PRAMUKH SWAMI SCIECNE & H D PATEL ARTS COLLEGE, KADI

Affiliated with

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

VOCATION FACULTY

Department of Agriculture

PSO & CO

Pramukh Swami Science and H. D. Patel Arts College, Kadi

Department of Agriculture

Programme: B. Voc. Agriculture

Program Specific Outcomes (PSOs) for B. Voc. Agriculture

Sr. No.	On completing B. Voc. Agriculture, the student will be able to:
PSO-1	**Core Agricultural Sciences Knowledge:** Graduates will have a comprehensive understanding of fundamental agronomy, soil sciences, botany of field crops, and irrigation and water management.
PSO-2	**Plant and Crop Management:** Graduates will be proficient in managing plant health and crop production, encompassing knowledge in plant pathology, weed management, and the agronomy of field crops (Kharif and Rabi crops).
PSO-3	**Horticulture and Sustainable Practices:** Graduates will be skilled in horticulture principles, organic farming, sustainable agriculture practices, nursery management, and landscape gardening.
PSO-4	**Agri-business and Commercial Skills:** Graduates will be adept in agribusiness management, commercial enterprise operations, post-harvest management, and value addition of fruits and vegetables.
PSO-5	**Specialized Agricultural Practices and Technologies:** Graduates will have specialized knowledge in areas such as rainfed agriculture, watershed management, renewable energy, green technology, and introductory animal husbandry.

Course Outcomes (Cos): B. Voc. Agriculture

Semester-I

Course Title: Fundamentals of Agronomy

Course Code: AS 101

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the basic principles of agronomy and their application in crop production.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify and describe different agronomic practices and their significance.	1, 2, 3	U, R, Ap
CO 3	Analyze the impact of various agronomic practices on crop yield and soil health.	2, 3, 4	An, E
CO 4	Develop and implement effective crop management strategies.	1, 3, 5	Ap, C
CO 5	Evaluate the role of agronomy in sustainable agriculture.	3, 4, 5	E, C

Course Title: Soil Science

Course Code: AS 102

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the physical, chemical, and biological properties of soils.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Analyze soil samples and interpret soil test results.	1, 3, 4	An, Ap
CO 3	Assess the impact of soil management practices on soil fertility and crop production.	2, 3, 5	An, E
CO 4	Apply knowledge of soil science to develop soil management plans.	1, 2, 3, 5	Ap, C
CO 5	Evaluate soil conservation techniques and their role in sustainable agriculture.	3, 4, 5	E, C

Course Title: Botany of Field Crops

Course Code: AS 103

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the anatomy and physiology of major field crops.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different field crops and their botanical characteristics.	1, 3, 5	U, R, Ap
CO 3	Analyze the growth stages and development processes of field crops.	2, 3, 4	An, E
CO 4	Apply botanical knowledge to improve crop production and management.	1, 3, 5	Ap, C
CO 5	Evaluate the role of plant physiology in crop adaptation and yield.	3, 4, 5	E, C

Course Title: Irrigation and Water Management

Course Code: AS 104

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles of irrigation and water management.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different irrigation methods and their applications	1, 3, 5	U, R, Ap
CO 3	Analyze the impact of irrigation practices on crop yield and water use efficiency.	2, 3, 4	An, E
CO 4	Develop and implement effective water management strategies	1, 3, 5	Ap, C
CO 5	Evaluate the role of irrigation in sustainable agriculture and water conservation.	3, 4, 5	E, C

Course Title: Fundamental of Plant Pathology

Course Code: AS 201

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles of plant pathology and disease management	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different plant diseases and their causal agents.	1, 3, 5	U, R, Ap
CO 3	Analyze the symptoms and progression of plant diseases.	2, 3, 4	An, E
CO 4	Apply knowledge of plant pathology to develop disease management plans.	1, 3, 5	Ap, C
CO 5	Evaluate the impact of plant diseases on crop yield and quality.	3, 4, 5	E, C

