

## Post Graduate Department of Agriculture

### M.SC. AG. HORTICULTURE (VEGETABLE SCIENCE) (2 YEAR PROGRAMME)

**PROGRAMME OUTCOME (PO) I:** After completing master degree course the candidate have further teaching and research studies option. They can also become agricultural scientist who can also work as consultants to business firms, private clients or to the government. The candidate can also pursue for doctorate programme.

**PROGRAMME SPECIFIC OUTCOME (PSO) I:** The student will learn the advance knowledge of their particular subjects and they learn about how to conduct research in agriculture field particularly to the vegetable crops.

**CO 1-Production technology of cool season Vegetable crops:** The Students will learn about production technology of winter season vegetable crops.

**CO 2-Growth and development of vegetable crops:** Students will acquire the knowledge about physiology of growth and development of vegetable crops.

**CO 3-Soil fertility and fertilizer use:** Students will get familiar about soil fertility and its control, and to understand the role of fertilizers and manures in supplying nutrients to plants so as to achieve high fertilizer use efficiency.

**CO 4-Statistical methods for research workers:** The students would be exposed to elementary mathematics that would prepare them to study their main courses that involve knowledge of Mathematics.

**CO 5-Library and information services:** Students will be equipped with the library users with skills to trace information from libraries efficiently, to apprise them of information and knowledge resources, to carry out literature survey, to formulate information search strategies, and to use modern tools (Internet, OPAC, search engines etc.) of information search.

**CO 6-Basic concept in laboratory techniques:** Students will learn about the basics of commonly used techniques in laboratory.

**CO 7-Production technology of warm season vegetable crops:** Students will get knowledge about production technology of summer season vegetable crops

**CO 8-Breeding of vegetable crops:** Students will get education about principles and practices adopted for breeding of vegetable crops.

**CO 10-Analytical techniques and instrumental methods in soil and plant analysis:** Students will familiarize with the commonly used instruments –their working, preparations of common analytical reagents for qualitative and quantitative analysis of both soil as well as plant samples.

**CO 11-Experimental designs for research worker:** Students will be exposed to concepts of statistical methods and statistical inference that would help them in understanding the importance of statistics. It would also help them in understanding the concepts involved in data presentation, analysis and interpretation.

**CO 12-Technical writing and communications skills:** Students/scholars will get skills to write dissertations, research papers, etc. To equip the students/scholars with skills to communicate and articulate in English (verbal as well as writing).

**CO 13-Disaster management:** Students will become learners to the key concepts and practices of natural disaster management; to equip them to conduct thorough assessment of hazards, and risks vulnerability; and capacity building.

**PROGRAMME SPECIFIC OUTCOME (PSO) II:** The student will conduct their research experiment in the field and get knowledge about the data analysis related to agriculture field, particularly vegetable crops.

**CO 14-Seed production technology of vegetable crops:** Students will understand about the principles and methods of quality seed and planting material production in vegetable crops.

**CO 15-Systematic of vegetable crops:** Students will be acquainted with morphological, cytological and taxonomy of vegetable crops.

**CO 16-Production technology of under exploited and underutilized vegetable crops:** Students will get first-hand information of production technology of underutilized vegetable crops.

**CO 17-Management of problematic soils and waters:** Students will get knowledge about basic concepts of problem soils and brackish water, and their management. Attention will be on management of problem soils and safe use of brackish water in relation to crop production.

**CO 18-Intellectual property and its management in agriculture:** Students will understand and interact with stakeholders for knowledge of intellectual property rights (IPR) related protection systems, their significance and use of IPR as a tool for wealth and value creation in a knowledge-based economy.

**CO 19-Agricultural research, research ethics and rural development programmes:** Students will enlighten about the organization and functioning of agricultural research systems at national and international levels, research ethics, and rural development programmes and policies of Government.

**CO 20-Post Harvest Technology of Fruit and Vegetable Crops:** Students will facilitate with deeper understanding on principles and practices of fruit and vegetable technology.

