Vidya Vikas Mandal Pathrud's

Shankarrao Patil Mahavidyalaya, Bhoom

Department of Botany

Course Outcome

First Year

Paper I & II- (Diversity of cryptogams-I and Morphology of Angiosperms)	
CO 1	Helps to understand the diversity of micro-organisms like viruses, bacteria, mycoplasma, with their useful and harmful activities.
CO2	Helps to understand characters, classification, reproduction and economic importance of plants belonging to Algae, Fungi
CO3	students understand the basic body plan of flowering plants, diversity of plant forms as- herb, shrub, tress, climbers, annual, biennials and perennials.
CO4	Students understand the vegetative characters of root, stem and leaf with their variation and modifications.
CO5	Students get knowledge about the reproductive morphology of plant organs with inflorescence, flower, fruit and their dispersal strategies.

Paper IV & V- (Diversity of cryptogams -II and Histology, Anatomy and Embryology)	
CO 1	Helps to understand characters, classification, reproduction and economic importance of plants belonging to Bryophytes
CO2	Helps to understand characters, classification, reproduction and economic importance of plants belonging to Pteridophytes.
CO3	Students get knowledge about stelar variation in pteridophytes
CO4	Students understand the types of tissues such as meristematic tissues, permanent tissues, epidermal tissues. Organisation of root and shoot apices with theories of cellular organisation.
CO5	students understand about the anatomy and embryology of plants.

Practical Outcomes: III & VI (Diversity of cryptogams-I, Morphology of Angiosperms, Diversity of cryptogams -II and Histology, Anatomy and Embryology)	
CO 1	Students understand morphological and anatomical modifications in root, stem and leaf with its diversity.
CO 2	Students get knowledge about the meaning of inflorescence and its type
CO 3	Understands about flower, its basic body, parts of flowers.
CO 4	the methods of pollination in different flower and students get knowledge about the meaning and types of fruits. Students becomes familiar with taking sections of plants belonging to Bryophytes and Pteridophytes
CO 5	Students studies the anatomical studies of dicot and monocot root, stem and leaf by preparing permanent slides. Students make slide to study the embryology of anther, ovules and embryo

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Second Year

Paper VII & VIII- (Taxonomy of Angiosperms and Plant Ecology)	
CO 1	Students knows about the definition, objectives, and importance of taxonomy in relation to anatomy, cytology, embryology, palynology and ecology. Also have knowledge about the binomial nomenclature, botanical gardens and herbaria.
CO2	Get knowledge about the in-detail information of systematic position, description, classification and characters of different plant families with their floral formula and floral diagram.
CO3	Understand the different physical processes of water absorption like diffusion, osmosis, plasmolysis, imbibition. Water absorption and transpiration. Also knows about the mineral nutrition, translocation of solutes.
CO4	Students get knowledge about the enzyme, growth regulators,
CO5	Students knows about the process of photosynthesis and respiration in plants.

Paper XI& XII- (Gymnosperms & utilisation of plans and Plant Physiology)	
CO 1	Students get knowledge about the features, classification, economic importance of Gymnosperms.
CO2	Understand the morphology, anatomy, and reproduction methods in some Gymnosperms plants.
CO3	Students understand about the utilisation of plants in their life with cultivation, harvesting, and economic importance of food plants, fibres, vegetable oils, medicinal plans, cosmetic and perfumes etc.
CO4	Get knowledge about the relation of plants and their environment with climatic, edaphic, and pollution factors.
CO5	Knows about the response of plants to wate in hydrophytes, xerophytes, halophytes and epiphytic plants. Also study about the ecology.

Practical outcomes:(IX,X, XIII,XIV) Taxonomy of Angiosperms and Plant Ecology, Gymnosperms & utilisation of plans and Plant Physiology	
CO 1	Students understand vegetative and reproductive characters of plants belonging to different families.
CO2	Students understand about the morphological, anatomical and physiological characters by getting practical knowledge doing slides of particular plants.
co3	students take section of gymnosperms plants such as cycas, pinus etc to study the anatomical characters, and also study the fossils by observing permanent slides.
CO 4	Students understand practical knowledge about the plants physiology by studying plasmolysis, paper chromatography, effects of growth regulators etc.

