

DEPARTMENT OF BOTANY

Academic Planner with unitisation of the entire syllabus (on hourly basis)

DEPARTMENT OF BOTANY					
<u>ACADEMIC PLANNER</u>					
Unitization of syllabus					
II SEMESTER – 2022-23 NEP					
MONTH	WEEK	UNIT-I	UNIT-II	UNIT-III	UNIT-IV
		RV	RV	ZNB	KSS
MAY	1	Algae- introduction, history, characteristics and classification	Bryophytes-general characteristics and classifications of bryophytes.	A brief account of Heterospory and seed habit.	Origin and evolution of plants through geological time scale
	2	Diversity- habitat, thallus organization, pigments, reserve food,	Diversity habitat, thallus structure .	Stelar evolution in Pteridophytes.	Origin and evolution of plants through geological time scale
	3	Life cycle and distribution	Gametophyte Sporophyte.		Paleobotany- Paleobotanical records plant fossils.
	4	Morphology life cycle of Nostoc, Oedogonium,	Distribution, morphology, Riccia, Anatomy of Riccia.		Preservation of plant fossils- impressions and compression.
JUNE	5	CHARA, Sargassum, Polysiphonia. Diatoms and their importance	Reproduction of Riccia. Life cycle of Riccia.	Ecological and economic importance of Pteridophytes.	Plant fossils- Petrification moulds.
	6	.Blue green algae- general account	Distribution morphology of Anthoceros. Anatomy of Anthoceros.	General characteristics, distribution and classification and habitat of Cycas.	Casts, Pith casts.

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JULY	7	Algal blooms and toxins.	Reproduction of Anthoceros. Life cycle of Anthoceros.	Anatomy Reproduction of cycas.	radio carbon dating.
	8	Algal cultivation-in INDIA,	Distribution morphology of Funaria. Anatomy of Funaria.	life cycle of Cycas.	Fossil taxa- of Rhynia and Lepidodendron.
AUG	9	Microalgae,- Spirulina, Dunaliella. Algal cultivation methods in India.	Reproduction of Funaria. Life cycle of Funaria.	General characteristics, distribution and classification and habitat of Pinus.	Fossil taxa- Lepidocarpon and Lygenopteris.
	10	Algal products,- food and nutraceuticals	Economic importance of Bryophytes. Fossils of Bryophytes.	Anatomy Reproduction of Pinus.	Fossil taxa- Cycadeoidea.
	11		General characteristics and classification , structure of sporophyte of Selaginella.	Life cycle of Pinus.	Exploration of fossil fuels. Sahn Institute of Paleosciences.
	12		Anatomy Reproduction and life cycle of selaginella.	General characteristics, distribution and classification and habitat of Gnetum.	
AU	13		General characteristics and classification , structure of sporophyte of Equisetum.	Anatomy Reproduction of Gnetum.	
	14		Anatomy Reproduction and life	life cycle of Gnetum.	

			cycle of Equisitum.		
	15		General characteristics and classification , structure of sporophyte of pteris.	Affinities and evolutionary significance of Gymnosperm	
	16		Anatomy Reproduction and life cycle of pteris.	Economic importance of Gymnosperms.	

ACADEMIC PLANNER**Unitisation of syllabus****IV SEMESTER - 2022-23**

MONTH	WEEK	UNIT-I	UNIT-II	UNIT-III	UNIT-IV
		RV	RV	ZNB	ZNB
MAY	1	Introduction to ecology	Definitions , principles ,scope and importance	Phytogeography – Theory of continental drift	Centre of origin of plants.
	2	. Ecological factors	Edaphic factors	Vavilov’s concept	Phytogeographical regions of India.
	3	Soil aeration	Organic matter	Vegetation types of Karnataka- Distribution of forests.	Account of Western ghats
	4	Soil humus	Soil microorganisms	Water pollution- Causes ,effects	Water quality indicators
JUNE	5	Topographic factors- Altitude	Ecological groups- Halophytes	Waste water treatment,	National mission on clean Ganga
	6	Hydrophytes,	xerophytes	Air Pollution-causes ,effects	Air quality standards
	7	Ecosystem ecology	Terrestrial and aquatic ecoystems.	Acid rain,-control	Soilpollution-causes,effect,solid waste management
	8	Biotic	Abiotic components	Control measures of soil pollution.	Biodiversity- definition,types.
JULY	9	Ecosystem functions and processes	Energy flow in the ecosystem	SDGs in biodiversity	Economic and aesthetic values. Medicinal and timber yielding plants.

