



## Department of Agriculture

### Course Outcomes

S.No.	Name of the Course	CO Code	Course Outcomes
1	Fundamentals of Horticulture (Practical)	(BSAG-110-19)	<p>CO1: To identify the tools used in garden and different horticultural crops.</p> <p>CO2: To practice the sexual and asexual methods of propagation.</p> <p>CO3: Students can able to understand basic information of layout and planting of orchard.</p> <p>CO4: Students will learn how horticulture relates to the economy and environments, both currently and in the future.</p>
2	Fundamentals of Soil Science (Practical)	(BSAG-111-19)	<p>CO1: To study the physical and chemical properties of soil in relation to plant growth.</p> <p>CO2: To aware the students about soil pollution, its causes and mitigation practices adopted to control soil pollution.</p> <p>CO3: To provide a brief knowledge about soil forming factors. Formation of rocks and minerals in soil.</p>
3	Introduction to Forestry (Practical)	(BSAG-112-19)	<p>CO1: To study the identification of tree- species.</p> <p>CO2: Students are provided with knowledge of how to measure a height of standing tree.</p> <p>CO3: Nursery layout, forest planting and their management can be studied.</p> <p>CO4: Students will learn how to develop and apply silvicultural prescriptions appropriate to management objectives.</p>
4	Comprehension & Communication Skills in English (Practical)	(BSAG-113-19)	<p>CO1: Students will identify and explain their goals to the semester and also identify the needs of communication helps us meet .</p> <p>CO2: Students can recall the importance of listening effectively and can identify strategies for communicating the cultural awareness.</p> <p>CO3: Students can demonstrate critical and innovative thinking.</p>
5	Fundamentals of Agronomy (Practical)	(BSAG-114-19)	<p>CO1: Students can gain knowledge about the branch of science dealing with all aspects of crop cultivation and production.</p> <p>CO2: Knowledge about Indian Agriculture and importance, present status, scope and future prospect.</p> <p>CO3: Students can understand Cropping seasons of India. Soil formation, classification, physical, chemical properties, Identification of important crops and crop seeds.</p>

6	Introductory Biology (Practical)	(BSAG-115-19)	CO 1: The student will recognize and be able to apply basic ethical principles to basic and applied biological/biomedical practice.
			CO 2: The student will be able to explain the process of organic evolution and its underlying principles and mechanisms.

S.No.	Name of the Course	CO Code	Course Outcomes
1	Fundamentals of Genetics (Practical)	(BSAG-210-19)	CO-1: Comprehensive, detailed understanding of the chemical basis of heredity specially in crop plants to improve and develop the new varieties of plants
			CO-2: Understanding of how genetic concepts affect broad societal issues including health and disease, food and natural resources, environmental sustainability, etc.
			CO-3: Understanding the role of genetic technologies in industries related to biotechnology, pharmaceuticals, energy, and other fields.
2	Agricultural Microbiology (Practical)	(BSAG-211-19)	CO1 Student will understand the basic microbial structure, function and study the comparative characteristics of prokaryotes and eukaryotes.
			CO2 To know the various Physical and Chemical growth requirements of bacteria
			CO3 Impart knowledge about production of beneficial bacteria.
3	Soil and water conservation engineering (Practical)	(BSAG-212-19)	CO-1: various causes of soil erosion and forms of water erosion, classification of gully control measures or structures.
			CO-2: Students will be able to understand the wind erosion, centrifugal pumps and various pressurized irrigation methods.
			CO-3: This course will help the students to learn about Contour strip cropping designed to minimize soil erosion and Contour bunds which can save soils from erosion.
4	Fundamentals of Crop Physiology (Practical)	(BSAG-213-19)	CO-1: To know the difference between C3, C4 and CAM plant.
			CO-2: Importance of growth Harmon in Agriculture.
			CO-3: Students can gain role of crop physiology in crop health.
			CO-4: To study about Identification of deficiency symptoms of nutrients.
5	Fundamentals of Plant Pathology (Practical)	(BSAG-214-19)	CO1- Student will acquaint about concepts of plant pathogens, major disease causing organisms and their etiology
			CO2 - To provide specific knowledge about host pathogen interactions.
			CO3 -Recognition of plant disease is the first step in doing something about them

