

OBJECTIVES: To enable the students to –

- Know the systematic position of the two Cryptogamic group namely Bryophyta & Pteridophyta and their classification.
- Understand the life history of Bryophyta & Pteridophyta through the study of representative types.
- Assess the phylogenetic aspects of the two groups.
- Get an insight into geological past, extinct plants
- Understand the systematic position of the Spermatophyta group 'Gymnosperms' and the structural and reproductive features of the representative types.
- Understand the tissues, tissue system in plant body and the anatomy.
- Know the wood structure and the features of some local timber yielding plants

COURSE:

UNIT I: BRYOPHYTA:

1. Geological Time Scale
2. General characters, classification and alternation of generations of Bryophyta.
3. Structure, reproduction, life history and systematic position of following types :
 - i. Marchantia
 - ii. Funaria
4. Evolution of sporophyte in Bryophyta

UNIT II: PTERIDOPHYTA:

1. General characters, Classification
2. Structure, reproduction, life history and systematic position of following types :
 - i. Lycopodium
 - ii. Marsilea
3. Stelar evolution in Pteridophyta,
4. Heterospory and Seed habit.

UNIT III: GYMNOSPERMS:

1. Bennettitales : General Account
2. General characters, classification and economic importance of gymnosperms.
3. Morphology, anatomy, reproduction and life history of
 - i) *Pinus*
 - ii) *Gnetum*

UNIT IV: Tissues and Tissue systems

1. Meristems - Root and Shoot apical meristems and their histological organization.
2. Tissues – Meristematic and permanent tissues (simple, complex, secretory)
3. Tissue systems–Epidermal, ground and vascular.

UNIT V: Secondary growth

1. Anomalous secondary growth in *Achyranthes*, *Boerhaavia* and *Dracaena*.
2. Study of local timbers of economic importance-Teak, Rosewood, Red sanders and Arjun (Tella maddi).

TEXT BOOKS:

Common Core Botany – Vol.I & Vol. II– K.Ramakrishna & B.R.C.Murthy – Sri Vikas Publications, Guntur, 2008.

REFERENCES:

1. Introductory Botany – Vol. I & II – Srivastava, H.N. – Pradeep Publications, Jalandhar.1993
2. College Botany – Vol.I – Gangulee & Kar – Central Book Depot, Calcutta.
3. Botany for degree students – Bryophyta – B.R.Vasishta – S.Chand & Co. 1992
4. Botany for degree students – Pteridophyta – P.C.Vasishta – S.Chand & Co. 1992
5. Botany for degree students – Gymnosperms – P.C.Vasishta – S.Chand & Co. 1992
6. Morphology of Pteridophytes – K.R.Sporne – Hutchinson University Library, London.
7. Morphology of Gymnosperms – K.R.Sporne – Hutchinson University Library, London.
8. Diversity of Microbes & Cryptogams – Singh, V.Pande P.C., Jain D.K.2006. Rastogi Publications. - Meerut.
9. Smith, G.M. (1955): Cryptogamic Botany Vol. II. (2nd Edition) (Bryophytes & Pteridophytes) Tata McGraw Hill Publishing Co., New Delhi.
10. Eames, A.J., & Mc Daniels, L.H.(1979) : An Introduction to Plant anatomy Tata-McGraw-Hill Publishing Co., (P) Ltd. Bombay, New Delhi.
11. Esau. K.(1980) : Plant Anatomy, (2nd Edition) Wiley Eastern Ltd., New Delhi.

OBJECTIVES : To enable the students to –

- Acquire and practice the laboratory techniques of section cutting, slide preparation etc. for the study of Bryophyta, Pteridophyta & Gymnosperms.
- Understand the aspects of structure and reproduction of representative forms and
- Identify the specimens and slides related to structure and reproduction of representative forms.
- To enable the students to make suitable preparations / handmade slides in the laboratory for the study of the anatomy of the plant organs.

COURSE:

BRYOPHYTA

Study of external and internal morphology; reproductive structures of following types :

1. Marchantia
2. Funaria

PTERIDOPHYTA

Study of external and internal morphology; reproductive structures of following types:

1. Lycopodium
2. Marsilea

GYMNOSPERMS

Study of morphology of vegetative and reproductive parts of following types :

1. Pinus
2. Gnetum

ANATOMY

1. Shoot apex organization.
2. Tissues
3. Stomatal types
4. Secondary structure of Stem : Pongamia
5. Demonstration of double staining technique
6. Study of anomalous secondary growth by double stained slides of Achyranthus, Boerhavia, Bignonia, Dracaena; Important timber plants

REFERENCES:

1. Practical Botany – Vol. I & II – Srivastava H.N. – Pradeep Publications, Jalandhar., 1991
2. Text Book of Practical Botany – Vol.I & II– Ashok Bendre & Ashok Kumar – Rastogi Publications, Meerut., 2006