LESSON PLAN
BASIC B.Sc. NUSING
II SEMESTER

Subject code: 2
Subject: Biochemistry
Faculty: External Faculty

UNIT	Topic	No. of lecture	Lecture serial no.
I **Introduction**	• Definition and significance in nursing. • Review of structure, Composition and functions of cell. • Prokaryote and Eukaryote cell organization Microscopy	1 1 1	1 2 3
II **Structure and functions of Cell membrane**	• Fluid mosaic model tight junction, Cytoskeleton • Transport mechanism: diffusion, osmosis, filtration, active channel, sodium pump. • Acid base balance-maintenance & diagnostic tests.PH buffers	2 2 2	4-5 6-7 8-9
III **Composition and metabolism of carbohydrates**	• Types, structures, composition and uses. o Monosaccharides , Disaccharides, Polysaccharides, Oligosaccharides • Metabolism o Pathways of glucose : - Clycolysis - Gluconeogenesis : Cori's cycle, Tricarboxylic acid (TCA) cycle - Glycogenolosys - Pentose phosphate pathways (Hexose mono phosphate) o Regulation of blood glucose level Investigations and their interpretations.	3 3	10-12 13-15

IV **Composition and metabolism of Lipids**	• Types, structure, composition and uses of fatty acids o Nomenclature, Roles and Prostaglandins • Metabolism of fatty acid o Breakdown o Synthesis • Metabolism of triacylglycerols • Cholesterol metabolism o Biosynthesis and its Regulation - Bile salts and bilirubin - Vitamin D - Steroid hormones,Lipoproteins and their functions : o VLDLs- IDLs, LDLs and HDLs o Transport of lipids o Atherosclerosis Investigations and their interpretations.	1 1 1 1	16 17 18 19
V **Composition and metabolism of Amino acids and Proteins**	• Types, structure, composition and uses of Amino acids and Proteins • Metabolism of Amino acids and Proteins o Protein synthesis, targeting and glycosylation o Chromatography o Electrophoresis o Sequencing • Metabolism of Nitrogen o Fixation and Assimilation o Urea Cycle o Hemes and chlorophylls • Enzymes and co-enzymes o Classification o Properties o Kinetics and inhibition o Control Investigations and their interpretations.	1 1 2 2	20 21 22-23 24-25

VI **Composition of Vitamins and minerals**	• Vitamins and minerals: ○ Structure ○ Classification ○ Properties ○ Absorption ○ Storage & transportation ○ Normal concentration Investigations and their interpretations	1 1	26 27
VII **Immunochemistry**	• Immune response, Structure and classification of immunoglobins • Mechanism of antibody production. Antigens: HLA typing. Free radical and Antoxidants. • Specialised Protein : Collagen, Elastin, Keratin, Myosin, Lens Protein. Electrophoretic and Quantitative determination of immunoglobins - ELISA etc. Investigation and their interpretations.	1 1 1	28 29 30

REFERENCES:

1) U. Satyanarayan, Essentials of biochemistry, Books & allied (P) Ltd., Kolkata publisher, 2004.

2. Deb A.C.: Concepts of biochemistry (Theory & Practical) 1st edition, books & allied (P) Ltd. Publisher, Kolkata, 1999.

3. Deb. A.C. Fundamentals of biochemistry of biochemistry: 1st edition New central book Ag (P) Ltd., 2004.

4. Jacob Anthikad, Biochemistry for nurses; 2nd edition, Jaypee; 2001.

5. Gupta. R.C., Multiple choice questions in Biochemistry, 2nd edition, Jaypee, 2004.