

Title- Nano Technology

Course Coordinator- Dr. Sanjeev Kumar and Dr. Omveer Singh

No. of Students- 42

Syllabus

Unit-1

5 hours

Introduction of Nanotechnology (Basic idea of Nano world)

Overview of Nano Structure and Nano Material

Crystalline Nano material and defect, Hybrid Nano materials

Nano Structure- Carbon nanotube, Quantum dot, Nanowire, Nano belt,

Nano flower, Quantum confinement effect and Effective mass model

Unit-2`

8 hours

Synthesis of Nano Material

Sol-Gel method and Hydrothermal Method

Synthesis of thin film and Spin coating technique

Overview of Properties of Nano material : How the performance of Nano material come about ; crystalline size, lattice parameters etc.

Unit-3`

10 hours

Overview of X-Ray Diffraction (Structural property) Visit to IUAC

UV visible Spectroscopy (Optical property) (Band gap, Absorption)

SEM (Scanning electronic microscopy) (Surface morphology)- Super hydrophobic surface TEM (Transmission electronic microscopy) particle size

Unit-4`

7 hours

Application – Overview of application of Nano Structure and Nano materials like Solar cell, Photovoltaic cell, Drug delivery

Future Scope of Nanotechnology in industries