major ornamental, medicinal, and aromatic crops.



CO2: Demonstrate skills in planting, pruning, training, irrigation, nutrient management, and pest control for quality flower and MAP production.

CO3: Compare production systems for commercial utilization.

CO4: Evaluate the design principles, layout, and maintenance of different types of gardens, lawns, and landscape features.

CO5: Design aesthetically pleasing and eco-friendly landscape models integrating ornamental and medicinal plants for sustainable use.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	–	–	–	–	–	–	3	–	–
CO2	–	3	–	2	–	–	2	–	3	2	–
CO3	–	–	2	3	–	–	–	2	–	3	3
CO4	–	3	–	2	3	2	–	–	3	3	–
CO5	–	–	–	–	–	3	–	–	–	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 3 (Renewable Energy and Green Technology)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Define the basic concepts, sources, and importance of renewable energy in sustainable agricultural development. (*Remembering*)

CO2: Demonstrate knowledge of energy-efficient devices and **apply** renewable energy technologies suitable for farm and rural applications. (*Applying*)

CO3: Compare advantages, limitations, and feasibility of renewable energy options in different agro-climatic regions.

CO4: Coordinate the economic and environmental benefits of adopting renewable energy and green technologies in agriculture.

CO5: Plan innovative, eco-friendly solutions integrating renewable energy and green technologies for sustainable rural livelihoods.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES	PROGRAMME SPECIFIC OUTCOMES
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ES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	2	3	2	1	1	3	3	2
CO2	3	3	2	3	3	2	2	1	3	3	3
CO3	2	3	3	3	3	2	2	2	3	3	3
CO4	2	2	2	2	3	3	2	2	2	3	3
CO5	2	2	3	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 4 (Problematic Soils and their Management)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Define the nature, types, and distribution of problematic soils in India.

CO2: Classify soil problems through field symptoms and laboratory diagnosis of several parameters.

CO3: Formulate suitable reclamation and management practices such as chemical amendments, drainage, leaching, and green manuring.

CO4: Verify the effects of different reclamation methods on soil fertility, crop yield, and environmental quality.

CO5: Improve site-specific management plans incorporating agronomic, mechanical, and biological measures for rehabilitation of problematic soils.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	–	–	–	–	–	–	3	–	–
CO2	3	3	2	–	–	–	–	–	3	2	–
CO3	2	3	3	2	–	–	2	–	3	3	–
CO4	–	3	3	3	3	2	–	–	3	3	2
CO5	–	2	2	3	–	3	2	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 5 (Production Technology for Fruit and Plantation Crops)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Explain the climatic and soil requirements, growth habits, and propagation methods of important fruit and plantation crops.

CO2: Demonstrate skills in nursery management, propagation, pruning, training, and intercropping techniques.

CO3: Detect appropriate crop management practices including irrigation, nutrient, weed, and pest management for higher yield and quality.

CO4: Monitor the economic viability and production efficiency of different fruit and plantation crops under various management systems.

CO5: Construct integrated and sustainable production for commercial fruit and plantation crop cultivation.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	–	–	–	–	–	–	3	–	–
CO2	3	3	–	–	–	–	–	–	3	2	–
CO3	–	3	3	2	2	–	–	–	3	3	–
CO4	–	2	3	3	3	2	–	–	3	3	2
CO5	–	2	3	2	–	3	2	–	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 6 (Principles of Seed Technology)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Explain the principles of seed development, genetic purity maintenance, and the seed certification process.

CO2: Analyze the factors affecting seed viability, vigor, and dormancy, and their implications on crop establishment.

CO3: Evaluate the efficiency of various seed processing, packaging, and storage techniques for maintaining seed quality.

CO4: Apply the regulatory standards, seed laws, and certification procedures in commercial seed production and marketing.

CO5: Develop strategies for ensuring the production and distribution of high-quality seeds to enhance crop productivity and sustainability.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES	PROGRAMME SPECIFIC OUTCOMES
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ES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	—	—	—	—	—	—	3	—	—
CO2	—	3	2	2	—	—	—	—	3	2	—
CO3	—	2	3	2	2	2	—	—	2	3	—
CO4	—	—	2	3	—	—	2	—	—	3	2
CO5	—	—	—	2	—	3	—	—	—	2	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 7 (Farming System & Sustainable Agriculture)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Define the concepts, objectives, and components of farming systems and sustainable agriculture.

