

**OBJECTIVES:** The students will be able to:

- Understand how the biomolecules are utilized in the body
- Gain knowledge about the various metabolic processes

**COURSE:**

**UNIT I: AMINO ACID METABOLISM** – General reactions of amino acid metabolism: transamination, oxidative deamination and decarboxylation. Urea cycle. Degradation and biosynthesis of aromatic & branched chain amino acids. Glycogenic and ketogenic amino acids. Inborn errors of amino acid metabolism.

**UNIT II: NUCLEOTIDE METABOLISM** – Sources of the atoms in the purine and pyrimidine molecules. Biosynthesis and degradation of purines and pyrimidines. Regulation of purine and pyrimidine synthesis. Inborn Errors of Nucleotide metabolism.

**UNIT III: PORPHYRIN METABOLISM** – Biosynthesis and degradation of porphyrins. Production of bile pigments. Inborn Errors of Porphyrin metabolism.

**UNIT IV: FAT SOLUBLE VITAMINS AND WATER SOLUBLE VITAMINS –**

**FAT SOLUBLE VITAMINS** – Structure, sources, biochemical role and deficiency disorders.

**Minerals:** Trace elements and their disorders.

**WATER SOLUBLE VITAMINS** – Structure, sources, biochemical role and deficiency disorders

**UNIT V: NUTRITIONAL BIOCHEMISTRY** Balanced diet, Calorific values of foods and their determination by bomb calorimeter. BMR and factors affecting its specific dynamic action (SDA) of foods. Energy requirements and recommended dietary allowance (RDA) for children, adults, pregnant and lactating women. Sources of complete and incomplete proteins. Biological value of proteins. Role of essential fatty acids in human nutrition. Malnutrition - Kwashiorkor, Marasmus and PEM

**REFERENCES :**

1. Rama Rao, A.V.S.S. (1989) Text Book of Biochemistry, L.K. & S Publishers, Visakhapatnam.
2. Comn, E.E. and Stump, P.K. (1989) Outline of Biochemistry. Wiley Eastern Ltd., New Delhi.
3. Kleiner, I.S. and Orten, J.M. (1979) Biochemistry. C.V. Mosby & Co., St. Louis.
4. Swaminathan, M (1981) Biochemistry For Medical Students, Geeta Book House Publishers, Mysore.
5. Kuchel, P.W. and Ralston, G.B. (1988) Theory And Problems Of Biochemistry, McGraw Hill Book Co., New York.

6. Goodhart, R.S., & Shils M.E. (1980) – Modern Nutrition in Health and Disease – K.M.Varghese & Co., New Delhi.
7. Davidson, S., and Passmore, R. (1977) – Human Nutrition and Dietetics – E & S., Livingstone Ltd., London.

\*\*\*\*\*

## PRACTICALS

1. Estimation of urea
2. Estimation of uric acid
3. Estimation of ascorbic acid
4. Estimation of iron
5. Isolation of DNA from onions
6. Qualitative test for identification of bilirubin uroporphyrins and heam
7. Estimation of calcium by titrimetry .
8. Isolation of casein lactose from milk.
9. Determination of acid value of an oil .
10. Extraction & estimation of lipid from oil seeds (ground nut)

### REFERENCES:

1. Plummer, D.T.(1979) An Introduction to Practical Biochemistry, Tata MC Graw Hill Book Co., Bombay.
2. Oser, B.L.(1961) Hawk's Physiological Chemistry, Tata MC Graw Hill Book Co. Bombay.