

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

BIOTECHNOLOGY

Subject Name: **NANO-BIOTECHNOLOGY**

Sr. No.	Course Contents	Total Hrs
1.	Definition, historical background, fundamental sciences and broad areas of nano biotechnology.	3
2.	Concept, construction and applications of nano tubes, nanopores and protein-polymer nano-machines	5
3.	Cell as a Nano bio machines, link between the signalling pathways and molecular movements as well as neuron function	6
4.	Concepts in nano bio machines for information processing and communications	3
5.	How to Build an Engineered computational Nano bio system	4
6.	Various applications of nano biotechnology	2
7.	Sensors and Biomedical Applications, risks of nano-particles in biology and medicine	4
8.	Summary of Emerging Nano biotechnology in multiple disciplines	2
9.	Biomaterials- types, properties and applications	3

TEXT BOOK:

Nanotechnology: A Gentle Introduction to Next Big Idea, Mark Ratner and Daniel Ratner, Low Price edition, Third Impression, Pearson Education

References:

1. Nanotechnology, William Illsey Atkinson, JAICO Publishing House, Second Impression-2008.
2. Bio molecular computation for Bio nanotechnology, Liu and Shimohara, Artech House-London, 2007
3. Nano biotechnology: Concepts, Applications and Perspectives, Christof M. Niemeyer (Editor), Chad A. Mirkin (Editor) , wiley Publishers, April 2004.