Course Title: Food Processing

Course Code: AS 202

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles and methods of food processing and preservation.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different food processing techniques and their applications	1, 3, 5	U, R, Ap
CO 3	Analyze the impact of food processing on nutritional quality and safety.	2, 3, 4	An, E
CO 4	Develop and implement effective food processing strategies	1, 3, 5	Ap, C
CO 5	Evaluate the role of food processing in reducing post-harvest losses and ensuring food security.	3, 4, 5	E, C

Course Title: Plantation of Crops, Spices, and Fruits

Course Code: AS 203

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles and practices of plantation crop cultivation.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different plantation crops, spices, and fruits and their cultivation methods	1, 3, 5	U, R, Ap
CO 3	Analyze the growth and development of plantation crops, spices, and fruits.	2, 3, 4	An, E
CO 4	Apply knowledge of plantation crop management to improve yield and quality.	1, 3, 5	Ap, C
CO 5	Evaluate the role of plantation crops, spices, and fruits in sustainable agriculture.	3, 4, 5	E, C

Course Title: Commercial Vegetable Production

Course Code: AS 204

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles and practices of commercial vegetable production.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different vegetables and their cultivation methods	1, 3, 5	U, R, Ap
CO 3	Analyze the growth stages and production techniques of commercial vegetables	2, 3, 4	An, E
CO 4	Apply knowledge of vegetable production to improve yield and quality	1, 3, 5	Ap, C
CO 5	Evaluate the role of commercial vegetable production in ensuring food security	3, 4, 5	E, C

Course Title: Agronomy of Field Crops-I (Kharif Crops)

Course Code: AS 301

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles and practices of Kharif crop cultivation.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different Kharif crops and their agronomic requirements.	1, 3, 5	U, R, Ap
CO 3	Analyze the growth stages and production techniques of Kharif crops.	2, 3, 4	An, E
CO 4	Apply knowledge of Kharif crop management to improve yield and quality.	1, 3, 5	Ap, C
CO 5	Evaluate the role of Kharif crops in sustainable agriculture.	3, 4, 5	E, C

Course Title: Weed Management in Field Crops

Course Code: AS 302

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles and methods of weed management in field crops.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify different weed species and their impact on crop yield.	1, 3, 5	U, R, Ap
CO 3	Analyze the effectiveness of various weed control methods.	2, 3, 4	An, E
CO 4	Apply integrated weed management strategies to improve crop production.	1, 3, 5	Ap, C
CO 5	Evaluate the role of weed management in sustainable crop production.	3, 4, 5	E, C

Course Title: Plant Disease Management

Course Code: AS 303

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles of plant disease management and control strategies.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify common plant diseases and their symptoms.	1, 3, 5	U, R, Ap
CO 3	Analyze disease outbreaks and select appropriate management techniques.	2, 3, 4	An, E
CO 4	Develop and implement disease management plans for various crops.	1, 3, 5	Ap, C
CO 5	Evaluate the impact of disease management practices on crop health and yield.	3, 4, 5	E, C

Course Title: Pests of Field Crops and their Management

Course Code: AS 304

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the biology and management of pests in field crops	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify major field crop pests and their damage	1, 3, 5	U, R, Ap
CO 3	Analyze pest life cycles and their impact on crop production	2, 3, 4	An, E
CO 4	Apply integrated pest management (IPM) techniques to control pests.	1, 3, 5	Ap, C
CO 5	Evaluate the effectiveness of pest management strategies in field crops	3, 4, 5	E, C

Course Title: Agronomy of Field Crops-II (Rabi Crops)

Course Code: AS 401

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Describe the origin, geographical distribution, economic importance, and soil and climatic requirements of various rabi crops.	1, 2, 3	U, R, Ap
CO 2	Identify and apply cultural practices for rabi crops including seed selection, treatment, sowing methods, and management practices.	1, 2, 4	U, R, Ap
CO 3	Analyze and implement methods for crop rotation, weed control, irrigation, and dealing with major pests and diseases in rabi crops.	1, 3, 5	An, E
CO 4	Evaluate and apply techniques for harvesting, threshing, winnowing, cleaning, drying, storage, and value addition of rabi crops.	2, 3, 4	Ap, C
CO 5	Demonstrate practical skills in seed bed preparation, seed treatment, and management of rabi crops through field experiments and observations.	3, 4, 5	E, C