**CO 21-Forcing Techniques and Organic Vegetable Production Technology:** Students will be imparted with latest knowledge in growing of vegetable crops under protected environmental condition and also get information about principles, concepts and production of organic farming in vegetable crops.

### **M. SC. AG. (AGRONOMY) (2 YEAR PROGRAMME)**

**PROGRAMME OUTCOME (PO) I:** After passing master degree course students have further teaching and research studies option. They can also become agricultural scientist

who can also work as consultants to business firms, private clients or to the government. The candidate can also pursue for Doctorate Programme.

**PROGRAMME SPECIFIC OUTCOME (PSO) I:** The student will learn the advance knowledge of their particular subjects and they learn about how to conduct research in agriculture field particularly to the field crops.

**CO 1-Modern concepts in crop production:** Students will understand the basic concepts of soil management and crop production.

**CO 2-Principles and practices of soil fertility and nutrient management:** Students will get knowledge of fertilizers and manures as sources of plant nutrients and apprise about the integrated approach of plant nutrition and sustainability of soil fertility.

**CO 3-Soil fertility and fertilizer use:** Students will get information and knowledge about soil fertility and its control. Students will understand the role of fertilizers and manures in supplying nutrients to plants so as to achieve high fertilizer use efficiency.

**CO 4-Statistical methods for research workers:** The students would be exposed to elementary mathematics that would prepare them to study their main courses that involve knowledge of Mathematics.

**CO 5-Library and information services:** Students will be equipped with the library users with skills to trace information from libraries efficiently, to apprise them of information and knowledge resources, to carry out literature survey, to formulate information search strategies, and to use modern tools (Internet, OPAC, search engines etc.) of information search.

**CO 6-Basic concept in laboratory techniques:** Students will be acquainted about the basics of commonly used techniques in laboratory.

**CO 7-Principles and practices weed management:** Students will be familiarized about the weeds, herbicides and methods of weed control.

**CO 8-Agronomy of oilseed, fiber and sugar crops:** Students will get first hand information about the crop husbandry of oilseed, fiber and sugar crops.

**CO 9-Agronomy of medicinal, aromatic and under Utilized crops:** Students get acquainted about different medicinal, aromatic and underutilized field crops, their package of practices and processing.

**CO 10-Analytical techniques and instrumental methods in soil and plant analysis:** Students will be familiarized with commonly used instruments, their working, preparations of common analytical reagents for qualitative and quantitative analysis of both soil as well as plant samples.

**CO 11-Experimental designs for research worker:** The students would be exposed to concepts of statistical methods and statistical inference that would help them in understanding the importance of statistics. It would also help them in understanding the concepts involved in data presentation, analysis and interpretation.

**CO 12-Technical writing and communications skills:** Students/scholars got skills to write dissertations, research papers, etc. and students/scholars with skills to communicate and articulate in English (verbal as well as writing).

**CO 13-Disaster management: Learners will get the key concepts and practices of natural disaster management;** to equip them to conduct thorough assessment of hazards, and risks vulnerability; and capacity building.

**PROGRAMME SPECIFIC OUTCOME (PSO) II:** The student will conduct their research experiment in the field and get knowledge about the data analysis related to agriculture field.

**CO 1- Agronomy of Major cereals & pulses:** Students will acquaint the knowledge about major grain crops, their nutrient content and their benefits to the farmers, soil health and to the society.

**CO 2-Dryland farming and water shed management:** Students will understand basic concepts and practices of dry land farming and soil moisture conservation.

**CO 3-Principles and practices of organic farming:** Students will gain knowledge of principles and practices of organic farming for sustainable crop production.

**CO 4-Management of problematic soils and waters:** Students will get information about basic concepts of problem soils and brackish water and their management. Attention will be on management of problem soils and safe use of brackish water in relation to crop production.

