ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

III SEMESTER **BOTANY** TIME: 2Hrs/WEEK

B 3152 (2) MARKS: 50

**ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS, PLANT ECOLOGY AND BIODIVERSITY**

w.e.f.20-21 admitted batch-“20AH” **PRACTICAL SYLLABUS**

**OBJECTIVES:** Student is able to -

* Acquire and practice the laboratory techniques of section cutting, slide preparation etc.
* To make the students understand and identify the different stages in reproduction leading to seed formation in angiosperms.
* Learn the quantitative aspects of a plant community by quadrat method
* Study various aspects of plant communities.
* Acquire knowledge of the Phytogeography and biodiversity of the region

**COURSE OUTCOMES:** On successful completion of this practical course students shall be able to:

CO1:Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.

CO2:Observe externally and under microscope, identify and draw exact diagrams of the materialin the lab.

CO3:Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative and quantitative aspects related to populations and communities of plants.

# PRACTICAL SYLLABUS:

1. Tissue organization in root and shoot apices using permanent slides.
2. Anomalous secondary growth in stems of Boerhavia and Dracaena.
3. Study of anther and ovule using permanent slides/photographs.
4. Study of pollen germination and pollen viability.
5. Dissection and observation of Embryo sac haustoria in Santalum or Argemone.
6. Structure of endosperm (nuclear and cellular) using permanent slides /Photographs.
7. Dissection and observation of Endosperm haustoria in Crotalaria or Coccinia.
8. Developmental stages of dicot and monocot embryos using permanent slides /photographs.

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1. Study of instruments used to measure microclimatic variables; soil thermometer, maximum and minimum thermometer, anemometer, rain gauze, and lux meter. (visit to the nearest/local meteorology station where the data is being collected regularly and record the field visit summary for the submission in the practical).
2. Study of morphological and an atomical adaptations of hydrophytes and xerophytes (02each).
3. Quantitative analysis of herbaceous vegetation in the college campus for frequency, density and abundance.
4. Identification of vegetation/various plants in college campus and comparison with Raunkiaer’s frequency distribution law.
5. Find out the alpha-diversity of plants in the area
6. Mapping of biodiversity hotspots of the world and India.

**REFERENCE BOOKS:**

* + - Text book of Practical Botany (Vol .II) – Ashok Bendra& Kumar, Rastogi Publications, Meerut – 2001-2002
    - Practical Botany (Vol.II) – H.N. Srivastava, Pradeep Publications, Jallandhar – 200.
    - Modern Practical Botany – B.P.Pandey – S.Chand& Co., New Delhi – 1988.
    - College Botany Practical (Vol.1) – S. C. Santra, T. P. Chatterjee & A. P. Das; New Central Book Agency (P) Ltd, Kolkata, India.
    - Practical Book of Botany (BSc-Second Year) – Dr. M. Raghuram & M. V. Rao; Technical Publishers (P) Ltd.;Guntur, India; 2010.
    - Practical Book of Botany (BSc-Third Year) – Dr. M. Raghuram & M. V. Rao; Technical Publishers (P) Ltd.;Guntur, India; 2010.

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