

**PANIPAT INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
**PANIPAT**  
**DEPARTMENT OF APPLIED SCIENCES & HUMANITIES**  
**LESSON PLAN (Section-A,B,C,D,E)**

**Name: - Dr. Monu Kalra**

**Branch/Semester: -Odd sem (2022-23).**

**Subject Name:- Biology**

**Subject Code:- BS-141A**

<b>Sr. No.</b>	<b>Lecture No.</b>	<b>Description of Topic</b>	<b>Target outcome</b>
1	L1	<b>Unit:1</b> Concept and definition of Biology,	CO1
2	L2	Importance of Biology in major discoveries of life, characteristic of living organisms,	CO1
3	L3	prokaryotic cell	CO1
4	L4	Eukaryotic cell; organelles-ER, golgi, lysosome, nucleus, mitochondria, chloroplast	CO1
5	L5	Difference between prokaryotic and eukaryotic cell	CO1
6	L6	difference between animal and plant cell	CO1
7	L7	Classification of organisms: unicellular and multicellular; on the basis of nitrogenous waste (ammonotelic, ureotelic, uricotelic); aquatic and terrestrial	CO2
8	L8	Nutritional classification of organisms: autotrophs, heterotrophs and lithotrophs	CO2
9	L9	Molecular taxonomy: three major domains of life and their differences	CO2
10	L10	Archaeobacteria, bacteria and eukarya	CO2
11	L11	<b>Unit-2:</b> Definition, classification and functions of proteins	CO3

12	L12	Definition, classification and functions of nucleic acids	CO3
13	L13	Definition, classification and functions of lipids	CO3
14	L14	Definition, classification and functions of carbohydrates	CO3
15	L15	General characteristics, nomenclature and classification of enzymes,	CO3
16	L16	effect of temperature, pH and substrate concentration on the activity of enzymes	CO3
17	L17	Coenzymes and mechanism of enzyme action,	CO3
18	L18	Enzyme kinetics and kinetic parameters ( $K_m$ and $V_{max}$ )	CO3
19	L19	<b>unit:3</b> -Genetics: Mendel's laws of inheritance, variation and speciation, concept of recessiveness and dominance	CO4
20	L20	Genetic disorders, single gene disorders in humans	CO4
21	L21	genetics of blood group, Diabetes type-I and II	CO4
22	L22	Cell division: mitosis and its significance	CO4
23	L23	Meiosis and its significance	CO4
24	L24	Evidence of nucleic acid as genetic material, central dogma of Molecular Biology	CO4
25	L25	Role of immune system in health and disease:	CO4
26	L26	brief introduction to morphology, economic importance of bacteria	CO4

27	L27	brief introduction to morphology, economic importance of fungi	CO4
28	L28	pathogenicity of bacteria	CO4
29	L29	pathogenicity of fungi	CO4
30	L30	brief introduction to morphology, economic importance and pathogenicity of virus	CO4
31	L31	brief introduction to morphology, economic importance and pathogenicity of protozoa	CO4
32	L32	<b>unit-4:</b> Concept of exothermic and endothermic reactions, concept of standard free energy and spontaneity in biological reactions. Catabolism of glucose (glycolysis)	CO5
33	L33	krebs cycle	CO5
34	L34	Photosynthesis (light and dark reaction); ATP as energy currency of the cell	CO5
35	L35	Concept of species and strains, sterilization and media composition	CO5
36	L36	Role of Biology in agriculture	CO6
37	L37	Role of Biology in bioinformatics	CO6
38	L38	biosensors	CO6
39	L39	Role of Biology in medicine	CO6
40	L40	Role of Biology in Nano-biotechnology	CO6
41	L41	Bio-MEMS	CO6
42	L42	Role of Biology in forensic science	CO6

43	L43	Growth kinetics	CO6
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