6	Fundamentals of Entomology (Practical)	(BSAG-215-19)	CO 1: To be able to identify morphological characteristics, feeding habit and habitat of agriculturally important insect-pest. CO 2: To be able to apply concepts and analytical approaches in evolutionary biology, genetics and other areas of insect biology of the student's choice.
			CO 2: To be able to apply concepts and analytical approaches in evolutionary biology, genetics and other areas of insect biology of the student's choice.
			CO 3: To be able to categorize insects based on basic ecological, behavioural, morphological, physiological, or developmental attributes.
			CO 4: To be able to examine insects deeply within a biological level of analysis and make strategies for successful pest management strategy.
7	Fundamentals of Agricultural Extension Education (Practical)	(BSAG-216-19)	CO1 Education; Extension Programme planning Meaning, Process, Principles and Steps in Programme Development
			CO2 Extension systems in India: Extension efforts in Pre-independence era.
			CO3 New trends in agriculture extension: privatization extension.
8	Communication Skills and Personality Development (Practical)	(BSAG-217-19)	CO1 Students will analyze basic communication skills.
			CO2 Students will analyze intercultural communication skills
			CO3 Students will analyze interpersonal communication skills.

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1	Crop Production Technology – I (Kharif Crops) (Practical)	(BSAG-310-19)	CO 1: The Objective of the course is to acquaint students the origin, geographical distribution, economic importance, soil and climatic requirements, varieties, yield and package of practices of Kharif Crops including cereals, pulses, oilseeds and forage crops. CO.2: Constraints in production of oilseeds and pulses maybe identified through course content.
2	Fundamentals of Plant Breeding (Practical)	(BSAG-311-19)	CO-1: Establish the commercial plant breeding company to developed new superior crops varieties. CO-2: Develop the insect and disease resistant varieties for environment friendly management of disease and insect. CO-3: Serve the quality food in the market by developing high nutritive varieties.

3	Agricultural Finance and Cooperation (Practical)	(BSAG-312-19)	<p>CO-1: Explain the broad feature of Indian financial institutions with instruments to control credit in the country.</p> <p>CO-2: Effectively narrate the kinds and components of money with its regulatory system .Be aware of the functions,objectives and limitations of commercial bank</p> <p>CO-3: Identify the existence and development of non- banking financial institutions, know the important role of mutual fund.LIC investment companies etc. Utilize and effectively participate in the development process.</p> <p>CO-4: Understand the conditions of financial markets and its impact in the economy.</p>
4	Agri-Infomatics (Practical)	(BSAG-313-19)	<p><b>CO1;</b> The students are supposed to gain knowledge on production technology for fruits and plantation crops.</p> <p><b>CO 2;</b>Students are able to perform different propagation mentds for different fruits and plantation crops.</p>
5	Farm Machinery &Power (Practical)	(BSAG-314-19)	CO1: Various sources of farm power and their uses
			CO2: about working of IC Engines and their uses in modern equipments
			CO3: about various parts of tractors and their mechanism CO4: the financial aspects of using farm power
6	Production Technologies for Vegetables and Spices (Practical)	(BSAG-315-19)	CO 1: To make students aware of package of practices of growing importantvegetables and spices.
7	Environmental studies and disaster management (Practical)	(BSAG-316-19)	<p>CO1: Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving. Interdisciplinary branches of environment and their scopes.</p> <p>CO2: Ecosystem Links between environmental components and their role and types of ecosystems.</p>
			CO3: Concepts of natural resources, Food resources, mineral resources, Concept of non Conventional energy resources, types and various applications of renewable resources and current potentials of energy resources
8	Statistical Methods (Practical)	(BSAG-317-19)	<p><b>CO1:</b>To teach students about raising seedlings and their maintenance in protected structures.</p> <p><b>CO2:</b> To teach students about use of pro trays in quality planting material production.</p>
			<b>CO3:</b> Students are able to understand about use of drip irrigation in green houses
9	Livestock and Poultry (Practical)	(BSAG-318-19)	CO-1: Develop and evaluate animal production and management systems by integrating knowledge of animal genetics, nutrition, reproduction, and other relevant disciplines and applying scientific and quantitative reasoning to solve real-world challenges.
			CO-2: Locate, critically evaluate, and apply information from scholarly animal science literature and other sources to expand

