Course Outcomes of Botany

I Semester /Botany Core Course – 1- Fundamentals of microbes and Non -vascular Plants

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

- Identify, compare and distinguish various groups of microbes and primitive plants based on their characteristics.
- Explain origin of life on the earth.
- Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and lifecycles. and explain their evolutionary trends
- Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.
- Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.

II Semester / Botany Core Course – 2-Basics of Vascular plants and Phytogeography

Course Outcomes: 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 lifecycles.
- Justify evolutionary trends in tracheophytes to adapt for land habitat.
- 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 phyto geographical regions of the world and India and can analyze their floristic wealth.

III Semester/Botany Core Course –3-AnatomyandEmbryologyofAngiosperms, PlantEcology and Biodiversity

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

- Understand 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 PhysiologyandMetabolism

Course outcomes: 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.
- Analyze 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.

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

Course outcomes: 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.

VSemester /Botany Core Course –5 plant ecology& phytogeography

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

- know 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.
- Students can locate different phyto geographical regions of the world and India and can analyze their floristic wealth.

VI SEMESTER- PAPER – VII – ELECTIVE

Paper VII -(C): Plant tissue culture and its biotechnological applications

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

- Know the production of exact copies of plants that have desirable traits.
- Understand the production of multiples of plants in the absence of seeds
- Analyse the regeneration of whole plants from plant cells that have been genetically modified
- Know the applications of Biotechnology and develop interest towards research in Biotechnology

Course 6C: Plant Tissue Culture (Skill Enhancement Course (Elective), Credits: 05)

- Learning Outcomes: 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.

Course 7C: Mushroom Cultivation (Skill Enhancement Course (Elective), Credits: 05)

- Learning Outcomes: 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.