

**Title: Molecular Diagnostics [3-0-0-3]****Content :**

DNA, RNA, Proteins: an overview, chromosomal structure & mutations, DNA polymorphisms; Concepts of molecular diagnostics: specificity and sensitivity, ROC; DNA diagnostics: PCR, Real-time PCR and variations, nucleic acid sequencing: new generations of automated sequencers; CRISPR technology and its use in diagnostics; Protein diagnostics: antigen-antibody reactions, ELISA, variations of ELISA; Metabolite diagnostics: detection of glucose and lipids; Detection of genetic aberrations in clinical samples from cancer patients; Point of care devices.

**Texts / References:**

1. Campbell, A. M., & Heyer, L. J. (2006). *Discovering Genomics, Proteomics, and Bioinformatics*. San Francisco: Benjamin Cummings.
2. Brooker, R. J. (2009). *Genetics: Analysis & Principles*. New York, NY: McGraw-Hill. 20
3. Glick, B. R., Pasternak, J. J., & Patten, C. L. (2010). *Molecular Biotechnology: Principles and Applications of Recombinant DNA*. Washington, DC: ASM Press.
4. Coleman, W. B., & Tsongalis, G. J. (2010). *Molecular Diagnostics: for the Clinical Laboratorian*. Totowa, NJ: Humana Press