



GOVERNMENT DEGREE COLLEGE,

RAYACHOTY, ANNAMAYYA (DISTRICT), AP516269

(Accredited with C grade by NAAC)

Department of BOTANY



COURSE OUT COMES

BSC BOTANY

UNDER CBCS FRAME WORK

WITH EFFECT FROM 2015-16

Semester-I Botany course-I:Microbial Diversity, Algae and fungi

Students after successful completion of the course will be able to:

CO-1	Explain origin of life on the earth.
CO-2	Illustrate diversity among the viruses and prokaryotic organisms and categorize them.
CO-3	Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.
CO-4	Evaluate the ecological and economic value of microbes, halophytes and bryophytes.

Semester-II Botany course-II: Diversity of Archegoniate and Anatomy

Students after successful completion of the course will be able to:

CO-1	Under stand on the organization of tissues and tissue system sin plants.
CO-2	Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities
CO-3	Appraise various qualitative and quantitative parameters to study the population and community ecology.
CO-4	Correlate the importance of biodiversity and consequences due to its loss.
CO-5	Enlist the endemic/endangered flora and fauna from two biodiversity hotspots in India and assess strategies for their conservation
CO-6	Illustrate and interpret various aspects of embryology.

Semester-III Botany Course-III: Plant Taxonomy and Embryology

Students after successful completion of the course will be able to:

CO-1	Enlist the endemic/ endangered flora and fauna from two biodiversity hotspots in India and assess strategies for their conservation.
CO-2	Critically understand various taxonomical aids for identification of Angiosperms.
CO-3	Explain the process of fossilizations and compare the characteristics of extinct and extant plants.
CO-4	Locate different phytogeographical regions of the world and India and can analyze their floristic wealth.

Semester-IV Botany Course-IV: Plant Physiology and Metabolism

Students after successful completion of the course will be able to:

CO-1	Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.
CO-2	Interpret the role of enzymes in plant metabolism.
CO-3	Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.
CO-4	Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.

Sem –V Paper- V: Cell Biology, Genetics and Plant Breeding.

Students after successful completion of the course will be able to:

CO-1	Demonstrate technique used to observe the cell and its components under a microscope.
CO-2	Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
CO-3	Explain the procedures of selection and hybridization for improvement of crops.
CO-4	Evaluate the structure, function and regulation of genetic material.

Sem-V Paper-VI: Plant Ecology and Phytogeography

Students after successful completion of the course will be able to:

CO-1	Evaluate the structure, function and regulation of genetic material.
CO-2	Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.
CO-3	Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families

Sem-VI PaperVII(Cluster):Plant Tissue Culture and its Bio-Technological

Applications

Students after successful completion of the course will be able to:

CO-1	Comprehend the basic knowledge and applications of plant tissue culture
CO-2	Identify various facilities required to set up a plant tissue culture laboratory Acquire a critical knowledge on sterilization techniques related to plant Tissue culture.
CO-3	Demonstrate skills of callus culture through hands on experience. Understand the biotransformation technique for production of secondary metabolites.

Sem-VI Paper-VIII A1-Biological Instrumentations and Methodology.

Students after successful completion of the course will be able to:

CO-1	Discuss the applications of biophysics and principle involved in bioinstruments
CO-2	Describe the methodology involved in biotechniques
CO-3	Describe the applications of bioinstruments, Demonstrate knowledge and practical skills of using instruments in biology and medical field

Sem-VI –Paper-VIII A2 –Mushroom Cultivation

Students after successful completion of the course will be able to:

CO-1	Demonstrate skills preparation of compost and spawn. Acquire a critical knowledge on cultivation of some edible mushroom and Explain the methods of storage, preparation of value-added products and marketing.
CO-2	Understand the structure and life of a mushroom and discriminate edible and poisonous mushrooms. Identify the basic infrastructure to establish a mushroom culture unit.
CO-3	Explain the methods of storage, preparation of value-added products and marketing.

Sem-VI-PaperVIII -A3 Project work.

Students after successful completion of the course will be able to:

CO-1	Explain different competitive environments in which various project works participants operate.
CO-2	Project outcomes refer to the desired results or impacts that a project aims to achieve.
CO-3	These outcomes can be positive or negative , and they are specific and measurable , allowing you to track your progress and determine when you've accomplished your goals.



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WITH EFFECT FROM 2020-2021

Sem-I Botany course-I: Fundamentals of microbes and Non-Vascular plants.