			personal understanding and knowledge of animal sciences, providing a foundation for lifelong learning.
			CO-3: Create and interpret graphs, tables and diagrams illustrating scientific data and concepts, and understand basic concepts relating to the design and analysis of research in the animal sciences.
			CO-4: Communicate effectively about animal sciences to a range of audiences, both orally and in writing, using appropriate traditional and emerging media.

S.No.	Name of the Course	CO Code	Course Outcomes
1	Crop Production Technology – II (Rabi Crops) (Practical)	(BSAG-410-19)	CO.1: It will be helpful to know about basic morphological characteristics of rabi crops
			CO.2: Students will be able to know about the economic importance of medicinal and Aromatic crops in present sphere.
			CO.3: Through proper knowledge of irrigation scheduling in rabi crops, additional area can be increased of low water requiring crops.
2	Production Technology for Ornamental Crops (Practical)	(BSAG-411-19)	CO.1- To evaluate natural herbal products from an economic perspective.
			Co.2-To use medicinal and aromatic herbs sustainably.
			CO.3-To set up business related to medicinal, aromatic and landscaping.
			CO.4-To develop effective ideas related to collecting, processing and marketing herbal natural sources.
3	Renewable Energy and Green Technology Lab (Practical)	(BSAG-412-19)	CO1: To understand the role of renewable sources in agriculture sector.
			CO2: To understand the bio fuel production and their applications in today's world.
			CO3: To understand and utilizing the solar energy in various aspects.
4	Production Technology for fruits & Plantation Crops (Practical)	(BSAG-413-19)	<b>CO1;</b> The students are supposed to gain knowledge on production technology for fruits and plantation crops. <b>CO 2;</b> Students are able to perform different propagation methods for different fruits and plantation crops.
5	Principles of Seed Technology (Practical)	(BSAG-414-19)	CO 1: to teach students about seed and seed technology, seed certification, maintenance of seed quality standards during seed production, processing and marketing, legislation, foundation and certified seed production of important cereals, pulses, oilseeds, fodder and vegetables crops.
			CO-2: Storage the pure variety seed to avoid the availability crises of pure variety seed due to adverse environmental conditions.
			CO-3: To supply the disease free seed in the market to get the environment friendly cultivation of crops.
6	Agricultural Marketing trade and	(BSAG-415-19)	CO-1 An efficient marketing system ensures higher levels of income for the farmers by reducing the number of middlemen or

	prices (Practical)		by restricting the commission on marketing services and the malpractices adopted by them in the marketing of farm products.
			CO-2: Helps to Adoption and Spread of New Technology:
			CO 3: An efficient marketing system helps the farmers in planning their production in accordance with the needs of the economy
7	Introductory Agrometeorology and Climate Change (Practical)	(BSAG-416-19)	CO.1: To understand roles of agrometeorology in agriculture and its relation to other areas of agriculture to acquaint with recent developments in agrometeorology with historical development of climate change.
			CO.2: Agrometeorology studies meteorological and hydrological factors in relation to agriculture.
			CO.3: Agrometeorology studies the behavior of the weather elements that have direct relevance to agriculture and their effect on crop production
8	Protected Cultivation (Practical)	(BSAG-418-19)	<b>CO1:</b> To teach students about raising seedlings and their maintenance in protected structures. <b>CO2:</b> To teach students about use of pro trays in quality planting material production.
			<b>CO3:</b> Students are able to understand about use of drip irrigation in green houses
9	Agrochemicals (Practical)	(BSAG-422-19)	CO 1: Students will understand the composition of different chemicals.
			CO 2: They will learn about the fate of different fertilizers in soil

