

Theory

Part B- Content of the Course		
Total No. of Lectures- 60		Tutorials- 0 Practical =0 (theory 4 hours per week):
L-T-P:		
UNIT	TOPIC	No. of Lectures
I	1.1 History of Botany and Indian Contributions. 1.2 Morphological Characteristics of lower and higher plants(Angiosperms). 1.3 Types of leaves, Inflorescence, Flowers and Fruits. 1.4 Structure of Plant cell and cell organelles, Prokaryotic and Eukaryotic Cells, types of Cell division. 1.5 Microscope structure and function of light microscope (magnification and resolving power), 1.6 Various types of Microscopes: Bright field, Phase Contrast, SEM and TEM.	12
II	1. Algae 1.1 General characteristics 1.2 Range of thallus organization, reproduction. 1.3 Types of life-cycles in algae 1.4 Role of algae in nature and its economic importance. 2. Bryophytes : 2.1 General characteristics, Ecology. 2.2 Range of thallus organization, morphology, anatomy(internal and external features) and reproduction of any one Bryophyte. 2.3 Economic importance of Bryophytes	12
III	1. Pteridophytes 1.1 General characteristics and morphology. 1.2 Stelar organization and reproduction. 1.3 Heterospory and seed habit. 1.4 Economical importance 2. Gymnosperms 2.1 General description and their distribution. 2.2 Economical importance of Gymnosperms. 3. Paleobotany 3.1 Indian contribution in Paleobotany. 3.2 Brief knowledge of Fossils and Geological time scale.	12
IV	1. Fungi 1.1 General characteristics and cell wall composition. 1.2 Mode of nutrition 1.3 Types of reproduction 1.4 Economic importance 1.5 Parasexuality and Mycorrhiza 2. Lichens: Brief knowledge and their significance.	12

V	1. Microbes 1.1 Brief outline of various types of Microbes 1.2 Archaeobacteria, Eubacteria, Cyanobacteria, Mycoplasma, Actinomycetes and Virus. 1.3 Beneficial and harmful roles.	12
Keywords/Tags: History of Botany, Paleobotany, Prokaryotes, Eukaryotes, Algae, Bryophyta, Pteridophyta, Gymnosperms, Fungi , Mycorrhiza, Lichens, Bacteria, Virus		
Part C-Learning Resources		
Text Books, Reference Books, Other resources		
Suggested Readings: <ol style="list-style-type: none"> 1. Oladele Ogunseitan, Microbial Diversity: Form and Function in Prokaryotes, Wiley Blackwell, 2008. 2. Pelczar, M.J et al., Microbiology, Tata McGraw-Hill Co, New Delhi, 5th edition, 2001. 3. Prescott, L. Harley, J. and Klein, D., Microbiology, Tata McGraw-Hill Co. New Delhi, 6th edn., 2005. 4. Fritsch F.E., The Structure & Reproduction of Algae, Vol. I & Vol. II., Cambridge University Press, Cambridge, U.K. 1945. 5. Smith, G.M., Cryptogamic Botany, Vol. I: Algae, Fungi, & Lichens, McGraw-Hill Book Co., New York, 1955. 6. Tan Morris, An Introduction to the Algae, Hutchinson, London, 1967. 7. Alexopoulos, C.J., Mims, C.W. and Blackwell, M., Introductory Mycology, John Wiley and Sons, 1996. 8. Webster, J., Introduction to Fungi, Cambridge University Press 2nd edn., 1999. 9. Cavers F., The inter-relationships of the Bryophyta, The New Phytologist, Indian Reprint, Vol.10, issue 1-2, p. 1-21, 1911. 10. Parihar, N.S., An Introduction to Embryophyta: Bryophyte, Vol.I, Central Book Depot, Allahabad, 1965. 11. Watson, E.V., British Mosses and Liverworts, Cambridge University Press, U.K, 1968. 12. Eames, A.J., Morphology of Vascular Plants: Lower Groups, McGraw Hill, N.Y., 1936. 13. Parihar, N.S., An Introduction to Embryophyta: Pteridophyte, Vol.II, Central Book Depot, Allahabad, 1965. 14. Sporne, K.R., The Morphology of Pteridophytes: The Structure of Ferns and Allied Plants, Hutchinson University Library, London, 1970. 15. Bierhorst, D.W., Morphology of Vascular Plants, The MacMillan Co., N.Y. and Collier MacMillan Ltd., London, 1971. 16. Coulter, J.M. and C.J. Chamberlain, Morphology of Gymnosperms, Central Book Depot, Allahabad, 1964. 17. Sporne, K.R., The Morphology of Gymnosperms: The Structure and Evolution of Primitive seed Plants, Hutchinson University Library, London, 1971. 18. Dutta, S.C., An introduction to Gymnosperms, Kalyani Publishers, New Delhi, 1984. 19. Sharma, O.P and Shivani Dixit, Gymnosperms, Pragati Prakashan, Meerut, 2015. 20. Vasishtha, P.C., Botany for Degree students: Gymnosperms, revised edn., S. Chand and Comp. Ltd., N. Delhi, 2018. 21. Bhatnagar, S.P. and Alok Moitra, Gymnosperms, New age International (P.) Ltd., New Delhi, 2000. 		