

**ELECTIVE COURSE II (EC) - MOLECULAR BIOLOGY**

**UNIT 1:**

Nucleic acid : Structure of DNA and RNA, Types and forms-DNA, t-RNA, r-RNA, m-RNA –definition and functions .

**UNIT 2:**

Vectors-plasmids, phages and cosmids Ti-plasmid, PBR 322, PSC101, PUC. Structure and assay methods.

**UNIT 3:**

Enzymes-Nucleases, ligases, polymerases, DNA modifying enzymes, Topoisomerases - their uses and applications.

**UNIT 4:**

Gene and its manipulation techniques- definition of a gene, gene structure, cloning techniques, genomic library, c-DNA expression systems. Gene rearrangement by RNA &DNA splicing.

**UNIT 5:**

Nucleic acid and protein hybridization techniques- Southern, Northern & Western methods of hybridization DNA amplification techniques- PCR, DNA finger -printing and its applications.

**Text Books:**

1. Watson JD, Hopkins NH, Roberts JW, Steitz]A, weiner AM.1987.Molecular biology of the Gene.
2. Lewin B.1994. Gene VIII oxford university press.
3. Freifelder D.1991. Molecular biology. Narosa publishing House.
4. R.S.Old and S.B. Primrose 1989. Pricniples of Gene manipulation, 4<sup>th</sup> Ed, Black well scientific publications London.
5. Maloy SR, Cronan Jr.Je, Freifelder D.1994. Microbial Genetics. Jones and Bartlett publishers.
6. Eckstein F, Lilley DM. 1992 Nucleic acids and Molecular biology. Springer-verlag.
7. Stryer L.1995. Biochemistry W.H.Freeman and Company.
8. Friedberg EC, Walker GC, siede W. 1995. DNA repair and mutagenesis.ASM press.
9. Gardder EJ. Simmons MJ.Snustad DP.1991. principles of Genetics .John Wiley & Sons.
10. Singer M.Berg P. 1991 Genes and Genomes University science Books.