

## Cancer Biology

**Details of course:** -

1.	Essentials of Stem Cell Biology by R. Lanza et al. 2 <sup>nd</sup> ed. Elsevier Academic Press		
2.	Textbook of Molecular Medicine by J.L. Jameson. Blackwell Science Inc.		
3.	Molecular Medicine: Genomics to Personalized Healthcare by R.J. Trent. Academic Press		
4.	Molecular Medicine: An Introductory Text by R.J. Trent. Academic Press		
5.	Nuclear Medicine and PET/CT: Technology and Techniques by P.E. Christian and K.M. Waterstram-Rich. 7 <sup>th</sup> ed. Mosby		
6.	Essentials of Nuclear Medicine Imaging by F.A. Mettler Jr. and M.J. Guiberteau. 6 <sup>th</sup> ed. Saunders		

Course Title	Course Structure			Pre-Requisite
	L	T	P	
Cancer Biology(BT321)	3	1	0	NIL

### Course Objectives:

To give an understanding of the principles of cancer biology by studying the molecular and cellular basis of cancer

### Course Outcomes:

1. To compare and contrast prokaryotic and eukaryotic cellular architecture and understand the mechanisms behind cell motility, shape, and strength.
2. To explain the underlying mechanism of cell cycle, cell division and programmed cell death.
3. To comprehend cell communication mechanisms.
4. To understand the process of protein targeting to various organelles.
5. To get insight into the causes of cancer and to devise strategies for specifically targeting cancer cells.

S.No	Content	Contact hours
1	<b>Introduction to cancer:</b> Nature of Cancer, Tumor Viruses, Discovery of oncogenes, Mutagens, Carcinogens, and Mutations.	8
2	<b>Avoiding Genomic Instability: DNA Replication, the Cell Cycle, and Cancer</b> The process of DNA replication, Mechanisms of oncogene activation , Role of growth factors and receptors in carcinogenesis	8
3	<b>p53 &amp; Apoptosis: Master Guardian and Executioner</b> Cell cycle control and the pRb tumor suppressor, Apoptosis and the p53 tumor suppressor	8
4	<b>Cell Immortalization, Tumorigenesis, &amp; Cancer Development</b> Cellular senescence, Telomeres, cellular immortalization, and tumorigenesis, Tumor-promoting stimuli, Cancer stem cells, DNA repair defects and their	9