**CO 5-Intellectual property and its management in agriculture:** Students and stakeholders will be equipped with knowledge of intellectual property rights (IPR) related protection systems, their significance and use of IPR as a tool for wealth and value creation in a knowledge-based economy.

**CO 6-Agricultural research, research ethics and rural development programmes:** Students will be enlightened about the organization and functioning of agricultural research systems at national and international levels, research ethics, and rural development programmes and policies of Government.

**CO 7-Principles and practices of water management:** Students will acquaint with principles of water management and practices to enhance the water productivity.

### **B. Sc. (Honours in Agriculture) (4 Year Programme)**

**Programme Outcome (PO) III:** This programme will develop a wide mix of technical skills and knowledge, including land use, farming practice and food production, as well as an understanding of the scientific, ethical and business principles that underpin the agricultural industry. The student can also pursue their masters in particular subjects of their interest.

**Programme specific outcome (PSO) I:** After completion of B. Sc. Agriculture Ist year students have basic knowledge of agriculture and their particular subjects

**CO -1 Fundamentals of horticulture:** students will learn about the principles and methods of basic fundamental horticultural techniques for the cultivation of fruit crops.

**CO -2 Fundamentals of plant biochemistry and biotechnology:** this course is aimed to understanding the basic concepts of plant biochemistry and biotechnology. It will improve the students understanding on applied aspects of biochemistry, classical and developmental genetics, principally plant breeding science and molecular biology. Also helping students to develop their analytical and problem-solving skills.

**CO 3 - Fundamentals of soil science:** To impart basic knowledge about soil as a natural body, pedological and ethnological concepts of soil. Soil genesis, rocks, mineral and soil formation etc. To improve the elementary knowledge of soil taxonomy classification and

soils of India. To learn about soil physical, chemical and biological properties and processes in relation to plant growth etc.

**CO 4 - Introduction to forestry:** this subject provides information about the tree measurements and benefits of agroforestry over traditional agriculture.

**CO 5 -Punjabi compulsory:** Students will learn about literature and grammar related to Punjabi language.

**CO 6 - Fundamentals of Agronomy:** To study about basic knowledge of tillage, crop nutrition and irrigation methods, Weeds and its classification and management. Crop rotation and crop management techniques in problematic areas.

**CO 7 -Introductory Biology:** To provide introductory knowledge about living beings to students.

**CO 8 -Elementary Mathematics:** To study the basics of straight lines, circle, Differential and Integral Calculus.

**CO 9 - Agricultural Heritage:** To improve knowledge of precision farming and Indian agricultural heritage of present, past and modern era through indigenous and traditional knowledge about crop production in India and world.

**CO 10 - Rural Sociology & Educational Psychology:** The main objective of this course is to study the students about scientific and systematic manner of the Rural Society in order to help in the task of planning for the reconstruction of the rural social life and aware their educational psychology.

**CO 11 -Human Value and Ethics:** To improve the knowledge about human values and ethics, goal and mission of life, self-exploration, self-satisfaction, success and spirituality.

**CO 12 - National Service Scheme- I:** To study about Introduction and basic components of NSS. To learn about NSS programme and its activities.

**CO 13 – National Cadet Corps-I:** To study Aims, objectives and organization of NCC. To learn about nation building- cultural heritage, religions, traditions and customs of India and national integration.

**CO 14 - Physical Education and Yoga Practices- I:** To study about teaching of skills of different games their demonstration, practice of the skills, correction, involvement in game situation. To learn about meaning, scope and importance of Physical Education.

**CO 15 - Comprehension and Communication Skills in English:** To enhance the reading, writing, listening and speaking skills of students in English.

**CO 16 -Fundamentals of Genetics:** The course is aimed at imparting knowledge on the fundamental aspects of genetics and its applications, describing cell division and the functions of the genetic material, illustrating the molecular mechanisms of inheritance and gene regulation.

