

Government College Chhachhrauli

Summary of Lesson Plan

Name: Dr. Komal Academic Session: 2025-26.

Class: BSc (I.s, ph.sci., BBA, B.com) Semester: Ist

Subject & Code: B-23 VAC 201

Sr.No .	Unit	Topics/Chapters to be covered	Duration	Assignments and Tests
1.	I	Introduction to environmental studies Multidisciplinary nature of environmental studies	22.07.2025 – 05.08.2025	
2.	I	Scope and importance; Concept of sustainability and sustainable development. Ecosystems: Definition, structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs	06.08.2025 – 20.08.2025	Class-test
3.	II	Major ecosystems types: Forest ecosystem, Grassland ecosystem, Desert ecosystem and Aquatic ecosystem (lakes, rivers, oceans) Natural resources: Renewable and Non-renewable Resources Land resources: Land degradation and soil erosion.	21.08.2025 – 04.09.2025	
4.	II	Forest resources: Importance of forests, deforestation: causes and impacts on environment. Water resources: Use and over-exploitation of surface and ground water Energy resources: Renewable and non-renewable energy sources. Biodiversity and Conservation: Definition and its types, Endangered and endemic species of India.	06.09.2025 – 20.09.2025	Class- test
5.	III	Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational values Environmental pollution Environmental pollution: types, causes, effects and controls; Air, water, soil	22.09.2025 – 06.10.2025	Mid-term examination

		and noise pollution.		
6.	III	Solid waste management: Sources, methods of disposal: Landfill, incineration and composting. Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environmental Policies & Practices Environmental laws: Environment (Protection) Act, 1986, Air (Prevention & Control of Pollution) Act, 1981, Water (Prevention and control of Pollution) Act, 1974.	08.10.2025 – 18.10.2025	Assignment-1
7.	IV	Environmental Policies & Practices Environmental laws: Environment (Protection) Act, 1986, Air (Prevention & Control of Pollution) Act, 1981, Water (Prevention and control of Pollution) Act, 1974. Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected person. Disaster management: floods, earthquake, cyclones, landslides and drought	27.10.2025 – 10.11.2025	
8.	IV	Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.	11.11.2025- 24.11.2025	Revision

Note:-

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Government College Chhachhrauli

Summary of Lesson Plan

Name: Dr. Komal

Academic Session: 2025-26.

Sr. No.	Unit	Topics/Chapters to be covered	Duration	Assignments and Tests
1.	I	Food Plants: Introduction to Cereals and Millets; Origin, distribution, botanical description, brief idea of cultivation and uses of Rice, Wheat and Maize. Protein Crops (Pulses); Origin, distribution, botanical description, brief idea of cultivation and uses of Gram, Arhar, Peas.	22.07.2025 – 05.08.2025	Class-test
2.	I	Introduction to Vegetables; Origin, distribution, botanical description, brief idea of cultivation and uses of Potato, Tomato, Onion. Fibers: Introduction to natural fibers; Origin, distribution, botanical description, brief idea of cultivation, processing and uses of Cotton, Jute and Flax	06.08.2025 – 20.08.2025	
3.	II	Plant Tissue Culture: Concept, History, Scope and Applications; Totipotency, Organogenesis, Cryopreservation Types of culture: Seed, Embryo, callus, suspension, organs, Cell and protoplast culture Oil Yielding Crops: Origin, distribution, botanical description, brief idea of cultivation and uses of Groundnut, Mustard and Coconut	21.08.2025 – 04.09.2025	Assignment-1
4.	II	Spices and Condiments: Introduction to spices and condiments; Morphology of plant part used, brief idea of cultivation and uses of Coriander, Black Pepper, Ginger, Turmeric and Cloves. Micropropagation/clonal propagation (different routes of multiplication axillary bud proliferation, somatic embryogenesis, organogenesis), Synthetic seeds (a brief account) In vitro haploid production Androgenic methods: Anther culture, Microspore culture Androgenesis Significance and use of haploids Gynogenic haploids, factors effecting gynogenesis	06.09.2025 – 20.09.2025	
5.	III	Medicinal Plants: Brief idea of Cultivation, botanical features and medicinal importance of Cinchona, Rauwolfia, Atropa, Opium, Cannabis, Indian Gooseberry and Withania. Beverages: Botanical description and processing of Tea and Coffee. Somatic hybridisation, Cybrids, Somaclonal variations	22.09.2025 – 06.10.2025	
6.	III	Genetic Engineering in plants: Introduction and application Direct DNA transfer/Physical methods of gene transfer in plants - micro projectile bombardment, electroporation, liposome mediated, Calcium phosphate mediated etc	8.10.2025 – 18.10.2025	Mid-term examination
7.	IV	Rubber: Botanical description and processing of Hevea Sugar: Botanical description, cultivation and harvesting of Sugarcane; processing of Sugar. Timber: Note on important timber yielding plants. Restriction Endonucleases: Types and role; brief idea about cloning vectors- Ti plasmid, BAC, Lambda phage, cosmid, shuttle vector,	27.10.2025 – 10.11.2025	Class-test