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1	Principles of Integrated Pest and Disease Management (Practical)	(BSAG-509-19)	CO 1: Students are skilled in determining pest levels and impact on plant and animal hosts and the management of these pests by Integrated Pest Management approach. CO 2: To be able to address complex problems facing entomology or toxicology professionals taking into account related ethical, social, legal, economic, and environmental issues. CO 3: To Understands about different classes of insecticides, their formulation, toxicity, poisoning, first aid and antidotes and their effect on plants, animals and environment.
2	Manures, Fertilizers and Soil Fertility Management	(BSAG-510-19)	<b>CO1:</b> This will help students to gather knowledge about different manure and fertilizers used in agriculture for different crops. <b>CO2:</b> Students will understand essentiality of plant nutrients and mechanism of nutrient transport to plant and factor affecting nutrient availability.

			<p><b>CO3:</b> Students will become aware about fertilizer application methods and fertilizer and manure application rate which will help in improving fertility status of soil.</p> <p><b>CO4:</b> This course will help students to understand the role of organic manures in improving the soil physical status.</p>
3	Pests of Crops, Stored Grains and their Management (Practical)	(BSAG-511-19)	<p><b>CO1:</b> This will provide information about different insect pest of different crops.</p> <p><b>CO2:</b> Will provide information related to management of insect pest of field crops</p> <p><b>CO3:</b> Students will become aware about fertilizer application methods and fertilizer and manure application rate which will help in improving fertility status of soil.</p> <p><b>CO4:</b> This course will help students to understand the role of organic manures in improving the soil physical status.</p>
4	Diseases of Field and Horticultural Crops and their Management -I (Practical)	(BSAG-512-19)	<p><b>CO1:</b> Student will know the common pathogens of different diseases.</p> <p><b>CO2:</b> Student acquire the knowledge about etiology, and symptoms of these diseases which helps in diagnosis of the diseases of field and horticultural crops</p> <p><b>CO3:</b> By knowing means of dispersal of these diseases suitable management methods can be applied.</p> <p><b>CO4:</b> Eco-friendly and economically suitable management practices may be adopted.</p>
5	Crop Improvement-I (Kharif Crops) (Practical)	(BSAG-513-19)	<p><b>CO1:</b> To teach students about identification of seeds, crops and other inputs</p>
			<b>CO2:</b> Sowing methods of different kharif crops
			<b>CO3:</b> Seed bed preparation for kharif crops
			<b>CO4:</b> Cotton seed treatment
6	Entrepreneurship Development and Business Communication (Practical)	(BSAG-514-19)	<p><b>CO1</b> Students will learn about the legal and financial conditions for starting a business venture</p>
			<b>CO2</b> To Analyse the business environment in order to identify business opportunities
			<b>CO3</b> Identify the elements of success of entrepreneurial ventures
7	Geo-informatics, Nano-technology and Precision Farming (Practical)	(BSAG-515-19)	<p><b>Co 1:</b> To provide an understanding on concepts and use of precision agriculture and geo-informatics, concepts and applications of remote sensing</p>
			<b>Co 2:</b> To study about global positioning system (GPS), use of system simulation and nanotechnology for enhancing farm productivity.

8	Practical Crop Production – I (Kharif crops) (Practical)	<b>BSAG-516-19)</b>	CO-1: Learner learns new genetic approaches to achieve a definite ideotype of kharif crop.
			CO-2: Learner learns Gene preservation method for further use to improve kharif crops
			CO-3: Learner learns to applies breeding method to improve kharif crops
			CO-4: Learner learns identification of resistance gene relate to kharif crop with high yield potential against Pest and pathogen and utilization genes
9	Landscaping (Practical)	<b>(BSAG-518-19)</b>	<b>C01:</b> To provide knowledge to students about Art principles and different styles of gardening.  <b>C02:</b> Students can gain information about identification features, botanical names and families of trees, shrubs and annuals
10	Biopesticides & Biofertilizers (Practical)	<b>(BSAG-522-19)-19)</b>	<b>C01:</b> To teach students about bio-pesticides and bio-fertilizers  <b>C02:</b> To teach students about identification of important botanicals
			<b>C03:</b> Quality control of bio-pesticides
			<b>C04:</b> Bio-fertilizers supplement the requirements of fertilizers and do not replace them