CO2: Contrast the resource use efficiency, productivity, and profitability of different farming systems.

CO3: Execute suitable integrated farming system models for effective utilization of on-farm resources and income enhancement.

CO4: Evaluate the environmental, economic, and social dimensions of sustainability in agriculture.

CO5: Develop strategies and innovative models integrating modern and traditional practices to achieve sustainable agricultural development.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	—	—	—	—	—	—	3	—	—
CO2	3	3	2	2	—	—	—	—	3	2	—
CO3	2	3	3	2	—	—	2	—	3	3	—
CO4	—	3	3	3	3	2	—	—	3	3	2
CO5	—	2	2	3	2	3	3	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 8 (Agricultural Marketing Trade & Prices)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Describe the structure, conduct, and performance of agricultural markets and marketing channels.

CO2: Analyze the determinants of agricultural prices and the behavior of demand and supply in different market situations.

CO3: Evaluate the performance of marketing institutions, cooperatives, and regulatory agencies in agricultural trade.

CO4: Apply marketing and pricing concepts to real-world situations such as market integration, price spread, and value chain analysis.

CO5: Develop strategies for efficient marketing, fair pricing, and promotion of domestic and global agricultural trade.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	—	—	—	—	—	—	3	—	—
CO2	3	3	2	—	—	—	—	—	3	2	—
CO3	2	3	3	2	—	—	—	—	3	3	—
CO4	—	3	3	3	3	2	—	—	3	3	2
CO5	—	2	2	3	2	3	2	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 9 (Introductory Agro-meteorology and Climate Change)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Explain the components and processes of the atmosphere influencing crop growth and productivity.

CO2: Analyze the relationship between weather elements and crop phenology, yield, and water use efficiency.

CO3: Apply weather forecasting and agro-advisory services for effective planning of farm operations.

CO4: Evaluate the impact of climate variability and change on agriculture, soil, and water resources.

CO5: Develop integrated approaches combining meteorological knowledge and modern technologies for climate-resilient agriculture.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES	PROGRAMME SPECIFIC OUTCOMES
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ES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	—	—	—	—	—	—	3	—	—
CO2	3	3	2	—	—	—	—	—	3	2	—
CO3	2	3	3	2	—	—	2	—	3	3	—
CO4	—	3	3	3	2	2	—	—	3	3	2
CO5	—	2	2	3	2	3	3	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 10 (Agribusiness Management (elective))

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Define the concepts and its role in the agricultural economy.

CO2: Attribute the components of business environment, market dynamics, and financial management in agribusiness enterprises.

CO3: Execute management tools and decision-making techniques for effective planning, organizing, and controlling agribusiness activities.

CO4: Monitor agribusiness projects in terms of cost–benefit analysis, risk management, and profitability.

CO5: Combine business plans and entrepreneurial strategies for establishing and managing sustainable agribusiness ventures.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	—	—	—	—	—	—	3	—	—
CO2	3	3	2	2	—	—	—	—	3	2	—
CO3	2	3	3	3	2	2	—	—	3	3	—
CO4	—	2	3	3	3	2	2	2	3	3	2
CO5	—	—	2	3	2	3	2	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 11 (Agrochemicals (elective))

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Define the basic concepts of agrochemicals in modern agriculture. (*Remembering*)

CO2: Demonstrate the methods of application of different agrochemicals for effective crop protection.



CO3: Detect the impact of agrochemical use on soil health, water quality, biodiversity, and human health.

CO4: Monitor the advantages, limitations, and safety aspects of agrochemical use in sustainable agriculture.

CO5: Design eco-friendly and judicious agrochemical management plans ensuring productivity, profitability, and environmental safety.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	2	2	2	1	1	3	2	2
CO2	3	3	2	3	2	2	2	1	3	3	3
CO3	2	3	3	3	3	2	2	2	3	3	3
CO4	2	2	2	2	3	3	2	2	2	3	3
CO5	2	2	3	3	2	3	3	3	3	3	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

SEMESTER V

COURSE 1 (Principles of Integrated Pest and Disease Management)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Define the basic concepts and principles of plant protection.

CO2: Demonstrate knowledge of different methods of pest and disease management.

CO3: Examine the economic threshold level (ETL) and economic injury level (EIL) concepts in decision-making.