	10	Ecological succession - types	Primary and secondary succession	Threats to Biodiversity, Hotspots,	Concept of endemism.
	11	Hydrosere	xerosere	IUCN plant categories with reference to karnataka	Ex –situ conservation.
	12	Community ecology	Ecotone and Ecotypes.	In situ conservation	Botanical gardens, seed bank, gene bank
AUG	13	.Intra specific interactions	Inter specific interactions	Pollen banks	Cryopreservation.
	14	Revision	Revision	Revision	Revision
	15	Revision	Revision	Revision	Revision
	16	Revision	Revision	Revision	Revision

VI SEMESTER – 2022– 2023

Paper VII

	APRIL-MAY	MAY-JUNE	JUNE -JULY
WEEK			
1	Study of eukaryotic cell	Introduction to genetics	Origin of life
2	Structure of eukaryotic chromosome – 1	Mendel and his experiments – brief study	Themes of evolution, modern concepts, mutations
3	Structure of eukaryotic chromosome – 2	Genetic definitions	Gene duplication, 2R hypothesis, big bang theory
4	Nucleosome and its importance	Monohybrid cross –law of dominance, Law of segregation	Numerical changes in chromosomes
5	Types of chromosomes based on centromere position	Dihybrid cross- law of independent assortment	Polyploidy and aneuploidy
6	Biarmed and holocentric types of chromosomes	Genetic problems	Trisomics and monosomics
7	Cell division – types	Incomplete dominance – <i>Mirabilis jalapa</i> , snapdragon	Chromosomal aberrations
8	Mitotic phases	Complementary genes	History and objectives of plant breeding
9	Mitotic inhibitors, significance of mitosis	Supplementary genes	Vegetative propagation methods
10	Meiosis - 1	Polygenic inheritance in maize	Vegetative propagation methods
11	Meiosis - 2	Epistasis, linkage and crossing over	Hybridisation
12	Crossing over and synaptonemal complex	Chromosomal mechanism of sex determination methods	Germplasm

	APRIL-MAY	MAY-JUNE	JUNE -JULY
WEEK			
13	Apoptosis	Genetic problems	Pollenbank, quarantine methods

VI SEMESTER – 2022 – 2023

Paper VIII

WEEK	APRIL-MAY	MAY-JUNE	JUNE -JULY
1	Nomenclature	Photosynthesis – Introduction	Definition of growth, kinetics
2	Classification of enzymes	ultra structure of the chloroplast	Factors affecting growth. Introduction to phytohormones
3	Chemical composition	, photosynthetic apparatus photosystems I & II,	Metabolism, physiological effects and mode of action of auxins
4	Prosthetic groups	principle of light absorption, Emerson’s enhancement effect	Metabolism, physiological effects and mode of action of gibberellins
5	Coenzymes and cofactors	, Light reaction – Hill reaction, photophosphorylation (cyclic, non-cyclic	Metabolism, physiological effects and mode of action of cytokinins
6	Mechanism of enzyme action	carbon reactions (Calvin Cycle	Metabolism, physiological effects and mode of action of ethylene
7	Enzyme kinetics	, C4 – Pathway, CAM), , Factors affecting the process	Metabolism, physiological effects and mode of action of ABA
8	Factors affecting enzyme activity	, Photorespiration – Organelles involved, mechanisms and significance.	Applications of plant hormones in agriculture and horticulture
9	Inhibition of enzyme action	. Respiration- Introduction,	A brief account of plant movements and its types
10	Allosteric enzymes	mechanism of aerobic respiration – glycolysis	Introduction to photobiology, dormancy, photoperiodism
11	Sources of Nitrogen. Nitrogen fixation	, TCA cycle, ETS and oxidative phosphorylation	Phytochrome and its role,

WEEK	APRIL-MAY	MAY-JUNE	JUNE -JULY
12	Symbiotic nitrogen fixation. Nif genes	, mechanism of anaerobic respiration(alcoholic fermentation and lactic acid fermentation	Florigen concept and vernalisation
13	Synthesis of amino acids,nitrogen cycle	Defence mechanisms in plants	