S.No.	Name of the Course	CO Code	Course Outcomes
1	Practical Crop Production-II (Rabi Crops)	<b>(BSAG-610)</b>	CO.1: To know the Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of rabi crops. CO.2: Identify weeds in rabi season crops, Pulses
2	Diseases of Horticultural Crops & their management (Practical)	<b>(BSAG-611)</b>	CO-1. Student will know the common pathogens of different diseases. CO-2. Student acquire the knowledge about etiology, and symptoms of these diseases which helps in diagnosis of the diseases of horticultural crops CO-3. By knowing means of dispersal of these diseases suitable management methods can be applied.



3	Flower cultivation & landscaping (Practical)	<b>(BSAG-612)</b>	CO 1: Students will learn about the cultivation of different flower crops in different zones.
			CO 2: To provide knowledge to students about Art principles and different styles of gardening.
			CO 3: Students can gain information about identification features, botanical names and families of trees, shrubs and annuals
4	Breeding of field and Horticultural crops (Practical)	<b>(BSAG-613)</b>	CO 1: To get knowledge about various methods of breeding in crops
			CO 2: Students will learn about hybridization, mutation & heterosis.
			CO 3: To study about ideotypes and clones.
5	Protected cultivation & Postharvest Technology (Practical)	<b>(BSAG-614)</b>	CO-1: To get knowledge about green house technology, types of green houses and construction of green houses.
			CO-2: Course will give the knowledge of Green house equipments, materials of construction for traditional and low cost green houses.
			CO-3: This course will help the students to learn about Irrigation systems used in greenhouses, shade net house in protected cultivation.
			CO-4: By this course student get the of concepts of cleaning and gradingMoisture measurement.
6	Renewable Energy (Practical)	<b>(BSAG-615)</b>	CO1: To understand the roleof renewable sources in agriculture sector.
			CO2: To understand the bio fuel production and their applications in today's world.
			CO3: To understand and utilizing the solar energy in various aspects.
7	Post Harvest management of Fruits & Vegetables (Practical)	<b>BSAG-616)</b>	Co.1- Understand the post harvest technology of horticultural crops.
			Co.2- Understand the value addition of horticulture crops
			Co.3- Students will understand the work space, tool and equipment design for PHT and value addition.

1	Diseases of Field Crops & their management (Practical)	<b>(BSAG-703)</b>	CO-1.Student will know the common pathogens of different diseases.
			CO-2. Student acquire the knowledge about etiology, and symptoms the diseases of field crops

			CO 3: Students will learn about the management of different field crop diseases.
2	Introduction to Molecular Biotechnology	(BSAG-704)	<p><b>CO1:</b> This course teaches the students approaches to manipulate and improve plant yield, throws light on transgenic plants</p> <p><b>CO2:</b> This students will be able to understand the relationship between science and society and will be able to give justification for biotechnological manipulation of plants for human use</p> <p><b>CO3:</b> This course teaches RDNA technology techniques and their application in the field of genetic engineering</p> <p><b>CO4:</b> They learn about plasmids, vectors and gain knowledge on the construction of cDNA libraries</p>

