

Basics of Plant Science
(First Minor elective Course in Botany)

Credits: 4		
Unit	Topic	No. of Lectures (60 hrs.)
I	Plant Kingdom and Microbial World Origin of life, Plant Science in ancient periods. Basic classification of plant kingdom, Diversity of Microorganism-General features and importance of Bacteria, Archaeobacteria, Mycoplasma, Actinomycetes, Rickettsia and Cyanobacteria. General Account and discovery of plant viruses. Major plant disease caused by microbes. General Account and economic importance of algae, fungi and lichens.	15
II	Diversity of Land Plants General characters, morphology, anatomy, reproduction and importance of major land plant groups-Bryophytes, Pteridophytes, Gymnosperms and Angiosperms. Life cycle of seed plants- Structure and development of flower, seed and fruits. Elementary classification of seed plants.	15
III	Biodiversity and its conservation Basic concepts of biodiversity, major hot spots of biodiversity. Importance of biodiversity. Species Extinction, Red data book. Factors for declining biological diversity. Approaches for conservation of biodiversity. Biosphere reserves in India.	15
IV	Plant Resources and Utilization Plants as source of-Food, Fiber, Fuel, Medicine and Timber. Traditional knowledge about plant resource utilization.	15

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 M. K. Singh ✓

Advance Plant Science
(Second Minor elective Course in Botany)

Credits: 4

Unit	Topic	No. of Lectures (60 hrs.)
I	Cell biology and Genetics Introductory knowledge about cell and its evolution. Prokaryotic and Eukaryotic Cell, Structure and function of important cell organelles. Type of chromosomes and their role in sex determination. Types of Cell division, Laws of inheritance. Genetic counseling.	15
II	Important Physiological Phenomenon Physio-chemical properties of water, diffusion and osmosis. Brief idea of Ascent of sap, Transpiration, Mineral nutrition, Photosynthesis and translocation of photosynthates, Respiration, Plant growth and development.	15
III	Ecology and Environment Basic concepts of ecology, environment and Ecosystem. Food Chain, Phytogeography of India, Vegetational regions of India. Climate change-Green house effect and Global warming. Acid rain, Ozone Layer depletion. Environmental Pollution and their effects on biosphere. Definition of soil, soil forming rocks and important soil types of India. Sustainable development.	15
IV	Biotechnology Structure and function of genetic material. Brief idea of recombinant DNA technology, Application of biotechnology in human welfare. Introduction of plant tissue culture and immunology.	15

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M. Kumar