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Course Outcome

Third Year

Paper XV & XVI-(A) (Cell Biology & molecular Biology and Diversity of Angiosperm)	
CO 1	Students understand about the structure and function of cell and its type, chemistry, structure and functions of cell wall, plasma membrane and different cell organelles.
CO2	Students understand about the cell division types of cell division as mitosis and meiosis, chromosome, chromosomal aberrations.
CO3	Get detail knowledge about the molecular biology such as nucleic acids, its type, structure, replication.
CO4	Students get knowledge about the biodiversity, its type and conservation of biodiversity.
CO5	Students knows about the taxonomy and with respect to in detail study of different families of plants.

Paper XIX & XX-(A) (Genetic & Biotechnology and Diversity of Angiosperms-II)	
CO 1	Students get detail information about the Mendel and the laws of Mendel, Interaction of Genes and sex determination
CO2	Get knowledge about the sex-linked inheritance, structure and functions of Genes and have detail concept biotechnology
CO3	Students understands about the plant identification by using the keys, herbaria, botanical gardens etc.
CO4	Students knows about the origin of Angiosperms and binomial nomenclature
CO5	Students get knowledge about the different families with taking plants example as per APG IV system.

Practical outcomes: XVII, XVIII, XXI, XXII. (Cell Biology & molecular Biology and Diversity of Angiosperm, Genetic & Biotechnology and Diversity of Angiosperms-II)	
CO 1	Students understand the anatomical knowledge about the cell structure of onion leaf, preparation of cytological fixatives and stain, understand to prepare slide for mitosis and meiosis
CO 2	Students get knowledge about preparation of wool models of mitosis, meiosis chromosomes etc.
CO 3	Students study process of herbarium, studies of different families and mounting of pollen grains.
CO 4	Students get sufficient knowledge about the different monocot and dicot families also knows the identification of plants by using flora.

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Programme Outcomes

Programme Outcomes:	
PO 1	Critically evaluation of ideas and arguments by collection of relevant information about the plant so as to recognize the position of plant in broad classification and phylogenetic level.
PO 2	Identify problems and independently propose solutions by using creative approaches acquired through interdisciplinary experiences. and a depth and breadth of knowledge/expertise in the field of Plant Identification.
PO 3	Interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy
PO 4	Students will be able to apply the scientific method to questions in botany by formulating testable hypotheses, collecting data that address these hypotheses, and analysing those data to assess the degree to which their scientific work supports their hypotheses.
PO 5	Students will be able to access the primary literature, identify relevant works for a particular topic.
PO 6	Graduate students acquire scientific attitude in the fields of physical, chemical, material, life and mathematical sciences.
PO 7	Students acquire skills to handle basic scientific instruments following the general lab safety practices
PO 8	The programme develops social awareness about the quality of water.
PO 9	Students get aware of environment related issues and sustainable technology development.
PO 10	B sc Botany students get eligible for appearing to the competitive exams such as MPSC and other relevant sectors.
PO 11	The programme prepares learners for post-graduation and higher education.
PO 12	It helps students to take up practical work and compare the results with their assumptions by leading to accuracy and validity of practical knowledge.

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Programme Specific Outcomes

Programme Specific Outcomes:	
PSO 1	Students can recall details and information about the evolution, anatomy, morphology, systematics, genetics, physiology, ecology, and conservation of plants and all other forms of life
PSO 2	Understand Basic Morphology of flowering plants, diversity of plant forms. Know morphology of vegetative organs, reproductive organs of plants. Understand fruit and seed types
PSO 3	On successful completion of programme students will develop scientific systematic position of plant and learn to Plant identity and diversity of different Groups of Plants algae, Bryophytes, Pteridophytes, Gymnosperms Angiosperms, etc.

PRINCIPAL
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