CO4: Check the impact of pesticide use on environment.

CO5: Design eco-friendly crop protection strategies that maximize sustainability.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	—	—	—	—	—	—	3	—	—
CO2	3	3	2	—	—	—	—	—	3	2	—



CO3	2	3	3	2	—	—	2	—	3	3	—
CO4	—	3	3	3	3	2	—	—	3	3	2
CO5	—	2	2	3	2	3	2	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 2 (Manures, Fertilizers and Soil Fertility Management)

COURSE OUTCOMES:

At the end of the course, students will be able to

- CO1:** Describe the importance of organic manures and fertilizer recommendation approaches.
- CO2:** Use principles of soil fertility evaluation, fertilizer recommendation, and integrated nutrient management.
- CO3:** Infer the mechanisms of nutrient transport to plants.
- CO4:** Check soil fertility management practices for improving crop yield.
- CO5:** Generate practical skills in fertilizer calculation, preparation of compost/FYM, biofertilizer use, and soil testing.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	—	—	—	—	—	—	3	—	—
CO2	3	3	2	—	—	—	—	—	3	2	—
CO3	2	3	3	2	—	—	2	—	3	3	—
CO4	—	3	3	3	3	2	—	—	3	3	2
CO5	—	2	2	3	2	3	2	2	2	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 3 (Pests of Crops and Stored Grain and their Management)

COURSE OUTCOMES:

At the end of the course, students will be able to

- CO1:** Explain the nature of major insect pests of field crops, horticultural crops, and stored grains.
- CO2:** Illustrate life cycles and seasonal incidence of key pest species under different agro-climatic conditions.
- CO3:** Select integrated pest management (IPM) principles for effective and eco-friendly pest management.
- CO4:** Monitor the use of different methods for pest management.



CO5: Improve practical skills in pest collection, identification, preservation, and field diagnosis of pest damage.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	3	2	1	1	3	2	2
CO2	3	3	3	3	3	2	2	2	3	3	3
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	3	3	3	3	3	3	2	2	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3
1. LOW			2. MODERATE				3. SUBSTANTIAL				

COURSE 4 (Diseases of Field and Horticultural Crops and Their Management – I) **COURSE OUTCOMES:**

At the end of the course, students will be able to

CO1: Explain the economic significance of different diseases of field and horticultural crops.

CO2: Execute integrated disease management strategies.

CO3: Examine disease incidence and severity to make informed management decisions.

CO4: Verify the effectiveness of various control measures for sustainable crop production.

CO5: Formulate practical skills in disease diagnosis, sampling, laboratory techniques, and field management practices.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	3	2	1	1	3	2	2
CO2	3	3	3	3	3	2	2	2	3	3	3
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	3	3	3	3	3	3	2	2	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3
1. LOW			2. MODERATE				3. SUBSTANTIA				

COURSE 5 (Crop Improvement – I (Kharif Crops))

COURSE OUTCOMES:



At the end of the course, students will be able to

CO1: Recall the breeding methods of various kharif crops.

CO2: Use hybrid development techniques of kharif crops.

CO3: Appraise the plant genetic resources, centres of diversity in detail.

CO4: Reconstruct the breeding for resistance to biotic and abiotic stresses.

CO5: Compose the influence of Genotype x Environment interaction on yield.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	3	2	1	1	3	2	2
CO2	3	3	3	3	3	2	2	2	3	3	2
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	3	3	3	3	3	3	2	2	3	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 6 (Entrepreneurship Development and Business Communication) COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Recall the concepts of entrepreneurship in economic and rural development.

CO2: Execute business communication skills in professional contexts.

CO3: Infer market opportunities, financial requirements, and business risks to make informed entrepreneurial decisions.

CO4: Monitor business plans for sustainable ventures.

CO5: Improve teamwork skills for effective business management and community engagement.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	2	3	2	2	2	3	3	2
CO2	3	3	2	3	3	2	2	3	3	3	2



CO3	3	3	2	3	3	3	2	3	3	3	3
CO4	2	2	1	2	2	2	3	3	2	2	3
CO5	2	2	2	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 7 (Geoinformatics and Nano-technology and Precision Farming)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Outline the principles of geoinformatics in modern agriculture.

CO2: Execute geospatial and nano-technological tools for monitoring soil, water, crop health, and nutrient management.

