

B.Sc., BOTANY
First Year, II -Semester

Paper-II
Gymnosperms, Taxonomy of Angiosperms and Ecology

DSC-1B

Credits-4

Theory Syllabus

(60 hours)

UNIT-I

(15 hours)

- 1) Gymnosperms: General characters, structure, reproduction and classification (Sporne's). Distribution and economic importance of Gymnosperms.
- 2) Morphology of vegetative and reproductive parts, systematic position and life cycle of Pinus and Gnetum,
- 3) Geological time scale Introduction to Palaeobotany, Types of fossils and fossilization, Importance of fossils.

UNIT-II

(15 hours)

- 1) Introduction: Principles of plant systematics, Types of classification: Artificial, Natural and Phylogenetic; Systems of classification: Salient features and comparative account of Bentham & Hooker and Engler & Prantl classification systems. An introduction to Angiosperm Phylogeny Group (APG).
- 2) Current concepts in Angiosperm Taxonomy: Embryology in relation to taxonomy Cytotaxonomy, Chemotaxonomy and Numerical Taxonomy.
- 3) Nomenclature and Taxonomic resources: An introduction to ICN, Shenzhen code – a brief account. Herbarium: Concept, techniques and applications.

UNIT-III

(15 hours)

- 1) Systematic study and economic importance of plants belonging to the following families: Polypetalae Annonaceae, Capparidaceae, Rutaceae, Fabaceae (Faboideae/Papilionoideae, Caesalpinioideae, Mimosoideae), Cucurbitaceae
- 2) Gamopetalae: Apiaceae, Asteraceae, Asclepiadaceae, Lamiaceae, Monochalmydeae: Amaranthaceae, Euphorbiaceae
- 3) Monocotyledons: Orchidaceae, Poaceae and Zingiberaceae.

UNIT-IV

(15 hours)

1. Component of eco system, energy flow, food chain and food webs.
2. Plants and environment, ecological adaptations of plants, Hydrophytes, Xerophytes and Mesophytes
3. Plant Succession serial stages, modification of environment, climax formation with reference to Hydrosere and Xerosere.

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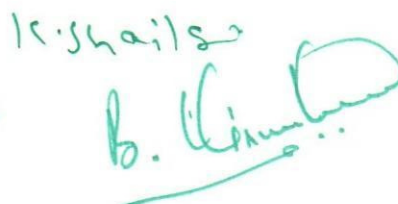
K. Shailja
B. Vinod

References:

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3. Sporne, K. R. 1965. Morphology of Gymnosperms. Hutchinson Co., Ltd., London.
4. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany - Pteridophyta (Vascular Cryptogams). S. Chand & Company Ltd, New Delhi.
5. Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
6. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Company Ltd, New Delhi.
7. Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi.
8. Vashishta, B. R., A. K. Sinha and Adarsha Kumar. 2008. Botany for Degree Students: Bryophyta. S. Chand & Company Ltd, New Delhi.
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10. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.
11. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Seed Plants and their Systematics, Structure, Development and Reproduction in Flowering Plants. S. Chand & Company Ltd, New Delhi
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13. Singh, G. 1999. Plant Systematics: Theory and Practice. Oxford and IBH, New Delhi.
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18. Jeffrey, C. 1982. An Introduction to Plant Taxonomy. Cambridge University Press, Cambridge. London.
19. Michael, S. 1996, Ecology, Oxford University Press, London
20. Odum, E.P. 1983. Basics of Ecology, Saunder's International Students Edition, Philadelphia.
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Subhame



K. Shaila

B. K. Sinha