**CO 17 -Agricultural Microbiology:** To teach the study and importance of microbial population in agriculture.

**CO 18 - Soil and Water Conservation Engineering:** To study the basics of conservation techniques of soil and water.

**CO 19 - Fundamentals of Crop Physiology:** To study the basic metabolic activities of crop physiology such as water absorption, transpiration, photosynthesis, respiration, plant growth hormones and its importance in agriculture.

**CO 20 - Fundamentals of Agricultural Economics:** To study the different principles of economics and its importance in agriculture.

**CO 21 -Fundamentals of Plant Pathology:** To study the different fungicidal, bacterial, viral and MLO's plant diseases. Its symptoms, control measures and significance in agriculture.

**CO 22 – Fundamentals of Entomology:** Understand **insect** adaptation and evolutionary processes. Learn the **basic** external morphology of **insects** and how it is used in classification. Learn the basic internal anatomy of insects, and how it is adaptive. Learn about different methods of pest control. Understand how insects adapt behaviourally and ecologically. Understand how insects affect humans medically, economically and socially.

**CO 23 - Fundamentals of Agricultural Extension Education:** The fundamental objective of this course is to educate the students about develop the rural people economically, socially and culturally by means of education and to provide relevant education to the students in agriculture, processing and allied sciences and different developmental programmes.

**CO 24 - Punjabi Compulsory:** Students will learn about literature and grammar related to Punjabi language.

**CO 25 - National Service Scheme- II:** To study about Introduction and basic components of NSS. To learn about NSS programme and its activities.

**CO 26 – National Cadet Corps-II:** To study Aims, objectives and organization of NCC. To learn about nation building- cultural heritage, religions, traditions and customs of India and national integration.

**CO 27 - Physical Education and Yoga Practices- II:** To study about teaching of skills of different games their demonstration, practice of the skills, correction, involvement in game situation.

**Programme Specific Outcome (PSO): II** This Programme develop a wide knowledge to handle the problems related in the Cultivation practices of different Rabi and Kharif crops, plant breeding, Farm Power machinery, Livestock management, problematic soils, Agricultural Finance and Cooperation, Agri- Informatics, Flower cultivation and Landscape gardening along with Cultivation and Post harvest handling of fruit crops.

**CO 1: Crop Production Technology – I (Kharif Crops):** Student will learn about intensive cropping patterns of Kharif crops and integrated farming system to increase crop production.

**CO 2 Fundamentals of Plant Breeding:** Students will learn the methods to improve yield, quality traits, biotic-abiotic stress tolerance i.e. disease-resistance, drought and frost-tolerance and Important characteristics of the crops.

**CO 3: Agricultural Finance and Cooperation:** Students will be able to learn the various agricultural development instruments, agriculture credit institutions, prepare and analyze the financial statements and recruitments in agricultural credit agencies and corporations.

**CO 4: Agri- Informatics:** Student will learn about the computer and its applications in agriculture.

**CO 5: Farm Machinery and Power:** Students will get information about the design, manufacture, distribution and use as well as servicing of all types of agricultural tools, equipment and machines.

**CO 6: Production Technology for Vegetables and Spices:** Students will be able to identify general package of practices followed for vegetables and spices under Punjab conditions.

**CO 7: Environmental and Road Safety Awareness:** This course aware the students about different environmental issues and Road safety measures.

**CO 8: Statistical Methods:** Basic statistical methods used for data analysis are studied in this subject.

**CO 9: Livestock and Poultry Management:** Students will study about the biological function of domestic animals and focuses on modern, efficient and humane ways to care for make the best use of the animals who share our lives.

**CO 10: National Service Scheme III:** Students will learn the essence of democratic and social living and upholds the need for self-less service.

**CO 11: Crop Production Technology –II (Rabi Crops):** Student will learn about intensive cropping patterns of Rabi crops and Integrated farming system to increase crop production.

**CO 12: Production Technology for Ornamental Crops, MAP and Landscaping:** Student will get information about importance, scope, production technology, Processing, Value addition of Ornamental Crops, MAPs and Landscaping.

