GOVT DEGREE COLLEGE FOR WOMEN, MADANAPALLE

DEPARTMENT OF BOTANY

Course Outcomes

Course Code	Course Name	Objectives	Course Outcomes
SemesterI Paper-I	**Title: Fundamentals of Microbes and Non-vascular Plants**	➢ To acquire knowledge about basic definitions, facts and concepts of microbial diversity along with the useful and harmful aspects of microbes. ➢ To acquire knowledge about basic definitions, facts and concepts of Thallophytes and Bryophytes along with the useful and harmful aspects of Algae and Fungi. ➢ To impart laboratory observation skills. ➢ To develop scientific attitude, laboratory discipline and interest.	➢ Understand the diversity within the microbial world. ➢ Know the structure of viruses and differentiate the Viroids and Prions. ➢ Understand the diseases of plants and animals caused by viruses. ➢ Appreciate the use of microbes in food, agriculture and Industry. ➢ Understand the diversity of algae in structure, pigments and alternation of generations. ➢ Understand the classification of fungi & their economic importance. ➢ Understand the basic principles of Plant Pathology and certain plant diseases. ➢ Understand the diversity and classification of Bryophytes ➢ Understand the sporophyte evolution in Bryophytes. ➢ Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears. ➢ Observe and identify microbes and lower groups of plants on their own. ➢ Demonstrate the techniques of inoculation, preparation of media etc. ➢ Identify the material in the permanent slides etc.

Semester II **Paper-II**	**Title:** **Basics of Vascular plants and Phytogeography**	➢ To acquire knowledge about basic definitions, facts and concepts of Archaegoniate diversity along with the life cycles of specific individuals. ➢ To acquire knowledge about basic definitions, facts and concepts of Plant Taxonomy & Phytogeography ➢ To acquire knowledge about basic definitions, facts and concepts of classification systems of Angiosperms and Angiospermic families along with the useful aspects of plants of prescribed Angiospermic families. ➢ To impart laboratory observation skills specifically related to the observation of floral characters useful in plant identification. ➢ To develop scientific attitude, laboratory discipline and interest.	➢ 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. ➢ Understand the basic principles in Taxonomy- Description, Identification, Nomenclature and Classification. ➢ Know the use of taxonomic resources like Herbarium, Flora and Keys for identification of plant species. ➢ Learn the techniques of preparing the herbarium and its usage. ➢ Differentiate the natural, artificial and phylogenetic classification systems. ➢ Understand the Key/diagnostic features of taxonomic families and apply the knowledge in assigning the plants to the respective families. ➢ 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 analyze their floristic wealth. ➢ Demonstrate the techniques of section cutting, preparing slides, identifying of the materialand drawing exact figures. ➢ Compare and contrast the morphological, anatomical and reproductive features of vascular plants.

			➢ Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium. ➢ Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are. ➢ Prepare and preserve specimens of local wild plants using herbarium techniques
Semester II Paper-III	**Title: Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity**	➢ To acquire knowledge about basic definitions, facts and concepts and mechanisms of biological processes of plant embryo formation and development ➢ To impart laboratory observation skills. To develop scientific attitude, laboratory discipline and interest.	➢ 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 ➢ Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants. ➢ Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.

			➢ Demonstrate application of methods in plant ecology and conservation of biodiversityand qualitative and quantitative aspects related to populations and communities of plants.
Semester IV Paper-IV	**Title: Plant physiology and Metabolism**	➢ To acquire knowledge about basic definitions, facts and concepts of Plant physiology. ➢ To acquire knowledge about basic definitions, facts and concepts of Plant metabolism and biochemical processes related to plant internal biochemical reactions. ➢ To impart laboratory observation skills related to important processes related to the life of plants. ➢ To develop scientific attitude, laboratory discipline and interest.	➢ Know the basic aspects of plant physiology like photosynthesis, respiration and Mineral nutrition. ➢ Understand the importance of plant water relations for the growth and development of plants. ➢ Comprehend the relation of water status-Stomatal movements–Transpiration. ➢ Know the role of macro and micro nutrients for the growth and development of plants. ➢ Appreciate the role of some microbes like Rhizobium in Biological Nitrogen fixation. ➢ Appreciate the diversity of plants like C_3, C_4 and CAM plants with respect to their carbon reduction pathways. ➢ Understand the role of plant hormones in plant growth development. ➢ Know the importance of Physical factors like light and temperatures in switching of plants from vegetative to reproductive stage. ➢ Know the morphological and physiological changes associated with senescence of plants and plant parts.

Semester IV Paper-V	**Title : Cell Biology, Genetics and Plant Breeding**	➢ To acquire knowledge about basic definitions ,facts and concepts of Plant cell biology mainly related to cell ultra structures. ➢ To acquire knowledge about basic definitions, facts and concepts of Genetics along with the process of inheritance of specific traits. ➢ To acquire knowledge about basic definitions, facts and concepts of Plant breeding by knowing the processes of plant breeding methods ➢ To impart laboratory observation skills related to important processes related to the life of plants. ➢ To develop scientific attitude, laboratory discipline and interest.	➢ Distinguish prokaryotic and eukaryotic cells and design the model of a cell. ➢ Explain the organization of a eukaryotic chromosomeand the structure of genetic material. ➢ Demonstrate techniques to observe the cell and its componentsunder 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 inplant breeding. ➢ Explain the procedures of selection and hybridization for improvement of crops.
		➢	➢