

PRACTICAL
BOTANY -Discipline specific core course- (BOTDSC04P)
Title of the course: Ecology and Conservation Biology

Course	Type of course	Theory/practical	Credits	Instruction hours per week	Total number of hours / sem.	Duration of Exam	Formative assessment marks	Summative assessment marks	Total marks
2	BOTDSC04P	Practical	02	04hrs	52hrs	3hrs	25	25	50

LIST OF PRACTICAL IN ECOLOGY AND CONSERVATION BIOLOGY

1. Determination of pH of different types of Soils, Determination of soil texture of different soil samples
2. **Study of Ecological instruments** – Wet and Dry thermometer, Altimeter, Hygrometer, Soil, thermometer, Rain Gauge, Barometer, etc
3. **Hydrophytes:** Morphological adaptations in *Pistia*, *Eichhornia*, *Hydrilla*, *Nymphaea* Anatomical adaptations in *Hydrilla*(stem) and *Nymphaea* (petiole).
5. **Xerophytes:** Morphological adaptations in *Asparagus*, *Casuarina*, *Acacia*, *Aloe vera* *Euphorbia tirucalli*. Anatomical adaptations in phylloclade of *Casuarina*
6. **Epiphytes:** Morphological adaptations in *Acampe*, *Bulbophyllum*, *Drynaria*. Anatomical adaptations in epiphytic root of *Acampe/ Vanda*
4. **Halophytes:** study of Vivipary, Pneumatophores in mangroves,
7. Study of a pond/forest ecosystem and recording the different biotic and abiotic components
8. **Demonstration of different types of vegetation sampling methods – transects and quadrats Determination of Density and frequency.**
9. Application of remote sensing to vegetation analysis using satellite imageries
10. **Field visits to study different types of local vegetations/ecosystems and the report to be submitted.**
11. **Determination of water holding capacity of soil samples**
12. **Determination of Dissolve oxygen in water sample.**
13. **Determination of Chemical oxygen demand (COD)**
14. **Estimation of salinity of soil/water samples.**

PRACTICAL

BOTANY- Discipline specific core course- (BOTDSC03P)

Title of the course: PLANT ANATOMY AND DEVELOPMENT BIOLOGY

Course No	Type of course	Theory/ practical	Credits	Instruction hours per week	Total number of hours / sem.	Duration of Exam	Formative assessment marks	Summative assessment marks	Total marks
3.2	BOTDSC03P	Practical	02	04hrs	52hrs	3hrs	25	25	50

LIST OF EXPERIMENT TO BE CONDUCTED

Practical No.1: i). Study of meristem (Permanent slides/ Photographs).

ii). Study of Simple Tissues (Parenchyma, Collenchyma and Sclerenchyma) and Complex Tissues (xylem and phloem) Maceration technique to study elements of xylem and phloem

Practical No.2: Study of primary structure of dicot root, stem and leaf (Sunflower) and monocot root, stem and leaf (Maize)

Practical No.3: Study of anomalous secondary growth in *Boerhaavia* and *Dracaena*

Practical No.4: Study of trichomes (any three types) and stomata (any three types) with the help of locally available plant materials

Practical No.5: Permanent slides of T.S. of mature anther. Mounting of Pollen grains of Grass and Hibiscus and Pollinia of Calotropis

Practical No.6: Study of Pollen germination (Hanging drop method) and calculate the percentage of pollen germination.

Practical No.7: Permanent slides of types of ovules, types of placentation (Axile, Marginal and Parietal), Sectioning of ovary to study the types of placentation.

Practical No.8: Mounting of embryo: Tridax / Cyamopsis, Mounting of endosperm: Cucumis

Practical No.9: Histochemical localization of proteins/ carbohydrates

Practical No. 10 and 11: Mini project work in groups of 3-5 students, from the following list

a) Study of pollen morphology of different flowers with respect to shape, colour, aperture etc.

b) Pollen germination of different pollen grains and calculates percentage of germination.

c) Calculating percentage of germination of one particular type of pollen grain collected from different localities/ under different conditions

d) Study of placentation of different flowers.

e) Any other relevant study related to Anatomy / Embryology..