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1	Soil Survey, Classification and mapping (Practical)	(BSAG-CS707)	<p><b>CO1:</b> To describe and classify soils giving uniform system of classification with uniform nomenclature in order to correlate the soils of different area.</p> <p><b>CO2:</b> To show distribution of different soils in the field (soil mapping).</p>
2	Soil Physical and Biological Environment (Practical)	(BSAG-CS-708)	<p>CO 1: To describe the students soil physical properties</p> <p>CO 2: Students will learn about soil organisms &amp; nutrient fixation in soil</p> <p>CO 3: To teach the students about flow of water in soil &amp; runoff losses.</p>
3	Analytical Techniques in Soils, Plants, Fertilizers and Water (Practical)	(BSAG-CS-709)	<p>CO 1: Students will learn about the working of Different soil laboratory instruments.</p> <p>CO 2: It will help students to gather knowledge about problematic soils.</p> <p>CO 3: Students will understand about fertilizer control order.</p>
4	Weed Management (Practical)	(BSAG-CS-710)	<p>CO.1: Students will be learned about why to undertake environmental weed control.</p> <p>CO.2: Students will be acquainted about different approaches of weed management</p> <p>CO.3: Students will be acquainted about harmful and beneficial effects of weeds in Agriculture.</p> <p>CO.4: Students will be acquainted planning for weed management and weed management processes.</p>
5	Farming Systems and Sustainable Agriculture (Practical)	(BSAG-CS-711)	<p>CO 1: To provide knowledge on farming system, efficient cropping system, allied enterprises, sustainable agriculture and integrated farming system.</p> <p>CO2: The student will be able to explain in general the relationships among culture, economics, politics, science, and agricultural development..</p> <p>CO3: A solid understanding of the cross-cultural interactions and exchange that linked the world's people and facilitated</p>

			agricultural development is also expected
6	Production Technology of Spices, Aromatic, Medicinal and Plantation Crops (Practical)	(BSAG-CS-712)	<b>CO1</b> ; The students are expected to gain knowledge on production technology of ornamental crops, aromatic and medicinal plants, their importance and uses.
7	Production Technology of Economic Forest Trees (Practical)	(BSAG-CS-713)	CO 1: Students will learn about Silviculture.
			CO 2: To teach the students about identification of different forest trees.
			Co 3: Students will learn about economic importance of forests

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1	Nursery Management of Horticultural crops (Practical)	(BSAG-HC-708)	CO 1: To study about the modern nursery raising techniques and their management. Co 2: To teach the students about dormancy and germination of seeds CO 3: To perform various propagation methods used for raising fruit plants.
2	Commercial Fruit Production (Practical)	(BSAG-HC-709)	CO 1: Students will understand various practices used for cultivation of different fruit crops. CO 2: To teach the students regarding major insect pests, diseases and disorders of fruits.
3	Processing and Value Addition of Horticultural Crops (Practical)	(BSAG-HC-710)	CO 1: To teach the students about various processing techniques. CO 2: Stages of maturity at which crops will be harvested. CO 3: Various value-added products to be prepared from fresh fruits like jam, jelly & squash
4	Commercial Vegetable Production (Practical)	(BSAG-HC-711)	<b>CO1</b> : To teach students about introduction to vegetable crops and theoretical knowledge and hands on experience required for successfully producing them.
			<b>CO2</b> : This topic will include crop classification, planting methods, crop climatic conditions, physiological growth and development, soil, water and pest management, crop rotation.

			<b>C03:</b> Common weeds and their identification
			<b>C04:</b> Weeds and their controls
5	Vegetable Breeding and seed production (Practical)	(BSAG-HC-712)	<b>CO1:</b> The students will be well acquainted with various methods adopted for improvement of vegetable crops
			<b>CO2:</b> The students will be able to understand importance of quality seed production various methods of seed production in self and open pollinated crops.
6	Forcing Techniques in vegetable Production (Practical)	(BSAG-HC-713)	<b>CO 1:</b> To teach the students regarding off season production of vegetables. <b>CO 2:</b> To study about the different growing media used in greenhouses for vegetable production.
			<b>CO 3:</b> Students will gain knowledge about hydroponics cultivation
7	Commercial floriculture and Landscaping (Practical)	(BSAG-HC-714)	<b>CO1:</b> To teach students about preparation of plans and layout of gardens
			<b>CO2:</b> Harvesting and handling of cut flowers
			<b>C03:</b> Seed collection, germination tests and storage