Course Title: Principles of Horticulture

Course Code: AS 402

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles of horticulture, including the definition, branches, and the role of fruits and vegetables in human diet.	1, 2, 3	U, R, Ap
CO 2	Analyze the scope, current situation, and importance of horticulture in India.	1, 3, 4	An, E
CO 3	Differentiate between sexual (seed) and asexual (vegetative) propagation methods, and assess their merits and demerits.	1, 2, 4	U, R, Ap
CO 4	Apply knowledge of plant hormones, principles of pruning and training, and choice of trees and plants in horticultural practices.	2, 3, 5	Ap, C
CO 5	Demonstrate practical skills in horticulture, including propagation techniques, media usage, and nursery management.	3, 4, 5	E, C

Course Title: Organic farming, Plant Nutrition and Sustainable Agriculture

Course Code: AS 403

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the scope, definition, concepts, and principles of organic farming, including its objectives and importance.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Identify and explain the various biological nutrient management practices, including organic manures, vermicompost, and soil amendments.	1, 3, 5	U, R, Ap
CO 3	Analyze the types and roles of bio-fertilizers, their merits and constraints, and the precautions necessary for their use.	2, 3, 4	An, E
CO 4	Apply principles of integrated nutrient management (INM) and organic farming components to enhance sustainable crop production and certification processes.	1, 3, 5	Ap, C
CO 5	Evaluate factors affecting ecological balance, land degradation, and soil health management, and propose models of Integrated Farming Systems (IFS) for various conditions.	3, 4, 5	E, C

Course Title: Introductory Plant Breeding

Course Code: AS 404

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the aims and objectives of plant breeding, and the significance of different modes of reproduction (sexual, asexual, and apomixis) in plant breeding.	1, 2, 3, 4, 5	U, R, Ap
CO 2	Differentiate between self and cross-pollinated crops, and describe the various methods of pollination.	1, 3, 5	U, R, Ap
CO 3	Analyze hybridization techniques, including types of hybridization, methods for handling segregating generations (pedigree, bulk, back cross), and their application in crop improvement.	2, 3, 4	An, E
CO 4	Apply knowledge of incompatibility, male sterility, single cross, and double cross hybrids in plant breeding to improve crop varieties.	1, 3, 5	Ap, C
CO 5	Evaluate and demonstrate plant tissue culture techniques and in vitro plant breeding methods, including practical applications in a lab setting.	3, 4, 5	E, C

Course Title: Nursery Management and Landscape Gardening

Course Code: AS 501

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the importance and scope of ornamental horticulture in India, including the basics of nursery management and landscaping.	1, 2, 3	U, R, Ap
CO 2	Describe the commercial aspects of nursery management, including site selection, layout, potting, repotting, and accreditation.	1, 3, 4	U, R, Ap
CO 3	Analyze the cultivation techniques for annuals and commercial flowers such as rose, canna, chrysanthemum, marigold, and gladiolus.	2, 3, 5	An, E
CO 4	Apply principles of lawn making, hedge and edging maintenance, and indoor gardening to create and maintain various garden styles.	1, 4, 5	Ap, C
CO 5	Demonstrate practical skills in nursery preparation, ornamental plant propagation, flower arrangements, and visit ornamental gardens for applied learning.	3, 4, 5	E, C

Course Title: Rainfed Agriculture and Watershed Management

Course Code: AS 502

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles and history of rainfed agriculture and watershed management in India, including soil and climatic conditions	1, 2, 3	U, R, Ap
CO 2	Analyze the problems and prospects of rainfed agriculture, including the effects of drought on plant characteristics and adaptation mechanisms	1, 3, 4	U, R, Ap
CO 3	Apply techniques for water harvesting, efficient water utilization, and crop management practices in rainfed areas.	2, 3, 5	An, E
CO 4	Develop contingent crop planning strategies for managing crops under aberrant weather conditions and understand watershed management principles.	1, 4, 5	Ap, C
CO 5	Demonstrate practical skills in analyzing rainfall patterns, interpreting meteorological data, and implementing soil and moisture conservation practices.	3, 4, 5	E, C

