

COURSE CODE	COURSE TITLE	C	H	I	E	T
17U3ZMC3	BIOCHEMISTRY AND BIOCHEMICAL TECHNIQUES	4	4	25	75	100

OBJECTIVES

- ❖ To understand the importance of biochemical components.
- ❖ To explore and learn the biochemical techniques.

LEARNING OUTCOME

1. Acquire knowledge on biomolecules, bioenergetics, metabolism and biological techniques.
2. Provides applications in various fields like medicine and agriculture.

UNIT – I

Classification, structure and function of carbohydrates, protein and lipids. Vitamins – Water soluble and fat soluble vitamins, occurrence, functions and deficiency diseases.

UNIT– II

Enzymes – Classification, Properties, Chemical nature and mechanism of enzyme action, Factors affecting enzyme action, Enzyme inhibition.

UNIT – III

Metabolic pathways of Carbohydrates – Glycogenesis, Glyconeogenesis, Glycolysis, Kreb's cycle, Oxidative phosphorylation pentose and HMP shunt. Protein metabolism – Deamination, Transamination. Lipid metabolism – Beta oxidation of fatty acids.

UNIT – IV

Separation techniques – Types of Chromatography – Paper, Thin Layer, .Electrophoresis (PAGE). Principles and application of Centrifugation, Analytical techniques – pH meter, Spectrophotometer.

UNIT – V

Principles and applications of tracer techniques in biology, radioactive isotopes, Dosimetry

TEXT BOOKS

1. N.Gurumani - Research Methodology for Biological Sciences (2008) MJP Publishers, Chennai.
2. Ambika Shanmugam – Fundamentals of Biochemistry (2004) Ambika Shanmugam Publishers, Chennai.
3. Sathyanarayanan – Essentials of Biochemistry (2002), Arunabha Sen Publishers, Kolkota.

REFERENCE BOOKS

1. Jayaraman, J. – Lab manuals in Biochemistry, New age International (p) Ltd, Mumbai.
2. Plummer – An introduction to practical biochemistry, Tata Mc Graw Hill. Bombay.
3. Instrumental methods of Chemical analysis B.K. God Publishing House, Meerut.
4. Slater – Radiomoliques in Biology. IRL Press Oxford.
5. David – Handbook of Histological and Histochemical techniques – CBSPublishers.
6. Barron Chapman and Hail London – Using the Microscopes
7. W. H. Freeman & Co – Lodish *et al* (1999) Molecular Cell Biology, New York.
8. Berg, J.M., Tymoczko, J.L. and Stryer, L. (2007). *Biochemistry*, VI Edition, W.H. Freeman and Co., New York.
9. Murray, R.K., Bender, D.A., Botham, K.M., Kennelly, P.J., Rodwell, V.W. and
10. Well, P.A. (2009). Harper's Illustrated Biochemistry, XXVIII Edition, International Edition, The McGraw- Hill Companies Inc.