

**SARDAR PATEL UNIVERSITY**  
**Programme: BSC (GENETICS)**  
**Semester: VI**  
**Syllabus with effect from: November 2013**

<b>Paper Code:</b> US06CGEN06	<b>Total Credit: 3</b>
<b>Title Of Paper:</b> Biomedical Genetics	

Unit	Description in detail	Weighting (%)
<b>1</b>	<b>CANCER GENETICS</b> Cancer: Common types of cancer, Multi-step development of cancer, Categories of genes controlling cell proliferation, Concept of proto-oncogene and conversion to oncogene, Cancer therapies.	
<b>2</b>	<b>CLONING OF DISEASE CAUSING GENES</b> Functional cloning: Examples of functional cloning & chromosomal anomalies, Positional cloning - Recruitment of affected families, genetic mapping and primary localization, Physical mapping, Identification of disease causing genes, first success, Future of cloning disease causing genes.	
<b>3</b>	<b>DETECTION OF MUTATION IN DISEASE GENES</b> General strategies for detection of mutant genes, Mismatch detection by heteroduplex analysis, Detection of mitochondrial mutations. Chemical cleavage method, Multiplexes PCR-detection of deletions.	
<b>4</b>	<b>MANAGEMENT OF GENETIC DISEASE</b> Replacement of proteins, vitamins as coenzymes and gene products, substrate restriction diet-preventive therapy, Stem cells and their role in genetic disease, Recombinant protein In vivo and in-vitro gene therapy, somatic cell and germ line gene therapy, Use of nanoparticles in drug delivery for disease treatment, Genetic counselling	

**Basic Text & Reference Books:**

- Genomes - T.A. Brown. , Oxford: Wiley - Liss
- An Introduction to Genetic Analysis - Griffiths AJF, Miller JH, Suzuki DT, *et al.* 7th Ed, New York: W. H. Freeman & Co.
- Molecular cloning: A laboratory Manual -Sambrook, J. and Russell, D.W. Cold Spring Harbour Laboratory, Cold Spring Harbour, NY.
- DNA Technology- I Edward Alcamo, Academic Press.