CO3: Integrate spatial and field data to optimize resource use, and enhance crop productivity.

CO4: Monitor the benefits and limitations of precision farming technologies for sustainable and climate-smart agriculture.

CO5: Improve practical skills in using GIS software, drones, and nano-formulations for precision agriculture applications.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	3	2	1	1	3	2	2
CO2	3	3	3	3	3	2	2	2	3	3	3
CO3	3	3	3	3	3	2	2	3	3	3	3
CO4	3	3	3	3	3	3	2	2	2	3	3
CO5	3	3	3	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL



COURSE 8 (Practical Crop Production - I (*Kharif crops*))

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: organize field, manage nursery, sowing, nutrient, water and weed.

CO2: illustrate the knowledge of profitable crop production technology

CO3: demonstrate the farmers about ruminative crop production techniques.

CO4: formulate the diversified farming system according to available farming situation.

CO5: utilize the sustainable agriculture system.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	3	2	1	2	3	3	2
CO2	3	3	3	3	3	2	2	3	3	3	3
CO3	3	3	3	3	3	2	2	2	3	3	3
CO4	2	3	3	3	3	2	2	3	3	3	3
CO5	2	2	2	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 9 (Intellectual Property Rights)

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Outline the concepts of intellectual property rights.

CO2: Demonstrate UPOV for protection of plant varieties, and PPV&FR Act of India.

CO3: Prioritize the traditional knowledge-meaning and rights of TK holders.

CO4: Detect the technical difficulties in world trades.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	3	2	1	1	3	2	2
CO2	3	3	2	2	3	3	2	1	3	3	3
CO3	3	3	3	2	3	3	2	2	3	3	3
CO4	2	3	3	3	2	3	3	2	3	3	3
CO5	2	2	2	2	3	3	3	2	3	3	3



1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 10 (System Simulation and Agro-advisory (Elective))

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Explain the concepts of system simulation in agricultural decision-making.

CO2: Implement system simulation techniques to predict crop yield under varying scenarios.

CO3: Verify simulation outputs to make informed decisions for farm management.

CO4: Reconstruct agro-advisory services and communication strategies for delivering timely and accurate information to farmers.

CO5: Generate practical skills to support precision agriculture and advisory services.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	3	2	1	1	3	2	2
CO2	3	3	3	3	2	2	1	2	3	3	3
CO3	2	3	3	3	3	2	2	2	3	3	3
CO4	2	2	2	3	3	2	3	2	3	3	3
CO5	2	2	3	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 11 (Landscaping (Elective))

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Retrieve the mechanisms involved in plant physiology.

CO2: Demonstrate plants based on growth, morphological, and taxonomic characteristics.

CO3: Attribute a landscape or interior scape project.

CO4: Critique employability skills in the field of horticulture.

CO5: Compose a landscape or interior space maintenance program.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	1	3	2	1	1	3	3	2
CO2	3	2	2	2	3	2	2	2	3	3	3
CO3	3	3	3	3	3	2	2	2	3	3	3



CO4	2	2	2	3	3	3	2	3	3	3	3
CO5	2	2	3	3	3	3	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 12 (Commercial Plant Breeding (Elective))

COURSE OUTCOMES:

At the end of the course, students will be able to

CO1: Explain different mechanisms used in hybrid development.

CO2: Implement breeding procedures in self- and cross-pollinated crops.

CO3: Examine biotechnological tools used in development of cultivars.

CO4: Check IPR issues in commercial plant breeding.

CO5: Generate the principles and techniques of seed production.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	2	3	2	1	1	3	2	2
CO2	3	3	3	3	2	2	2	2	3	3	2
CO3	2	2	2	3	3	3	2	2	3	3	3
CO4	2	2	2	2	3	3	2	3	2	3	3
CO5	3	3	3	3	2	2	3	3	3	3	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

SEMESTER VI

COURSE 1 (Rainfed agriculture & watershed management)

COURSE OUTCOMES

At the end of the course, students will be able to

CO1: Understand the concepts of rainfed agriculture and watershed management.

CO2: Analyze the factors affecting soil and water resources in rainfed areas.

CO3: Apply watershed management practices for sustainable soil and water conservation.

CO4: Evaluate the socio-economic impacts of watershed development programs.