Course Title: Renewable Energy and Green Technology

Course Code: AS 503

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the organizational structure and classification of energy sources in India, including coal, oil, gas, and various power types.	1, 2, 3	U, R, Ap
CO 2	Analyze the role and technology of renewable energy sources, including biomass, biogas, solar, wind, and other renewable technologies	1, 3, 4	U, R, Ap
CO 3	Apply principles of biomass conversion technologies, biogas generation, and the use of solar energy gadgets.	2, 3, 5	An, E
CO 4	Develop and implement solutions for energy issues and policy options, with a focus on renewable energy applications and energy efficiency.	1, 4, 5	Ap, C
CO 5	Demonstrate practical skills in operating and evaluating renewable energy gadgets and systems, including biogas plants, solar energy systems, and bio-fuel production processes.	3, 4, 5	E, C

Course Title: Post-harvest Management and Value Addition of Fruits and Vegetables

Course Code: AS 504

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the principles and importance of post-harvest management for fruits and vegetables, including handling, storage, and transportation.	1, 2, 3	U, R, Ap
CO 2	Analyze various methods and technologies used for preserving and extending the shelf life of fruits and vegetables.	1, 3, 4	U, R, Ap
CO 3	Apply techniques for value addition such as processing, packaging, and marketing of fruits and vegetables to enhance their economic value	2, 3, 5	An, E
CO 4	Evaluate the impact of post-harvest practices on quality and safety of fruits and vegetables, including compliance with standards and regulations.	1, 4, 5	Ap, C
CO 5	Demonstrate practical skills in handling, processing, and evaluating fruits and vegetables for effective post-harvest management and value addition.	3, 4, 5	E, C

Course Title: Agri-business Management

Course Code: AS 601

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the fundamentals of agribusiness management, including key concepts, principles, and practices.	1, 2, 3	U, R, Ap
CO 2	Analyze the structure and dynamics of agribusiness firms and their role in the agricultural sector	1, 3, 4	U, R, Ap
CO 3	Apply financial and operational management techniques to improve the efficiency and profitability of agribusiness operations.	2, 3, 5	An, E
CO 4	Evaluate market trends, consumer behavior, and strategic planning for successful agribusiness ventures.	1, 4, 5	Ap, C
CO 5	Demonstrate practical skills in managing agribusiness projects, including risk management, budgeting, and resource allocation.	3, 4, 5	E, C

Course Title: Commercial Enterprise

Course Code: AS 602

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the history, biology, and management practices of beekeeping, including honey bee products and their applications	1, 2, 3, 4	U, R, Ap
CO 2	Analyze the principles and practices of sericulture, including silkworm biology, host plant cultivation, and control of pests and diseases.	1, 2, 4, 5	An, E
CO 3	Apply techniques for lac culture, including the behavior of lac insects, their cultivation, and processing methods.	1, 3, 5	Ap, C
CO 4	Evaluate commercial floriculture practices, including the cultivation of flowers, protected cultivation techniques, and postharvest handling.	1, 2, 4, 5	E, C
CO 5	Demonstrate practical skills in managing beekeeping, sericulture, lac culture, and floriculture operations, including laboratory and field techniques.	2, 3, 5	Ap, C

Course Title: Introductory Animal Husbandry

Course Code: AS 603

Sr. No.	On completing the course, the student will be able to:	PSOs addressed	Cognitive levels
CO 1	Understand the importance of livestock in agriculture and economy, including statistics on dairying and milk production.	1, 2, 3	U, R
CO 2	Apply knowledge of cattle and buffalo breeds, breeding methods, and management practices for pregnant and milch cows, including calf and heifer care.	1, 2, 4, 5	Ap, C
CO 3	Evaluate and implement practices for pig and goat/sheep management, including breeding, feeding, and raising young animals.	2, 3, 5	An, E
CO 4	Identify and manage common animal diseases in cattle, buffalo, goats, sheep, and swine, including vaccination schedules and disease control measures.	1, 4, 5	Ap, C
CO 5	Demonstrate practical skills in animal husbandry, including body part study, estimation of body weight, and basic animal care techniques.	3, 4, 5	Ap, C