**CO 13: Renewable Energy and Green Technology:** Students will get information to advance economic development, improve energy security, improve access to energy and mitigate climate change.

**CO 14: Problematic Soils and their Management:** Students will get practical knowledge about different kinds of problem soil in India and their laboratory test to control or improve the soil fertility.

**CO 15: Production Technology for Fruit and Plantation Crops:** Students will get knowledge on technical cultivation techniques and different practical issues related of fruits and plantation crops.

**CO 16: Principles of Seed Technology:** Students will learn technical knowledge, how to increase agriculture production through the spread of good quality seeds of high yielding varieties.

**CO 17: Farming System & Sustainable Agriculture:** Students will get knowledge to develop farming systems that are productive and profitable, conserve the natural resources, protect the environment, and enhance health and safety over the long-term.

**CO 18: Agricultural Marketing Trade & Prices:** Students will get knowledge of agriculture marketing, different systems, price analysis and trades and Finance policy in Agriculture.

**CO 19: Introductory Agro-meteorology & Climate Change:** Students will get basic knowledge of climate and weather and its impact on agriculture.

**CO 20: Agrochemicals:** Students will learn about the role of agrochemicals to healthy growth and stable supply of agricultural product to improved farm work efficiency.

**CO 21: Agri-business Management:** Students will acquire knowledge and practical skills to run an agribusiness to develop a business plan, process commodities and analyse marketing Collaborate with others.

**CO 22: Micro Propagation Technique:** Student will learn in vitro multiplication, regeneration of plant material under aseptic and controlled environmental conditions to produce thousands or millions of plants for transfer to the field.

**CO 23: National Service Scheme IV:** Students will learn the essence of democratic and social living and upholds the need for self-less service.

**PROGRAMME SPECIFIC OUTCOME (PSO) III:** After completion of this year, students will learn about different breeding techniques, diseases of different field and horticultural crops and gain basic knowledge of statistics and marketing of produce.

### **B.SC. Agriculture 3 Year**

#### **Course outcome**

#### **CO 1: PPD-311- Principles of Integrated Pest and Disease Management**

After the successful completion of this subject, students will be able to

- This course provides information about important plant pathogenic organisms
- Examples of diseases caused by them.
- Principle of Plant Pathology

#### **CO 2: SOILS-312 - Manures, Fertilizers and Soil Fertility Management**

After the successful completion of this subject, student will be able to:

- Students will learn about various organic and inorganic fertilizers
- Their role for increasing crop production.

#### **CO 3: ENT-313- Pests of Crops and Stored Grain and their Management**

After the successful completion of this subject, students will be able to

- Through this course, students will learn about identification of insect pests.
- Handling and Storing of grains after harvest

#### **CO 4: PPL-314- Diseases of Field and Horticultural Crops and their Management-I**

After the successful completion of this subject, students will be able to

- This course provides information about important crop pathogenic organisms
- Examples of diseases caused by them.



- Principle of Plant Pathology

**CO 5: PBG-315- Crop Improvement-I (Kharif Crops)**

After the successful completion of this subject, students will be able to

- Main aim is to provide information about the improvement of genetic makeup of crop plants
- Students will acknowledge about crop yield, quality and disease resistance
- Learn about plant breeding techniques.

**CO 6: ABM-316- Entrepreneurship Development and Business Communication**

After the successful completion of this subject, students will be able to

- Under this, students acquire knowledge regarding internal trade, exports and imports.
- Students will learn about price support Market production

**CO 7: GIS-317- Geo-informatics and Nano- technology and Precision Farming**

After the successful completion of this subject, students will be able to

- Students in this course will be provided with the information about Geo-informatics and Nano- technology
- Learn about Precision Farming

**CO 8: AGR-318- Practical Crop Production-I (Kharif Crops)**

After the successful completion of this subject, students will be able to

- The students will learn to different kharif crop production
- To study about their economic importance in agriculture

**CO 9: IPR-319- Intellectual Property Rights**

After the successful completion of this subject, students will be able to

- Students in this course will be provided with the information about Intellectual Property Rights
- Learn about importance of Intellectual Property Rights

**Any one of the following:**

**CO 10: AGR- 3111- Weed Management**

After the completion of this subject, students will be able to:

- Familiarize about recent concept of crop production
- Understand with different management practices.