CO5: Design site-specific rainwater harvesting and soil conservation measures.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES	PROGRAMME SPECIFIC OUTCOMES
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ES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	2	3	2
CO2	3	3	2	3	1	2	2	2	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	1	2	2	3	3	2	1	3	1	2	3
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 2 (Protected Cultivation and Secondary Agriculture)

COURSE OUTCOMES

At the end of the course, students will be able to

CO1: Understand the concepts, structures, and types of protected cultivation.

CO2: Apply techniques of greenhouse, polyhouse, and other protected cultivation systems for high-value crops.

CO3: Evaluate the importance of secondary agriculture for income generation and value addition.

CO4: Implement post-harvest processing, packaging, and marketing of horticultural and allied products.

CO5: Integrate protected cultivation practices with sustainable resource management and technology adoption.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	2	3	2
CO2	2	3	3	3	2	2	3	2	3	3	2
CO3	1	2	2	2	2	2	1	3	1	2	3
CO4	2	2	3	3	3	2	2	3	2	3	3
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 3 (Diseases of Field and Horticultural Crops And Their Management – II)

COURSE OUTCOMES

At the end of the course, students will be able to

CO1 Identify major diseases of field and horticultural crops.

CO2 Understand the etiology, symptomatology, and epidemiology of important crop diseases.



CO3 Apply integrated disease management (IDM) strategies for field and horticultural crops.

CO4 Evaluate chemical, biological, and cultural methods for disease control.

CO5 Assess the socio-economic impact of crop diseases and management practices.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	3	2	1	2	2	1	3	2	2	2
CO2	3	2	2	1	2	2	1	3	3	2	3
CO3	3	3	3	2	2	3	2	3	3	2	3
CO4	2	3	3	2	2	3	2	2	3	2	2
CO5	2	2	3	3	2	1	3	1	2	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 4 (Post-harvest Management and Value Addition of Fruits and Vegetables)

COURSE OUTCOMES

At the end of the course, students will be able to

CO1 Understand principles of post-harvest management of fruits and vegetables.

CO2 Analyze causes of post-harvest losses and implement strategies to minimize them.

CO3 Apply technologies for preservation, storage, and packaging of horticultural produce.

CO4 Develop skills in value addition and processing of fruits and vegetables.

CO5 Evaluate the economic, nutritional, and quality aspects of processed products.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	2	1	2	2	1	3	2	2
CO2	3	3	2	2	1	2	2	1	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	2	3	3	2	2	3	2	2	3	2
CO5	1	2	2	3	3	2	1	3	1	2	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 5 (Management of Beneficial Insects)

COURSE OUTCOMES

At the end of the course, students will be able to

- CO1** Understand the diversity and biology of beneficial insects in agriculture.
- CO2** Identify natural enemies of major pests and their ecological roles.
- CO3** Apply techniques for mass rearing and release of beneficial insects.
- CO4** Evaluate the effectiveness of biological control agents in integrated pest management (IPM).
- CO5** Integrate beneficial insects into sustainable crop protection strategies.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	3	2	2
CO2	2	3	3	3	2	2	3	2	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	3	3	3	2	2	3	2	3	3	2
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 6 (Crop improvement - II (rabi crops))

COURSE OUTCOMES

At the end of the course, students will be able to

- CO1** Understand the principles of crop improvement and genetic basis of Rabi crops.
- CO2** Identify and characterize superior genotypes of Rabi crops for desirable traits.
- CO3** Apply hybridization and selection techniques to enhance yield and quality traits in Rabi crops.
- CO4** Plan and manage seed production, seed quality, and seed certification for Rabi crops.
- CO5** Integrate modern tools, including biotechnological approaches, for sustainable crop improvement programs.



MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	3	2	2
CO2	2	3	3	3	2	2	3	2	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	3	3	3	2	2	3	2	3	3	2
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 7 (Practical crop production - II (rabi crops))

COURSE OUTCOMES

At the end of the course, students will be able to

CO1 Demonstrate field preparation, sowing, and planting techniques for major Rabi crops.

CO2 Apply crop management practices including nutrient management, irrigation, and weed control for Rabi crops.

CO3 Identify growth stages, physiological disorders, and common pests and diseases of Rabi crops in the field.

CO4 Perform harvesting, threshing, and post-harvest handling operations for Rabi crops.

