

Course No: NTE17004OE

**Course Title: Introduction to Nano biotechnology:
Concepts and Applications in Medicine.**

Credits: Two (2); L-2, T-0, P-0

Course Instructor: Dr. Tariq Maqbool

Maximum Marks	50
Theory	
IA (Internal Assessment)	SEE (Semester End Examination)
10	40

Description: Nano biotechnology is a new frontier for biology with important applications in healthcare and medicine. It bridges areas in physics, chemistry, and biology and is a testament to the new areas of interdisciplinary science that are becoming dominant in the twenty-first century. This course will provide perspective for students who are interested in science and technology at nanoscale, biological systems and their application in medicine.

Unit I: Introduction to Nano-Sciences and Technology

Concepts and processes in Nanotechnology.

Properties of matter at Nanoscale.

Examples of Nanostructures in nature.

Commercial Nanomaterials.

Unit II: Application of Nanotechnology in Healthcare and Medicine

Biological systems at nanoscale. Medical Innovation. Nanomedicine; Convergence of Nanoscience and systems biology.

Applications of Nanotechnology in Healthcare and Medicine: Role of biosensors in diagnostics and Drug discovery. Targeted therapeutics and molecular imaging. Novel therapeutics and Drug delivery systems. Safety and Toxicological issues.

Reference:

1. [Nanobiotechnology: Concepts, Applications and Perspectives](#) by Christof M. Niemeyer and Chad A. Mirkin
2. Targeted Drug Delivery Concepts by Padma V. Devarajan Sanyopg Jain
3. Nanobiotechnology and Nanobiosciences by Claidio Nicolini.