**CO 11: FCL- 3112- Landscaping**

After the successful completion of this subject, student will be able to:

- The students will learn about various methods of Landscaping
- Its importance in agriculture.

**CO 12: PCV-3113- Protected Cultivation**

After the successful completion of this subject, students will be able to

- In this course, students will be taught about cultivation of agriculture crops
- Cultivation of fruit trees in the controlled environment
- Harvesting and processing of Fruits

**CO 13: SSA-3114- System Simulation and Agro advisory**

After the successful completion of this subject, students will be able to

- Acquaint with the Crop models, concepts & techniques.
- Develop the ability to identify and relate the crop responses to crop models, weather elements and role of Agro advisory, weather elements, potential and achievable crop production- concept and modelling

**CO 14: AGR-321- Rainfed Agriculture and Watershed Management**

After the successful completion of this subject, student will be able to:

- The students will learn about various methods of Watershed Management
- Its importance in water conservation.

**CO 15: HORT-322- Protected Cultivation and Secondary Agriculture**

After the successful completion of this subject, students will be able to

- In this course, students will be taught about cultivation of agriculture crops
- Secondary Agriculture

**CO 16: PPL-323- Diseases of Field and Horticultural Crops and their Management-II**

After the successful completion of this subject, students will be able to

- This course provides information about important plant pathogenic organisms
- Examples of diseases caused by them.
- Principle of Plant Pathology

**CO 17: PHM-324- Post-harvest Management and Value Addition of Fruits and Vegetables:**

After the successful completion of this subject, student will be able to:

- This subject encompasses about the production and consumption of different fruit and vegetable crops.
- Post-harvest handling
- Value addition of foods

**CO 18: ENT-325- Management of Beneficial Insects**

After the successful completion of this subject, students will be able to

- Through this course, students will learn about identification of beneficial insect.
- Handling and Storing of harvest produced

**CO 19: PBG-326- Crop Improvement-II (Rabi Crops)**

After the successful completion of this subject, students will be able to

- Main aim is to provide information about the improvement of genetic makeup of crop plants
- Students will acknowledge about crop yield, quality and disease resistance
- Learn about plant breeding techniques.

**CO 20: AGR-327- Practical Crop Production –II (Rabi Crops)**

After the successful completion of this subject, students will be able to

- The students will learn to different rabi crop production
- To study about their economic importance in agriculture

**CO 21: AEC-328- Farm Management, Production & Resource Economics**

After the successful completion of this subject, students will be able to

- This course provides information about management of farms
- Marketing of Agri produce
- Agri-finance and govt. schemes for Agri. and allied activities.

**CO 22: FST-329- Principles of Food Science and Nutrition**

After the successful completion of this subject, student will be able to:

- This subject encompasses about the production and consumption
- Post harvest handling
- Value addition of foods.

**Any one of the following:**

**CO 23: BPF-3221- Biopesticides & Biofertilizers**

After the successful completion of this subject, students will be able to

- Under this course, students will learn about Biopesticides & Biofertilizers and Identification of entomopathogenic entities in field condition.
- Quality control of biopesticides.

**CO 24: FSS- 3222- Food Safety and Standards**

After the successful completion of this subject, students will be able to

- Under this course, students will learn about food safety
- Processing of food
- Marketing of food and Dairy Products

**CO 25: HTH-3223- Hi-tech. Horticulture**

After the successful completion of this subject, students will be able to

- In this course, students will be taught about Hi-tech. Horticulture.
- Controlled environment
- Cultivation of horticultural crops under hi- tech

**CO 26: ACJ-3224- Agricultural Journalism**

After the successful completion of this subject, students will be able to

- In this course, students will be taught about Agricultural Journalism.
- Study the nature and scope of agricultural journalism characteristics
- Develop ability to recognize and utilize the different agricultural and training.