CO5 Develop skills in planning and executing Rabi crop production schedules and field experiments.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	2	1	2	2	1	3	2	2
CO2	3	3	2	2	1	2	2	1	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	2	3	3	2	2	3	2	2	3	2
CO5	1	2	2	3	3	2	1	3	1	2	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 8 (Principles of Organic Farming)

COURSE OUTCOMES

At the end of the course, students will be able to

CO1: Explain different organic inputs, soil fertility management, and nutrient sources.

CO2: Apply methods of pest, disease, and weed management in organic farming systems.



- CO3:** Develop skills for certification, labeling, and standards of organic produce.
- CO4:** Evaluate economic, environmental, and social benefits of organic farming.
- CO5:** Design integrated organic farming systems suitable for different agro-climatic regions.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	2	1	2	2	1	3	2	2
CO2	3	3	2	2	1	2	2	1	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	2	3	3	2	2	3	2	2	3	2
CO5	1	2	2	3	3	2	1	3	1	2	3

1. LOW 2. MODERATE 3. SUBSTANTIAL

COURSE 9 (Farm Management, Production & Resource Economics)

COURSE OUTCOMES

At the end of the course, students will be able to

- CO1:** Understand the principles and concepts of farm management and agricultural economics.
- CO2:** Analyze farm resources and make decisions for optimal allocation to maximize productivity and profitability.
- CO3:** Apply production economics principles in planning and evaluating crop and livestock enterprises.
- CO4:** Evaluate investment, cost, and returns for different farming systems and enterprises.
- CO5:** Develop skills in budgeting, farm planning, and economic assessment of agricultural projects.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	2	3	2
CO2	2	3	3	3	2	2	3	2	3	3	2
CO3	1	2	2	2	2	2	1	3	1	2	3
CO4	2	2	3	3	3	2	2	3	2	3	3
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW 2. MODERATE 3. SUBSTANTIAL



COURSE 10 (Principles of Food Science and Nutrition)

COURSE OUTCOMES

At the end of the course, students will be able to

- CO1:** Understand the basic concepts of food science, nutrition, and their role in human health.
- CO2:** Explain the composition, structure, and functions of macronutrients and micronutrients in foods.
- CO3:** Apply principles of food preservation, processing, and storage to maintain nutritional quality.
- CO4:** Evaluate the nutritional requirements for different age groups and physiological conditions.
- CO5:** Analyze the relationship between diet, health, and prevention of nutrition-related disorders.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	2	1	2	2	1	3	2	2
CO2	3	3	2	2	1	2	2	1	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	2	3	3	2	2	3	2	2	3	2
CO5	1	2	2	3	3	2	1	3	1	2	3

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 11 (Agricultural journalism (elective))

COURSE OUTCOMES

At the end of the course, students will be able to

- CO1:** Understand the principles and scope of agricultural journalism and mass communication.
- CO2:** Develop skills in writing, editing, and reporting agricultural news and articles for print and digital media.
- CO3:** Apply modern communication tools, multimedia, and social media for disseminating agricultural information.
- CO4:** Analyze the role of agricultural journalism in creating awareness among farmers and rural communities.
- CO5:** Evaluate ethical considerations, credibility, and effectiveness in agricultural communication.

MAPPING OF COs WITH POs AND PSOs



COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	2	3	2
CO2	2	3	3	3	2	2	3	2	3	3	2
CO3	1	2	2	2	2	2	1	3	1	2	3
CO4	2	2	3	3	3	2	2	3	2	3	3
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 12 (Biopesticides & biofertilizers (elective))

COURSE OUTCOMES

At the end of the course, students will be able to

- CO1:** Understand the principles, types, and applications of biopesticides and biofertilizers.
- CO2:** Identify and characterize beneficial microorganisms used in pest and nutrient management.
- CO3:** Apply biopesticides and biofertilizers in integrated pest and nutrient management systems.
- CO4:** Evaluate the effectiveness, environmental safety, and limitations of biopesticides and biofertilizers.
- CO5:** Develop practical skills in mass production, formulation, and field application of biopesticides and biofertilizers.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	3	2	2
CO2	2	3	3	3	2	2	3	2	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	2	3	3	2	2	2	2	2	3	2
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

COURSE 13 (Micro Propagation Technologies (elective))

COURSE OUTCOMES

At the end of the course, students will be able to

- CO1:** Understand the principles, concepts, and stages of plant tissue culture and micropropagation.



