University of Management & Technology
School of Science
Department of Life Sciences

BT-421 Nanobiotechnology

Lecture Schedule	Wednesday-Saturday 8:00-9:15	**Semester**	Spring 2021
Pre-requisite	F.Sc. /A-level Chemistry	**Credit Hours**	3
Instructor(s)	Ms Mehreen Fatima	**Contact Moodle link**	Mehreen.fatima@umt.edu.pk
Office	onlone	**Office Hours**	
Objectives	This course introduces the study of the properties, effects, and therapeutic value of the nanoparticles and nanocomposites and their use in the field of biotechnology and medicine.		
Expected Outcomes	After successful completion of this course, a student will be able: •		
Text book & Reference book(s)	NANOBIOTECHNOLOGY BioInspired Devices and Materials of the Future		
Grading Policy	Assignments + Quizzes: Midterm: Final:		

Course outline:

- Introduction; interface between nanotechnology and bio-nanotechnology;
- manipulating molecules;
- carbon fullerenes and nanotubes;
- non-carbon nanotubes and fullerene-like materials;
- quantum dots; nanowires, nanorods and other nanomaterial's;
- magnetic nanoparticles; natural biological assembly at the nanoscale and nanometric biological assemblies (complexes);
- nanobionics and bio-inspired nanotechnology;
- applications of biological assemblies in nanotechnology; medical, cosmetics, agriculture, water and other applications of nano-biotechnology;
- future prospects of nano-biotechnology; use of nanotechnology for diagnosing and curing disease.