Students after successful completion of the course will be able to:

CO-1	Explain origin of life on the earth.
CO-2	Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat. Evaluate the ecological and economic value of microbes, halophytes and bryophytes.
CO-3	Illustrate diversity among the viruses and prokaryotic organisms and can categorize them. Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles. Analyze and certain the plant disease symptoms due to viruses, bacteria and fungi.
CO-4	Evaluate the ecological and economic value of microbes, thallophytic and bryophytes.

Sem-II Botany course-II: Basics of Vascular plants & Phytogeography.

Students after successful completion of the course will be able to:

CO-1	Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles. Justify evolutionary trends in tracheophytes to adapt for land habitat.
CO-2	Explain the process of fossilization and compare the characteristics of extinct extant plants. Critically understand various taxonomical aids for identification of Angiosperms.
CO-3	Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families. Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.
CO-4	Locate different phytogeographical regions of the world and India and can analyze their floristic wealth.
CO-5	Critically understand various taxonomical aids for identification of Angiosperms.

Sem-III Botany Course-III: Anatomy and Embryology of Angiosperms, Plant Ecology and Bio-Diversity.

Students after successful completion of the course will be able to:

CO-1	Understand on the organization of tissues and tissue systems in plants. Illustrate and interpret various aspects of embryology.
CO-2	Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.
CO-3	Appraise various qualitative and quantitative parameters to study the population and community ecology. Correlate the importance of biodiversity and consequences due to its loss.
CO-4	Appraise various qualitative and quantitative parameters to study the population and community ecology. Correlate the importance of biodiversity and consequences due to its loss.

Semester-IV Botany Course-IV: Plant Physiology and Metabolism.

Students after successful completion of the course will be able to:

CO-1	Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants. Evaluate the role of minerals in plant nutrition and their deficiency symptoms.
CO-2	Interpret the role of enzymes in plant metabolism. Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants
CO-3	Evaluate the physiological factors that regulate growth and development in plants.
CO-4	Examine the role of light on flowering and explain physiology of plants under stress conditions.

Sem –IV- Paper- V: Cell Biology, Genetics and Plant Breeding.

Students after successful completion of the course will be able to:

CO-1	Distinguish prokaryotic and eukaryotic cells and design the model of a cell. Explain the organization of a eukaryotic chromosome and the structure of genetic material.
CO-2	Demonstrate techniques to observe the cell and its components under a microscope. Discuss the basics of Mendel's genetics, its variations and interpret inheritance of traits in living beings.
CO-3	Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
CO-4	Evaluate the structure, function and regulation of genetic material. Understand the application of principles and modern techniques in plant breeding. Explain the procedures of selection and hybridization for improvement of crops.

Sem-V Paper VI: Plant Tissue Culture and its Bio-Technological

Applications

Students after successful completion of the course will be able to:

CO-1	Comprehend the basic knowledge and applications of plant tissue culture. Identify various facilities required to set up a plant tissue culture laboratory.
CO-2	Acquire a critical knowledge on sterilization techniques related to plant tissue culture.
CO-3	Demonstrate skills of callus culture through hands on experience. Understand the biotransformation technique for production of secondary metabolites.

Sem-V Paper-VII: Plant Ecology and Phytogeography

Students after successful completion of the course will be able to:

CO-1	Enlist the endemic/endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation.
CO-2	Appraise various qualitative and quantitative parameters to study the population and community ecology. Correlate the importance of biodiversity and consequences due to its loss.
CO-3	Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.



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WITH EFFECT FROM 2023-2024

Sem-I. Botany course-I: Introduction to Classical Biology.

Students after successful completion of the course will be able to:

CO-1	Learn the principles of classification and preservation of biodiversity
CO-2	Understand the plant anatomical, physiological and reproductive processes.
CO-3	. Knowledge on animal classification, physiology, embryonic development and their economic importance.
CO-4	To Analysis the Biological themes.

Sem-I. Botany course-II: Introduction to Applied Biology.

Students after successful completion of the course will be able to:

CO-1	Bioinformatics skills are valuable for students who may seek careers which will necessitate the analysis of genomic data.
CO-2	This minor provides students the opportunity to learn programming skills, mine genomic data, and participate in independent research
CO-3	Learn the principles of classification and preservation of biodiversity
CO-4	Knowledge on animal classification, physiology, embryonic development and their economic importance

Sem-II. Botany Course-III: Non-Vascular Plants.

