GOVERNMENT DEGREE COLLEGE PADERU

DEPARTMENT OF BOTANY

Course Out Comes

Government Degree College

Affliated to Andhra University

(Upgraded to Model Degree College under RUSA 2.0)

Paderu,Visakhapatnam -District,AP.

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Course Outcomes

I Semester /Botany Core Course - 1
Fundamentals of Microbes and Non-vascular Plants (Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

On successful completion of this course, the students will be able to:

- Explain origin of life on the earth.
- 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 ascertain the plant disease symptoms due to viruses, bacteria and fungi.
- 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, thallophytes and bryophytes

II Semester /Botany Core Course – 2
Basics of Vascular plants and Phytogeography (Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)

On successful completion of this course, the students will be able to:

- 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.

- Explain the process of fossilization and compare the characteristics of extinct and extant plants.
- Critically understand various taxonomical aids for identification of Angiosperms.
- 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.
- Locate different phytogeographical regions of the world and India and can analyzetheir floristic wealth.

III Semester /Botany Core Course - 3
Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

On successful completion of this course, the students will be able to;

- Understand on the organization of tissues and tissue systems in plants.
- Illustrate and interpret various aspects of embryology.
- Discuss the basic concepts of plant ecology, and evaluate the effects of
- Environmental and biotic factors on plant communities.
- Appraise various qualitative and quantitative parameters to study the population and community ecology.
- Correlate the importance of biodiversity and consequences due to its loss.
- Enlist the endemic/endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation.

IV Semester/ Botany Core Course – 4
Plant Physiology and Metabolism

On successful completion of this course, the students will be able to;

- 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.
- Interpret the role of enzymes in plant metabolism.
- Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.
- Analyse the biochemical reactions in relation to Nitrogen and lipid metabolisms.
- Evaluate the physiological factors that regulate growth and development in plants.

- Examine the role of light on flowering and explain physiology of plants under stress conditions.

IV Semester / Botany Core Course –5
Cell Biology, Genetics and Plant Breeding

On successful completion of this course, the students will be able to:

- 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.
- Demonstrate techniques to observe the cell and its components under a microscope.
- Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
- Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
- 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

Domain Subject: BOTANY
IV Year B. Sc.– Semester – V
Course-6A: Plant Propagation
(Skill Enhancement Course (Elective)

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

- Explain various plant propagation structures and their utilization.
- Understand advantages and disadvantages of vegetative, asexual and sexual plant propagation methods.
- Assess the benefits of asexual propagation of certain economically valuable plants using apomictics and adventive polyembryony.
- Demonstrate skills related to vegetative plant propagation techniques such as cuttings, layering, grafting and budding.
- Apply a specific macro-propagation technique for a given plant species.

Domain Subject: BOTANY
IV Year B. Sc. (Hons) – Semester – V
Course-7A: Seed Technology
(Skill Enhancement Course (Elective)

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

- Explain the causes for seed dormancy and methods to break dormancy.
- Understand critical concepts of seed processing and seed storage procedures.
- Acquire skills related to various seed testing methods.
- Identify seed borne pathogens and prescribe methods to control them.
- Understand the legislations on seed production and procedure of seed certification

Domain Subject: BOTANY
IV Year B. Sc.– Semester – V
Course 6B: Vegetable Crops – Cultivation Practices (Skill Enhancement Course (Elective)

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

- Identify different vegetable plants and realize their value in human nutrition.
- Analyse the types of soils to cultivate vegetable crops.
- Demonstrate skills on agronomic practices for cultivation of vegetable crops.
- Acquire knowledge on water, weed and disease managements in vegetable farming.
- Comprehend aspects related to harvesting and storage of produce.

Domain Subject: BOTANY
IV Year B. Sc.– Semester – V
Course 7B: Vegetable Crops – Post Harvest Practices Practices
(Skill Enhancement Course (Elective)

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

- Understand various practices for vegetable produce from harvesting to marketing.
- Demonstrate skills on storage, processing and preservation of vegetables.

- Summarize causes for spoilage of vegetables before and during storage and methods to prevent and control them.
- Make use of preservation methods to reduce the loss of vegetable produce.
- Explain about value added products, packaging and marketing of vegetables.

Domain Subject: BOTANY
IV Year B. Sc. – Semester – V
Course 6C: Plant Tissue Culture (Skill Enhancement Course (Elective)

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

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

Domain Subject: BOTANY
IV Year B. Sc. – Semester – V
Course 7C: Mushroom Cultivation (Skill Enhancement Course (Elective)

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

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