- CO2:** Identify suitable explants, media, and culture conditions for micropropagation of different crops.
- CO3:** Apply techniques for mass multiplication of plants through in vitro propagation.
- CO4:** Evaluate the quality, acclimatization, and hardening of micropropagated plants.
- CO5:** Integrate micropropagation techniques in crop improvement, conservation, and commercial production.

MAPPING OF COs WITH POs AND PSOs

COURSE OUTCOMES	PROGRAMME OUTCOMES								PROGRAMME SPECIFIC OUTCOMES		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	2	2	1	3	2	2
CO2	2	3	3	3	2	2	3	2	3	3	2
CO3	2	3	3	3	2	2	3	2	3	3	2
CO4	2	2	3	3	2	2	3	2	3	3	2
CO5	2	3	3	3	2	2	3	2	3	3	2

1. LOW

2. MODERATE

3. SUBSTANTIAL

Bloom's Taxonomy Verbs:

Remember (BT1)	Understand (BT2)	Apply (BT3)	Analyze (BT4)	Evaluate (BT5)	Create (BT6)
Cite	Add	Acquire	Analyze	Appraise	Abstract
Define	Approximate	Adapt	Audit	Assess	Animate
Describe	Articulate	Allocate	Blueprint	Compare	Arrange
Draw	Associate	Alphabetize	Breadboard	Conclude	Assemble
Enumerate	Characterize	Apply	Break down	Contrast	Budget
Identify	Clarify	Ascertain	Characterize	Counsel	Categorize
Index	Classify	Assign	Classify	Criticize	Code
Indicate	Compare	Attain	Compare	Critique	Combine
Label	Compute	Avoid	Confirm	Defend	Compile
List	Contrast	Back up	Contrast	Determine	Compose
Match	Convert	Calculate	Correlate	Discriminate	Construct
Meet	Defend	Capture	Detect	Estimate	Cope
Name	Describe	Change	Diagnose	Evaluate	Correspond
Outline	Detail	Classify	Diagram	Explain	Create
Point	Differentiate	Complete	Differentiate	Grade	Cultivate
Quote	Discuss	Compute	Discriminate	Hire	Debug
Read	Distinguish	Construct	Dissect	Interpret	Depict
Recall	Elaborate	Customize	Distinguish	Judge	Design
Recite	Estimate	Demonstrate	Document	Justify	Develop
Recognize	Example	Depreciate	Ensure	Measure	Devise
Record	Explain	Derive	Examine	Predict	Dictate
Repeat	Express	Determine	Explain	Prescribe	Enhance
Reproduce	Extend	Diminish	Explore	Rank	Explain
Review	Extrapolate	Discover	Figure out	Rate	Facilitate
Select	Factor	Draw	File	Recommend	Format
State	Generalize	Employ	Group	Release	Formulate



Study	Give	Examine	Identify	Select	Generalize
Tabulate	Infer	Exercise	Illustrate	Summarize	Generate
Trace	Interact	Explore	Infer	Support	Handle
Write	Interpolate	Expose	Interrupt	Test	Import
	Interpret	Express	Inventory	Validate	Improve
	Observe	Factor	Investigate	Verify	Incorporate
	Paraphrase	Figure	Layout		Integrate
	Picture graphically	Graph	Manage		Interface
	Predict	Handle	Maximize		Join
	Review	Illustrate	Minimize		Lecture
	Rewrite	Interconvert	Optimize		Model
	Subtract	Investigate	Order		Modify
	Summarize	Manipulate	Outline		Network
	Translate	Modify	Point out		Organize
	Visualize	Operate	Prioritize		Outline
		Personalize	Proofread		Overhaul
		Plot	Query		Plan
		Practice	Relate		Portray
		Predict	Select		Prepare
		Prepare	Separate		Prescribe
		Price	Subdivide		Produce
		Process	Train		Program
		Produce	Transform		Rearrange
		Project			Reconstruct
		Provide			Relate
		Relate			Reorganize
		Round off			Revise
		Sequence			Rewrite
		Show			Specify
		Simulate			Summarize
		Sketch			
		Solve			
		Subscribe			
		Tabulate			
		Transcribe			
		Translate			
		Use			