Students after successful completion of the course will be able to:

CO-1	Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi
CO-2	Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat
CO-3	Evaluate the ecological and economic value of microbes, thallophytes and bryophytes

Sem –II. Course- IV: Origin of Life and Diversity of Microbes.

Students after successful completion of the course will be able to:

CO-1	Explain origin of life on the earth.
CO-2	Illustrate diversity among the viruses and prokaryotic organisms and can categorize them
CO-3	Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles
CO-4	Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.

Sem-III. Course-V: Vascular Plants.

Students after successful completion of the course will be able to:

CO-1	Evaluate the ecological and economic value of microbes, thallophytes and bryophytes
CO-2	Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.
CO-3	Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families.

Sem-III. Course-VI: Plant Pathology and Plant Diseases.

Students after successful completion of the course will be able to:

CO-1	Investigating the organisms (such as fungi, bacteria, viruses, etc.) responsible for causing diseases in plants.
CO-2	Understanding how these pathogens interact with plants and the mechanisms by which they cause disease.
CO-3	Studying the life cycles of pathogens and their impact on plants. Economic Impact: Assessing the economic consequences of plant diseases on agriculture and horticulture.

Sem-III. Course-VII: Plant Breeding.

Students after successful completion of the course will be able to:

CO-1	Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
CO-2	Evaluate the structure, function and regulation of genetic material.
CO-3	Understand the application of principles and modern techniques in plant breeding.
CO-4	Explain the procedures of selection and hybridization for improvement of crops

Sem-III. Course-VIII: Plant Bio-Technology.

Students after successful completion of the course will be able to:

CO-1	. Comprehend the basic knowledge and applications of plant tissue culture .Identify various facilities required to setup a plant tissue culture laboratory.
CO-2	Identify various facilities required to set up a plant tissue culture laboratory Acquire a critical knowledge on sterilization techniques related to plant Tissue culture.
CO-3	Demonstrate skills of callus culture through hands on experience. Understand the biotransformation technique for production of secondary metabolites.

Sem-IV. Course-IX: Anatomy and Embryology of Angiosperms.

Students after successful completion of the course will be able to:

CO-1	Under stand on the organization of tissues and tissue systems in plants.
CO-2	Illustrate and interpret various aspects of embryology.
CO-3	Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities

Sem-IV. Course-X: Plant Ecology, Bio-Diversity and Phytogeography.

Students after successful completion of the course will be able to:

CO-1	Justify evolutionary trends in tracheophytes to adapt for land habitat.
CO-2	Locate different phytogeographical regions of the world and India and can analyze their floristic wealth.
CO-3	Explain the process of fossilization and compare the characteristics of extinct and extant plants.

Sem-IV. Course-XI: Plant Resources and Utilization.

Students after successful completion of the course will be able to:

CO-1	Understand environmental botany
CO-2	Know nature and its co-relation with human society. Realize the impact of human activities on the environment.
CO-3	Understand the connection between material wealth & resource exploitation. Worth the relationship between economic growth and environmental degradation.

Sem-V. Course-XII: Cell-Biology and Genetics.

Students after successful completion of the course will be able to:

CO-1	Understand the structural organization of plant cells.
CO-2	Understand transcription, translation post translation modification of protein. Students will learn about polyploidy and its uses.
CO-3	Students will be able to understand the structure, chemistry, and functions of cell and cellular organelles

Sem-V. Course-XIII: Plant Physiology and Metabolism.

Students after successful completion of the course will be able to:

CO-1	Understand plant structures in the context of the physiological functions of plants. Learn and understand mineral nutrition in plants.
CO-2	Understand lipid metabolism in plants. Understand the structure and functions of Carbohydrates, Amino acids, Proteins, and Lipids.
CO-3	Understand the growth and developmental processes in plants.

Sem-V. Course-XIV: Seed Tehnology

Students after successful completion of the course will be able to:

CO-1	After studying this course, the student will be able to identify floral plants, market demand and techniques of raising, growing, and cultivation techniques.
CO-2	Justify evolutionary trends in tracheophytes to adapt for land habitat.
CO-3	They will be able to apply various horticultural practices in the field.


Sem-V. Course-XV:Muhroom Culture Tehnology.

Students after successful completion of the course will be able to:

CO-1	Under stand the structure and mushroom and discriminate edible a poisonous mushrooms.
CO-2	Demonstrate skills preparation of compost and spawn. Acquire critical knowledge on cultivation of some edible mushroom.
CO-3	Explain the methods of storage,preparation Of value-added products and marketing.



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