

TKM COLLEGE OF ARTS & SCIENCE, KOLLAM

DEPARTMENT OF BIOCHEMISTRY

NANOSCIENCE AND NANOTECHNOLOGY

SYLLABUS

Total Hours : 30

UNIT I

Introduction to Nano: Nanoparticles: Types based on dimension, surface area-volume ratio, properties. Top down and bottom up approach. Nanoscience and Nanotechnology (Definition).

Unit II

Nanobiomimicry : Biomimicry, use of biomimicry in nanoscience with suitable examples.

Unit III

Synthesis of Nanomaterials : Physical (Mechanical milling, laser ablation), chemical (Reduction method) and biological approaches (using bacteria, yeast and plants).

Module IV : Characterization of Nanomaterials : IR,UV-visible spectrophotometry, XRD,FTIR etc

Module V : Biomedical applications of nanotechnology

Nanotechnology in disease diagnosis, targeted drug delivery, bio imaging, tissue engineering etc