**Programme Specific Outcome (PSO) IV:** After Completion of B. Sc. Agriculture 4th year students have enough knowledge about use of new techniques for agriculture production, its marketing and to deal with farmers.

**CO1- Nursery Management of Horticultural Crop:** Students will learn about the orientation and planting system and cultivation of fruit crops as the education preparation needed to become pomologist.

**CO 2- Fundamentals of Fruit Production:** Students will learn about the orientation, planting system and cultivation of fruit crops as the Orchard management.

**CO 3- Commercial Vegetable Production:** Students will be able to identify plant vegetative and reproductive structure and effect of environment on plant growth.

**CO 4- Vegetable Breeding and Seed Production:** Students will be able to identify plant vegetative and reproductive structure and effect of environment on plant growth.

**CO 5- Weed Management:** In this course student will be familiarized about recent concept of crop production and system approach with different management practices.

**CO 6- Crop Production under Special Situation:** In this course student will be familiarized about recent concept of crop production and system approach with different management practices.

**CO 7- Analytical Techniques in Soils, Plants, Fertilizers and Water:** Students in this course know about soil properties, soil water, soil testing and quantitative analysis of soil.

**CO 8- Production Technology of Economic Forest Trees:** This course will give information to students that how they will adopt forest plants cultivation with the crops and maximize their income.

**CO 9- Apiculture:** By this course students will be able to know about the fascinating world of insect, the most numerous and diverse animal species and their morphological characters.

**CO 10- Post Harvest Diseases and Their Management:** By this course students will be able to know about the fascinating world of insect, the most numerous and diverse animal species and their morphological characters.

**CO 11- Quarantine in Plant Protection:** By this course students will be able to know about the fascinating world of insect, the most numerous and diverse animal species and their morphological characters.

**CO 12- Plant Nematology:** By this course students will be able to know about the fascinating world of nematodes, the most numerous and diverse animal species and their morphological characters.

**CO 13- Commercial Fruit Production:** Students will learn about the orientation and planting system and cultivation of fruit crops as the education preparation needed to become pomologist.

**CO 14- Processing and Value Addition of Horticultural Crops:** This subject encompasses about the production, consumption, post-harvest handling and value addition of foods.

**CO 15- Forcing Techniques in Vegetable Production:** Students will be able to identify plant vegetative and reproductive structure and effect of environment on plant growth.

**CO 16- Commercial Floriculture and Landscaping:** Students will study the basic landscaping garden principles, styles and the package practices of various flower crops, trees, shrubs, climbers, shade loving plants.

**CO 17- Farming Systems and Sustainable Agriculture:** In this course student will be familiarized about recent concept of crop production and system approach with different management practices.

**CO 18- Soil Physical and Biological Environment:** Students in this course know about soil properties, soil water, soil testing and quantitative analysis of soil.

**CO 19- Soil Survey, Classification and Mapping:** Student in this course knows about soil survey, classification and mapping of soil.

**CO 20- Production Technology of Spices, Aromatic, Medicinal and Plantation Crops:** In this course student will be familiarized about recent concept of crop production and system approach with different management practices.

**CO 21- Bio-control and Integrated Disease Management:** By this course students will be able to know about diseases of plant diagnosis of plant diseases and integrated disease management.

**CO 22- Bio-control and Integrated Pest Management:** By this course students will be able to know about the fascinating world of insect, the most numerous and diverse animal species and their morphological characters.

**CO 23- Pesticides and Plant Protection Equipment:** By this course students will be able to know about the pests, pesticides and their formulations and plant protection equipment.

**CO 24- Plant Disease Diagnosis:** By this course students will be able to know about diseases of plants and diagnosis of plant diseases.