		eukaryotic vectors (YAC)		
8.	IV	Plant transformation by <i>Agrobacterium tumefaciens</i> and <i>A. rhizogenes</i> . Strategies for gene transfer to plant cells. Binary and co-integrate vectors	11.11.2025-24.11.2025	Revision

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Government College Chhachhrauli

Summary of Lesson Plan

Name: Dr. Komal

Academic Session: 2025-26.

Class: BSc. lifesciences

Semester: 3rd semester

Subject & Code: Botany (301)

Sr. No.	Unit	Topics/Chapters to be covered	Duration	Assignments and Tests
1.	I	Plant water relations: absorption	22.07.2025 – 05.08.2025	
2.	I	water potential and transpiration; role of micro and macro nutrients. Photosynthesis, Respiration.	06.08.2025 – 20.08.2025	Class-test
3.	II	Biosynthesis, mechanism of action and uses of auxin, gibberellin, cytokinin abscisic acid, ethylene	21.08.2025 – 04.09.2025	
4.	II	Lipid metabolism and Nitrogen metabolism Structure, function and mechanisms of action of phytochromes	06.09.2025 – 20.09.2025	Assignment-1

5.	III	Stomatal movement photoperiodism and biological clocks; mechanism of flowering	22.09.2025 – 06.10.2025	Midterm exam
6.	III	Concepts of plant growth; factors affecting germination and dormancy of seeds	08.10.2025 – 18.10.2025	
7.	IV	physiological and biochemical changes associated with senescence and abscission	27.10.2025 – 10.11.2025	Class-test
8.	IV	Revision	11.11.2025- 24.11.2025	Revision

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Government College Chhachhrauli

Summary of Lesson Plan

Name: DR. KOMAL

Academic Session: 2025-26.

Class: B.Sc. Botany

Semester: Ist semester

Subject & Code: Botany

(BOT-101)

Sr. No.	Unit	Topics/Chapters to be covered	Duration	Assignments and Tests
1.	I	Bacteria , general account of cyanobacteria, General characters of algae, classification and economic importance	22.07.2025 – 05.08.2025	
2.	I	Important features and economic importance of Volvox, Vaucharia ,Ectocarpus, polysiphonia General characters of viruses including structure of TMV and bacteriophage Fungi: General characters, Introductory classification; economic importance; and life-history of Phytophthora, (Mastigomycotina),	06.08.2025 – 20.08.2025	Class-test
3.	II	Penicillium (Ascomycotina), Puccinia (Basidiomycotina) Colletotrichum (Deuteromycotina), General account of Lichens, types, ecological and economicImportance Bryophyta:	21.08.2025 – 04.09.2025	

4.	II	Bryophytes: General characteristics, classification upto classes (Smith, 1935), alternation of generations, structure and reproduction (excluding development) of Marchantia (Hepaticopsida)	06.09.2025 – 20.09.2025	Assignment-1
5.	III	Anthoceros (Anthocerotopsida), Funaria (Bryopsida), ecological and economic importance of bryophytes. Structure and reproduction (excluding development) of Selaginella (Lycopsida)	22.09.2025 – 06.10.2025	Mid-term exam
6.	III	Pteridophyta: General characters, classification upto classes (A.R. Smith, 2006), structure and reproduction (excluding development) of Rhynia (Psilopsida) Ecological and economic importance. Distribution and economic importance Equisetum (Sphenopsida) and Pteris (Pteropsida). heterospory and seed habit, stelar evolution General account of paleobotany and Geological time scale.	08.10.2025 – 18.10.2025	Class-test
7.	IV	Gymnosperms: General characteristics, classification up to classes (Smith 1955), morphology, anatomy and reproduction of Cycas, Pinus	27.10.2025 – 10.11.2025	
8.	IV	Ephedra (developmental details not to be included)	11.11.2025- 24.11.2025	Revision

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